

Surrey & SW London Branch of Butterfly Conservation

Butterfly and Moth Report 2018



Contents:

Weather report, Regional Conservation Strategy, Butterfly report, Moth report, Transect report and Wilder Countryside Butterfly Survey, Small Blue project, Oaken Wood Reserve, Silver-spotted Skipper, Hairstreaks, SW London's butterflies.



**Butterfly
Conservation**

Saving butterflies, moths and our environment

Surrey & SW London Branch of Butterfly Conservation - Butterfly and Moth Report 2018

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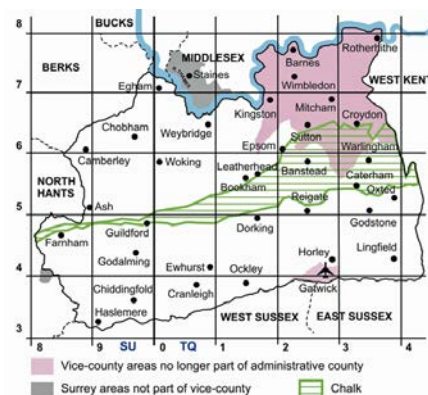
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Area covered by the Surrey & SW London Branch

The Branch area covers Vice-County 17, the borders of Surrey as they were in 1852 when the vice-counties were introduced for biological recording. Broadly, VC17 comprises the modern county of Surrey plus:

- Inner London boroughs - Wandsworth, Lambeth and Southwark
- Outer London Boroughs - Kingston, Merton, Richmond, Sutton and Croydon
- The area around Gatwick Airport

Spelthorne District (north of the Thames) is in Surrey, but is outside VC17.



Definitions

- *Occupancy* - a statistical measure of the distribution of a species, using the probability of detecting the species within a given monad (1km x 1km square). Records from all sources are used.
- *Abundance* - a statistical measure that enables a population size to be compared year-by-year, using UK Butterfly Monitoring Scheme transect data where a site has been monitored for at least four years.
- *Total number of butterflies* - the number of individual butterflies recorded, from all sources.
- *Total number of records* - the number of records, each of which may be of one butterfly or many.

About Butterfly Conservation

Butterfly Conservation is the UK charity dedicated to saving butterflies and moths, which are key indicators of the health of our environment. We improve landscapes for butterflies and moths, creating a better environment for us all. Join at www.butterfly-conservation.org.

The Surrey & SW London Branch of Butterfly Conservation monitors butterflies and moths and carries out practical conservation work to improve habitats. Join us on one of our field trips to the best wildlife sites in the area. See www.butterfly-conservation.org/surrey or email surreybranch@gmail.com.

Butterfly Conservation is a company limited by guarantee, registered in England (2206468).

Registered Office: Manor Yard, East Lulworth, Wareham, Dorset, BH20 5QP.

Charity registered in England & Wales (254937) and in Scotland (SCO39268).

Cover photo: Jersey Tiger, © Bob Eade. This moth used to be scarce and a suspected immigrant. Since being found in Forest Hill (London) in 2004, it has become common across most of SW London.

Introduction

Simon Saville, Branch Chair

2018 was an odd year, weather-wise. The winter was mild, then we had a very cold spring, followed by a hot and dry summer. As a result, the season started late. Those species on the wing in May - July fared well, but later species suffered.

Transect data showed that Brown Argus and Speckled Wood thrived, recording their third best year on record. Common white butterflies also experienced a good year after a recent run of below-average seasons with Large White abundance up 118%, Small White up by 155% and Green-veined White up by 63%, again due to warm and sunny weather from April to July.

The hot spring and summer was not ideal for all species. Some grassland butterflies struggled, not helped by drought conditions drying out caterpillar food plants and reducing nectar flow.

Gatekeeper numbers dropped by 20% from 2017 levels and the Small Skipper and Essex Skipper were down by 24% and 32%. It was also a poor year for some garden favourites in Surrey. The Small Tortoiseshell slumped by 38% and the Peacock was down 25%, while the migratory Red Admiral crashed by 75% after a good 2017.

Volunteers continued habitat management at the Oaken Wood Reserve (for the Wood White) and along the North Downs as part of the Small

Blue project. You can read about these activities later in this Report.

We continued to increase our focus on London, in preparation for the Big City Butterflies project, which started in Feb 2019. I have included a short item on London's butterflies in this Report, showing that the capital is surprisingly good for wildlife, even in central areas.

Once again, I would like to put on record my thanks to the large number of people who have contributed to monitoring and conservation work over the past year.

Thanks are also due to the many landowners and partner organisations that have been so helpful - especially the National Trust, Surrey Wildlife Trust and London Wildlife Trust. Without all this effort and support, this Report would not be possible.

Finally, my thanks to all those who co-authored this Report, which is an important record of the work done in 2018. This Report is available on our website www.butterfly-conservation.org/surrey. As last year, hard copies have been made available to volunteers, transect recorders and key partners.

If you have any comments, please send them to surreybranch@gmail.com.

Weather report 2018

Harry Clarke

The diagrams below show the climate data at Heathrow Airport as provided by the Met Office. Heathrow Airport data is used, as the data is readily available from the Met Office website, and it is the closest weather station to Surrey.

The plots show for each month:

- Mean daily maximum temperature
- Mean daily minimum temperature
- Air Frosts (number of days)
- Total rainfall (rain)
- Total sunshine duration (sun)

The average figures for each month (solid lines) are calculated for the years 1981 to 2010, which is a standard used by the Met Office. The 2018 values shown as dashed lines.

The winter of 2017/18 started off with a wet December and January with temperatures slightly above normal. That was followed by a cold February, with air frosts noticeable.

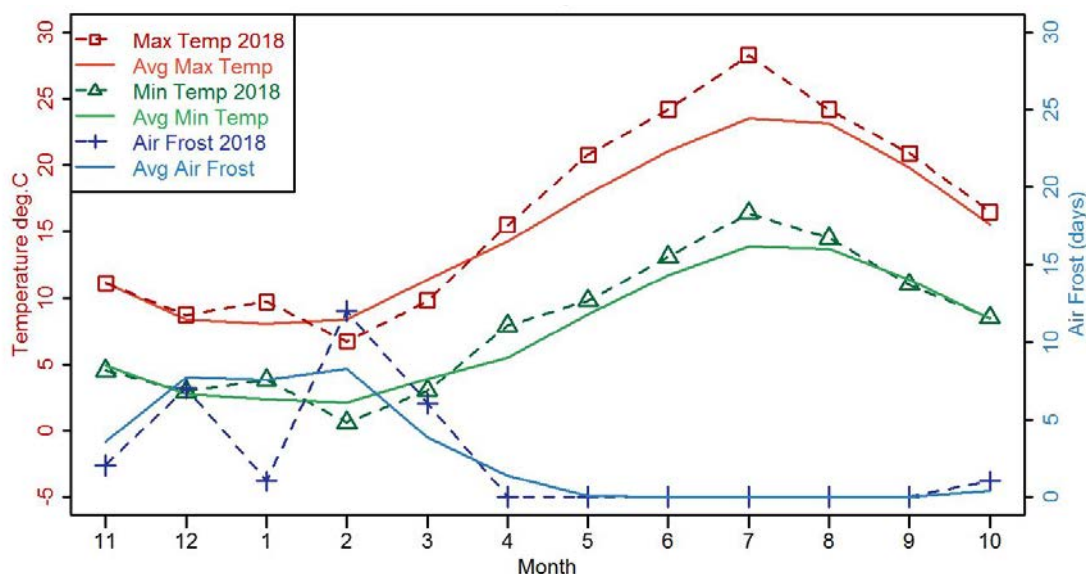
Overall the mean winter temperature was as average, and slightly wetter in the London area. The "Beast from the East" provided very cold weather in late Feb - early March.

Spring started off in March being cold and wet. Temperatures did not rise above the average until mid-April, resulting in a later Spring than we have become accustomed to. Temperatures continued rising in May which had above average sunshine.

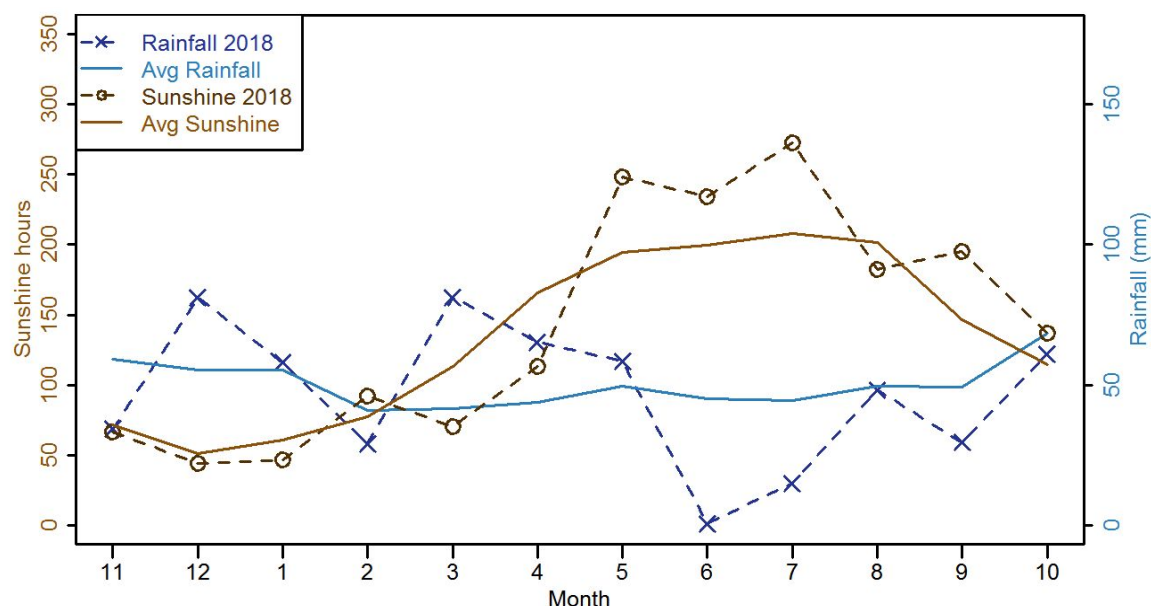
This caused stress to many plants, most noticeable on the heathlands with brown patches from the Ling *Calluna vulgaris* dying off, while the drought resistant Bell Heather *Erica cinerea* remained in flower.

The Summer of 2018 will be remembered for the long hot dry spell, with many areas experiencing no rain for three months, with rain only returning to Surrey in August.

Autumn saw temperatures return to normal, with September being drier and sunnier than normal and typical weather during October.



Heathrow Airport temperature and air frosts - 2018



Heathrow Airport rainfall and sunshine - 2018

Conservation strategy update

Steve Wheatley, Regional Conservation Manager

We are three years into the delivery of our new 10 year Action Plan for SE England and I'm pleased to report that work is underway for nearly all of our highest priority butterflies and moths.

Wood White

We've been working closely with the Forestry Commission ensure the maintenance and enhancement of Wood White habitat around the Chiddingfold complex. In addition to boosting the Wood White population, this will help other high priorities, like the **Drab Looper** moth.

To complement this, volunteers at Oaken Wood are working hard to enhance the habitat there (see page 28), and this is also helping one of our other Regional priorities, the **Betony Case-bearer** moth (found nowhere else in the UK).

Butterfly Conservation has just been awarded a grant from the National Lottery Heritage Fund to launch a project for an extensive programme to extend and enhance habitats even further. This project will begin in 2019.

Silver-studded Blue and Grayling

Harry Clarke has been busy assessing heathland habitats and speaking with heathland managers about potential work. Silver-studded Blue champions in neighbouring Berkshire and Hampshire have also been busy, doing similar work that will link up with the Surrey populations. We've also been liaising with the MoD who own and manage some of the most extensive areas of our heathland habitat in the South East.

Adonis Blue

About 50% of the UK's Adonis Blues occur in the South East. The Surrey Stepping Stones project (targetting primarily the Small Blue) has delivered some important habitat management that also benefits the Adonis Blue at sites like Denbies Hillside. This is a butterfly that needs more help on the North Downs over the coming years.

Heart Moth

Searches in 2018 confirmed that Surrey is the national hot-spot for this lovely Red Data Book

moth. (This work also recorded another Surrey priority – the Common Fan-foot, which despite its name, is now incredibly rare).

We identified new target areas and are continuing the survey work this summer, working closely with the National Trust, Crown Estate and other partners.

Silvery Arches (moth)

Searches are being undertaken this season to look for the caterpillar. If successful we will be able to roll out a survey programme to land-managers and our conservation partners to search. This will give us a much better understanding of this rare moth's distribution and will inspire land-managers to protect more of the habitat.

Agonopterix capreolella - Paul Wheeler has been investigating this micro-moth that feeds on Burnet saxifrage at Pewley Down.

Straw Belle is being monitored by Gail Jeffcoate and others at Box Hill. It would be great to encourage this moth back onto other surrounding sites.

The two high priority species for which we have not yet made significant progress since launching this Conservation Strategy are ***Phyllonorycter scabiosella***, a micro-moth that feeds on Small Scabious, and the **Shoulder-striped Clover** which might be found on some of the large closed MoD sites in Surrey.

In addition to all of the action and progress listed above, Surrey & SW London is now one of the most well-monitored areas in the UK, with 120 transects contributing to the UK Butterfly Monitoring Scheme (UKBMS). Well done to Transect Coordinator Bill Downey and all the transect walkers who dedicate their time to this important element of conservation. This data provides an unparalleled picture of progress and change against which we can monitor the success of the Conservation Strategy.

Butterfly report

Harry Clarke, County Butterfly Recorder

Thank you to everyone who submitted butterfly records during 2018. This report is based on records received and verified by 31 January 2019.

Priorities for conservation in VC17 were determined on the state of butterflies known in 2015, and are reported in the Regional Conservation Strategy (page 5). Priority butterflies are highlighted in **red**, with a double asterisk** for the highest priority butterflies.

Occupancy is a statistical measure of distribution: the graphs show the percentage of monads (expressed as a number between 0 and 1.0) that the butterfly occupies within VC17.

The abundance index is calculated from the UK Butterfly Monitoring Scheme (UKBMS) transect data, with an index of 2 as the first year. Dotted lines show years where the index could not be calculated due to insufficient data. A level of caution needs to be taken with the results, as the transects are heavily biased towards a few chalk downland sites such as Box Hill and Denbies, which have six transects between them. On the other hand, there are very large areas which have no or very few transects. For example, Ash Ranges and Hankley Common cover large areas of heathland, but only have one transect between them, with only one year of records. This means that some butterflies aren't being adequately monitored for abundance, e.g. Grayling and Silver-studded Blue. This bias in sites can distort the picture of what is happening in the county as a whole.

The tan areas on the abundance and occupancy trends show the 95% confidence limits for the calculated value. Greater confidence in the results are obtained with small areas of shading, and greater uncertainty with large areas of shading. The mauve, green and red lines show the 30, 20 and 10 year trends respectively.

The phenology charts show how the peak flight period for each brood has changed by year. The red line shows how the butterfly has changed its peak flight period in response to climate change. The dashed blue lines shows the confidence limits

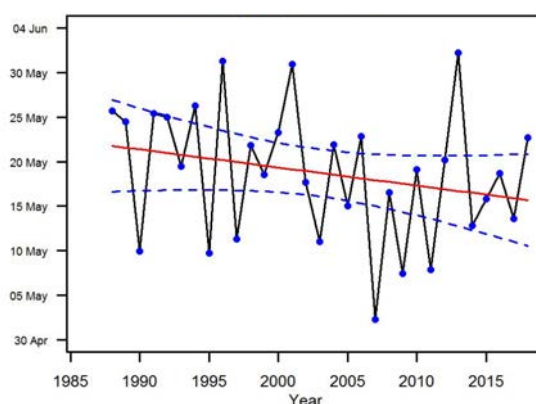
on that trend. The flight charts for the year show all records and the number of adults recorded. The green line shows a curve fitted to the data.

Papilionidae – The swallowtails

Continental Swallowtail was seen on 6 July and 1 September, which were possible migrants from the Continent.

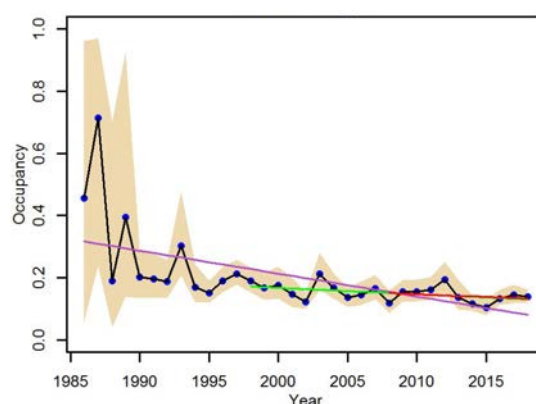
Hesperiidae – The skippers

Dingy Skipper was a bit later than we've come to expect, due to the cold start to the season, flying from 19 April to 1 July, with a possible second brood on 26 July.



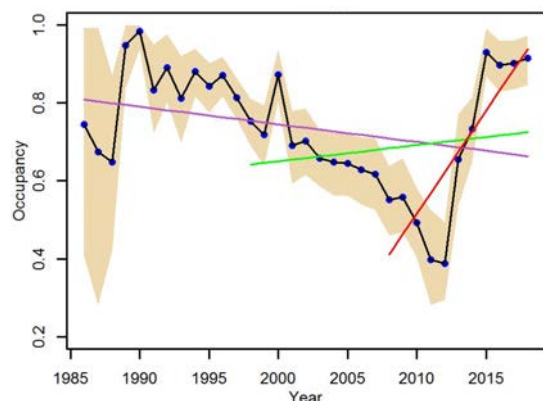
Dingy Skipper phenology chart - brood 1

Grizzled Skipper was single brooded in 2018, flying from 22 April to 21 June, with peak flight 19 May, slightly later than the trend due to the cold start to the season. Abundance was slightly up, although still below the baseline. Occupancy continues its worrying long-term decline to around 15% of VC17 monads.



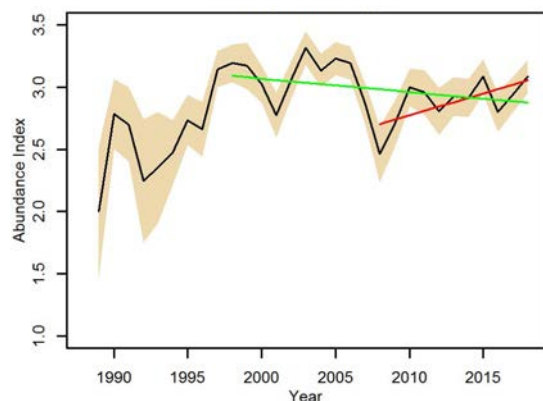
Grizzled Skipper occupancy chart

Essex Skipper started flying early (on 10 June, a new record) due to the hot summer, finishing on 4 August, with peak flight on 7 July. There is insufficient data to say much about abundance, as most records don't differentiate Essex Skipper from Small Skipper. The decline in occupancy from 1990 to 2012, and then its rapid recovery remains a mystery.



Essex Skipper occupancy chart

Small Skipper started flying from 2 June with a short flight period ending on 3 August. The peak flight was the same as 2017 - around 3 July - continuing the earlier flight period. There was insufficient data to calculate an abundance index. Occupancy trends are similar to the Essex Skipper.



Silver-spotted Skipper abundance index

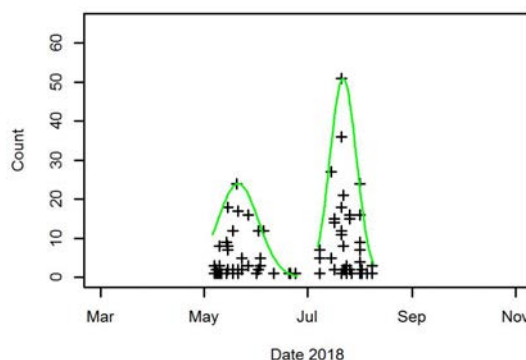
Silver-spotted Skipper again started flying early on 9 July, having a long flight period until 15 September, with peak flight on 6 August. While the 10 year abundance trend has continued upwards, the 20 year abundance trend is still negative, probably reflecting on the poor quality of habitat of sites. Distribution changes are reported in the article on page 29.

Large Skipper seemed unaffected by the weather for the start of its flight period on 24 May, but had a short flight period until 7 August, with peak around 26 June. Abundance was up on the last couple of years, although still below the numbers seen in 2014 and 2015.

Pieridea – The whites & yellows

Wood White** had a typical start to its first brood on 7 May, flying until 24 June, with good numbers seen. There was a large second brood, no doubt the butterfly benefitting from the hot weather, and all the habitat management that has been taken place at Oaken Wood and the rest of Chiddingfold Forest by Forestry Commission. This enabled the butterfly to expand its distribution, although occupancy is very low at only 2% of VC17.

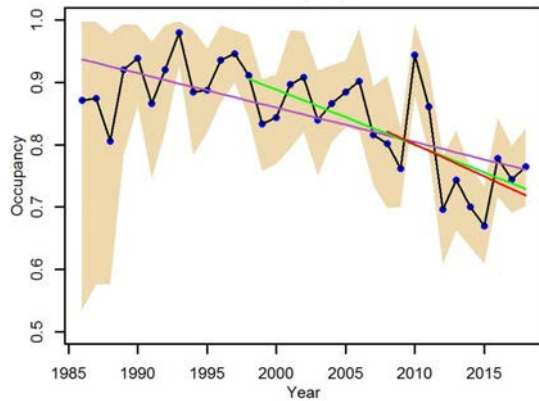
The flight period of the second brood was a bit shorter than normal, from 8 July to 8 August. With the long dry spell, there is concern whether there will be enough food for the larvae, which may impact on numbers in spring 2019.



Wood White flight chart

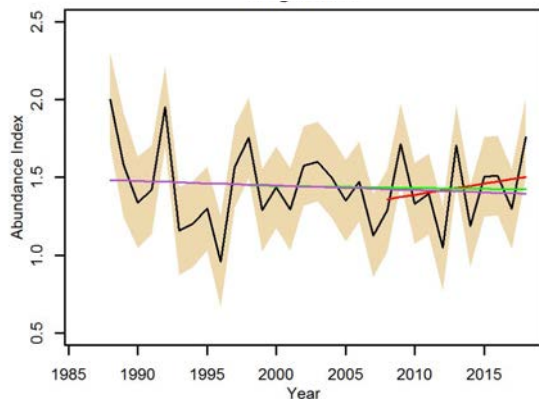
Orange Tip flight period was fairly typical, starting on 14 April and flying until 14 June, with peak around 5 May. Second brood Orange-tip used to be a very rare occurrence, but it is now becoming more common, and 2018 was no exception with Orange Tips seen throughout July.

However, the distribution of the Orange Tip continues to decline, down from 95% to 75% occurrence over the last 30 years.



Orange Tip occupancy chart

Large White season started on 14 April and, with overlapping broods (three or four), ended on 22 October. Abundance was up - almost to the levels seen in the 1990s - although the 20 and 30 year abundance trends still remain negative.



Large White abundance index

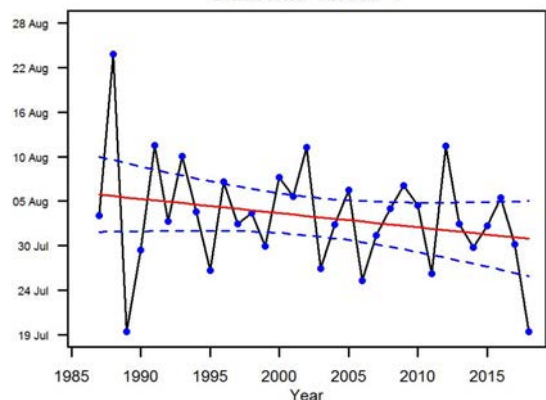
Small White was similar to Large White, but started flying from 9 March, and was on the wing with overlapping broods until 19 October. Abundance was up to the baseline, and while the 30 year trend is slightly negative, the 10 and 20 years trends are positive.

Green-veined White seemed to have a more obvious three broods, although merged, with the first seen on 14 April, and the last on 27 September. Abundance was up to the level last seen in 2011, although there is variability between sites.

Clouded Yellow had a small migration in 2018, with not more than five been recorded at any one time. The first migrants were seen on 9 May, and the last of the third brood was seen on 13 November.

Brimstone that had overwintered were seen in large numbers at the end of April and beginning of May. Peak numbers from the summer brood were seen very early around 19 July. December was the only month when the butterfly was not seen.

While occupancy seems to be fairly stable at around 80% of VC17, abundance continues its long term increase.



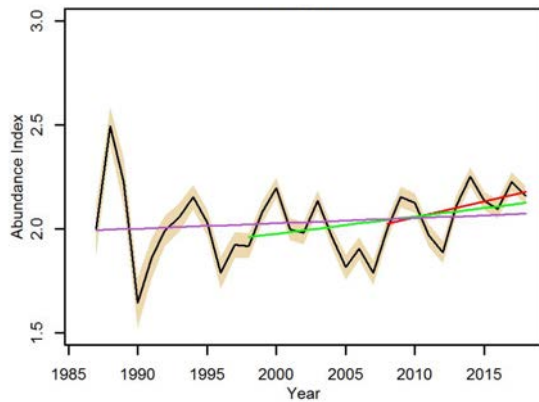
Brimstone phenology chart - first brood

Nymphalidae – The browns, fritillaries & aristocrats **Speckled Wood** started flying from 10 April, and with overlapping broods, was on the wing until 24 October. Abundance was slightly up compared with recent years. While the 20 and 30 year occupancy trends are negative, the butterfly is still found in over 90% of the county.

Small Heath seemed to have three broods in 2018. The first starting in 7 May, and the second ending 5 October, with records on 19 October at Richmond Park and 22 October at Mickleham Downs. Peak flights of both broods seemed unaffected by the weather. Abundance was up, continuing the 10 and 20 year trend. Likewise occupancy was up, continuing the 10 and 20 year trend.

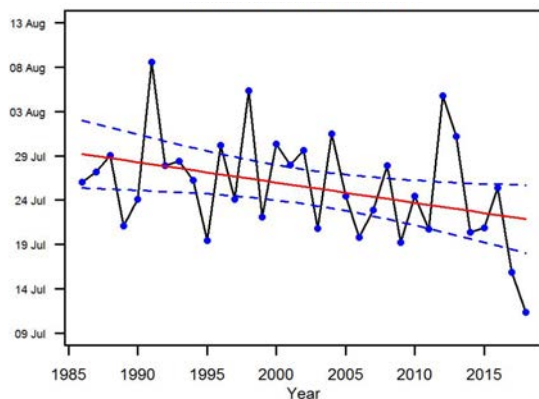
Ringlet flight period was longer than normal from 8 June until 10 September, with peak 4 July. The start of the flight period seemed unaffected by the warm weather.

Abundance was slightly down on last year, although the long term trends remain positive. The butterfly continues to expand its distribution, with occupancy of VC17 at over 95%.



Ringlet abundance index

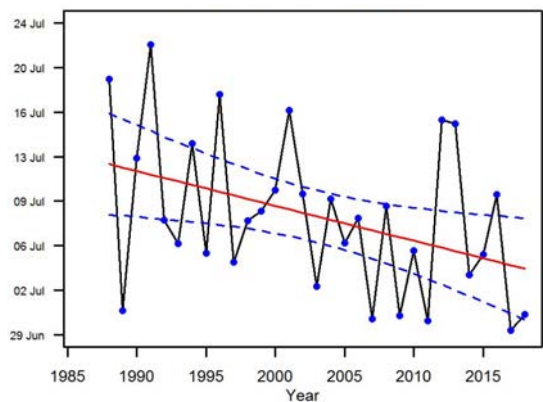
Meadow Brown abundance was slightly down, compared with the peak of last year. At one time there seemed to be more Meadow Browns in the woods than Speckled Woods, due to the parched grasslands elsewhere. The flight period started early on 14 May, and continued until 1 October, with a very early peak around 11 July. Distribution seems fairly stable at 95% occupancy of VC17.



Meadow Brown phenology chart - first brood

Hedge Brown flight period was from 5 June to 10 September, with a very early peak around 20 July. Abundance was slightly down on 2017. While the 10 year trend is positive, the 20 and 30 year trends remain negative. However, the distribution remains stable at nearly universal throughout VC17.

Marbled White abundance was very slightly down on last year, but the long term trends remain positive. The butterfly continued its amazing distribution expansion, and now found in nearly 65% of VC17. The flight season started early - as has become typical - on 10 June, and continued until 11 August, with an early peak on 30 June.

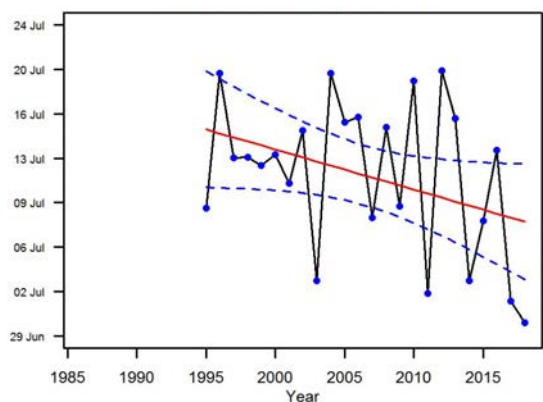


Marbled White phenology chart - brood 1

Grayling** started flying early on 29 June, continuing a long flight period until 27 Sept, with an early peak flight on 6 August. Abundance was slightly down on 2017, continuing the long term negative trend. Ten year trends are only available from five sites. Occupancy is very low at about 6% of VC17, showing the poor state of heathlands within Surrey. It is our most threatened butterfly.

Nymphalidae.

Silver-washed Fritillary flight period was fairly long from 18 June to 15 September, with peak on 14 July. While abundance was slightly down on 2017, it continued its upwards trend over the last 20 years. As secondary woodlands have increased, and become more shady, so the butterfly has been able to expand its distribution to an astonishing 45% of VC17.



Dark Green Fritillary phenology chart - first brood

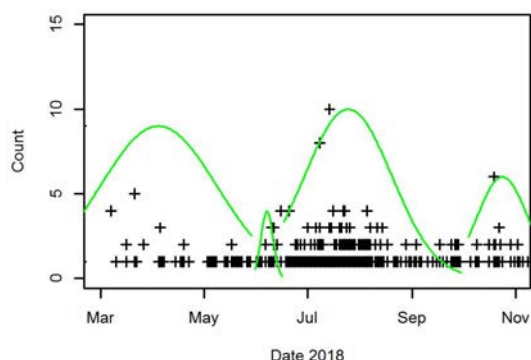
Dark Green Fritillary started flying early on 10 June with a long flight period until 20 August and a very early peak around 30 June. While 10 and 20 year abundance trends continue to be positive, there is much uncertainty around the values due to differences between sites. Of the nine sites with 20

year trends, three sites show a strong increase, while two are negative.

White Admiral flight period started early on 9 June, with a typical duration until 8 August and peak on 27 June. While numbers seemed typical, there was insufficient data to calculate an abundance trend. Occupancy continues to increase to around 27% of VC17.

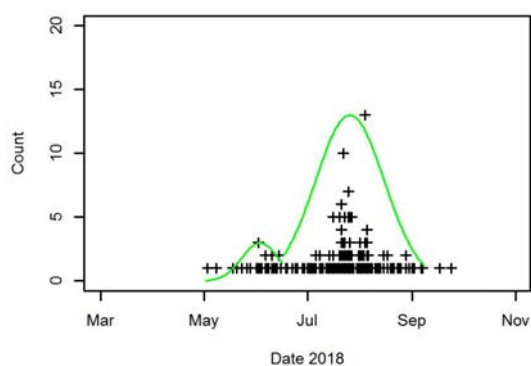
Purple Emperor had an early year with the first males seen on 13 June and the last sighting on 23 July. However, maximum numbers recorded were very low at two. This butterfly can't be monitored by traditional transects and is under-recorded. However, distribution seems to be expanding, with occupancy at about 25% for VC17.

Red Admiral is part resident and part migrant, with records throughout every month of the year. Abundance was down in 2018, although overall the 20 year trend is stable. A butterfly seen in most monads of the VC17. Not easy to identify the various broods.



Red Admiral flight chart

Painted Lady migration was poor, starting on 3 May. Most were seen during the second brood between 18 June and 7 September.



Painted Lady flight chart

Peacock numbers were generally low throughout the year, with January the only month without any records. The abundance trend continued to be negative since 1992, and the 2018 abundance index was down to the low levels of 2012. However, the butterfly is still found in most monads of VC17.

Small Tortoiseshell stayed in hibernation until 16 March. There seemed to be two broods, peaking slightly later than normal. Last record on 10 October. Abundance since 2014 has been declining, but the 10 year trend is positive. However, the 20 and 30 year trends remain negative. Occupancy has declined since the late 1980s from nearly universal, to about 85% of VC17.

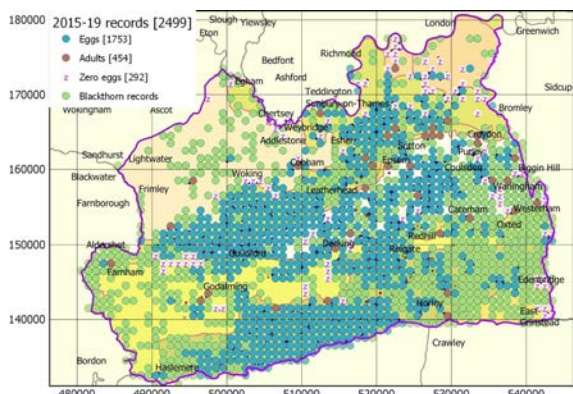
Comma likewise stayed in hibernation until 16 March. There seemed to be two broods, the last earlier than average. The last record was on 21 October. While the abundance index was slightly down on 2017, the overall 20 year trend remains stable. Occupancy remains stable at around 95% of VC17.

Glanville Fritillary, the unauthorised introduction at Hutchinson Bank, was recorded between 18 May and 22 June in very small numbers. The colony is expected to die out naturally over the next few years due to inbreeding, as there are no other colonies within many miles.

Lycaenidae – The coppers, hairstreaks & blues
Small Copper started flying on 17 April, although the first brood did not get going until early May. The flight period continued until 2 November, with three or possibly four broods. There is great uncertainty about the abundance trends for Small Copper due to inconsistent trends between sites, and the butterfly is only recorded in small numbers at most sites.

Brown Hairstreak egg surveys have continued over the winter months thanks to some dedicated volunteers. This has completely changed our understanding of the distribution of the butterfly, as the surveys are finding that it is present throughout VC17, with the exception of the northern part, and heathland sites due to the lack of blackthorn. (The south-east remains to be surveyed.) The first adults were seen very early on 7 July, but only

continued flying until 27 September. Brown Hairstreak egg transects have been walked for the last four years, which will enable an abundance index to be calculated.



Brown Hairstreak distribution 2015-19

Purple Hairstreak was seen far more frequently than normal in 2018. The butterfly was frequently seen low down rather than up in the canopy, which is thought to be due to the long dry spell and a lack of aphid honeydew. There was a report of a large number mud-puddling at Ashted Common. The season started early on 10 June, with a long flight period until 6 September, with peak on 13 July. Numbers seen were up, with four records of between 44 and 100 individuals. A new method to monitor abundance by an early evening transect was proposed at a BC workshop, which has been successfully trialled in Warwickshire over several years.

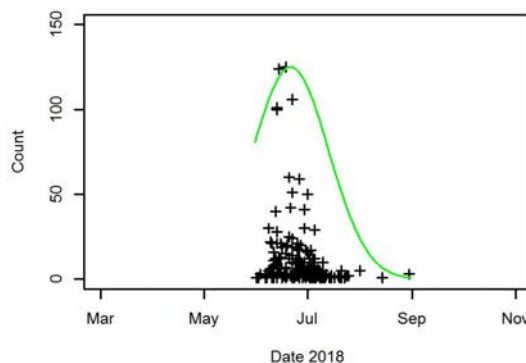
Green Hairstreak flight period started typically on 18 April and was fairly long ending 3 July, with peak on 16 May, in line with the trend. Abundance was up continuing the rise since 2015. However, the overall abundance trend is fairly stable. The overall occupancy is around 30%, a slight decline since the late 1980s.

White-letter Hairstreak was very early on 8 June, and last recorded early on 2 August, with peak flight on 26 June. Numbers recorded were higher than normal, with ten records of counts between 10 and 20 individuals, and 24 recorded at one site. At present there is no reliable method to monitor the abundance of the butterfly. Since 2014 the known occupancy of the butterfly has been increasing, so it is now in 45% of VC17. This in part will be due to improved recorder effort.

Small Blue first brood started typically on 16 May, with peak on 5 June. The second brood started as the first brood was ending around the beginning of July, and continued until 20 August with peak around the end of July. The peak for the first brood has become 10 days earlier since 1990. While the abundance index was slightly down in 2018, the 10 and 20 year trends continue to be positive. Occupancy has been steadily improving over the last ten years and is currently around 9% of VC17.

Holly Blue first brood started on 14 April with a peak on 9 May. As the first brood was ending mid-June, the second brood started, the early peak on 27 July, ending mid-September. This was followed by a third brood which ended 19 October. The abundance index was slightly up in 2018 in line with the ten year trend, but the 20 year trend is stable. Occupancy is stable at around 90% of VC17.

Silver-studded Blue** flight season started fairly early on 1 June, and continued with a very rare second brood during the second half of August. Second broods are more common in southern Europe. Peak flight period of first brood was around 21 June, a lot earlier when back in the 1990s when it was during the second week of July. Silver-studded Blue is another butterfly that is under-monitored: only six sites have a 10 year abundance trend. While the abundance index was slightly up in 2018, the 10 and 20 year trend continues to be negative. Occupancy is only at around 7% for VC17, despite the large areas of heathland.



Silver-studded Blue flight chart

Brown Argus first brood started off fairly typically on 8 May, with peak around 30 May. It ended around the end of June as the second brood started flying. This had an early peak 8 August and ended at the end of September. Numbers recorded

were higher than normal, which was reflected in a record abundance index. However, the long term abundance trend is stable. As Brown Argus has been able to switch to geraniums, this has increased its distribution, so now has nearly 45% occupancy for VC17.

Common Blue had two main broods followed by a small third brood, all merging together. The first brood commenced 4 May, the second brood commenced at the beginning of July, and the third in October. The abundance index broke all records, significantly above the 10, 20 and 30 year trends which are all positive. A common butterfly with around 90% occupancy for VC17.

Adonis Blue** first brood had a typical beginning on 15 May, ending 18 June, with peak 29 May slightly later than normal, no doubt due to the late spring. However, with the hot dry spell, the second

brood started early on 23 July, with a long flight period until 25 September, and peak around 20 August. Abundance was up in 2018 continuing the 10 year trend. However, the 20 year trend is stable. Another butterfly under-monitored, with only four transects having a 20 year trend. Occupancy is fairly stable at around 4% of VC17: it is our most threatened *Lycaenidae*.

Chalk Hill Blue flight season started 1 July - little affected by the hot dry summer - and peak flight was 1 August. The flight season was long at 94 days, ending 3 October. Numbers reported were low compared with previous years, especially 2013. The overall abundance index was only slightly down on last year, although the overall 10, 20 and 30 year trends remain positive. While there the 10 year occupancy trend is positive, the longer term trends are stable.

Verified butterfly records 2018

Harry Clarke, County Butterfly Recorder

All records for 2018 received by 31 January 2019 have been verified. Unfortunately, some records did not meet the deadline, and will be verified at a later date.

Records from the Silver-studded Blue survey were the result of an MSc project, which we were pleased to be able to help. Records from the Silver-spotted Skipper survey are the result of the national nine-yearly survey of the butterfly.

A huge thank you to everyone who submitted records: the total number in 2018 beats last year's

total by 12,653. However, the number of monads surveyed has still not beaten the 2013 total of 1,527. It would good to see areas away from the standard sites surveyed. Distribution records are probably our most important records, as they determine the priority butterflies for conservation.

It is great to see so many people submitting records, especially when you consider that, prior to 2010 there were fewer than 200 people submitting records. A massive extra 1,000 people submitted records in 2018 compared with last year, mostly thanks to the Big Butterfly Count.

Verified butterfly records were received from the following recording schemes:

Survey	Records	Monads	Recorders
UK Butterfly Monitoring Scheme (transects)	53,953	217	148
Big Butterfly Count (July-Aug)	11,489	974	2,147
iRecord			
iRecord Butterfly App	4,017	581	211
iRecord general data	2,111	451	96
iRecord App	253	105	45
iRecord Multi-site	34	14	4
Butterflies for the New Millennium	5,732	338	37
Wider Countryside Butterfly Scheme	1,454	36	24
Silver-spotted Skipper survey	91	33	2
Silver-studded Blue survey	52	10	1
Brown Hairstreak transect	8	8	1
TOTAL (unique)	79,202	1,411	2,569

Moth report 2018

Paul Wheeler, Branch Moth Officer

Quite a lot has happened since the last SWT Atlas for Larger Moths (1) appeared in 1997.

Moths increasing in occurrence and abundance

Some moths that were scarce or not recorded in the Atlas have appeared in increasing numbers (see also the last two annual reports).

These species can be seen widely in Surrey now, with an adventive species, Oak Processionary, worryingly numerous. A list is given below: many who trap moths in their gardens see them every year, and it would be tedious to list all the records.

- 2043 *Eilema sororcula* Orange Footman
- 2045 *Eilema caniola* Hoary Footman
- 2067 *Euplagia quadripunctata* Jersey Tiger
- 2076 *Meganola albula* Kent Black Arches

The moths above were present in GB but scarce, with only Orange Footman and Kent Black Arches resident in Surrey in 1997, and both scarce (1).

The ones below were migrant colonists or adventives. The Gypsy moth is a species that became extinct in GB, but it has returned to become familiar in London and most of Surrey.

- 1771a *Thera cupressata* Cypress Carpet
- 1855 *Eupithecia phoeniceata* Cypress Pug
- 2022 *T. processionea* Oak Processionary
- 2034 *Lymantria dispar* Gypsy Moth
- 2194 *Mythimna albipuncta* White Point
- 2292 *Cryphia algae* Tree-lichen Beauty

Even though the micro-moth Atlas (2) appeared more recently (in 2012), there are a few species

that are becoming established from being scarce or absent. The one that has increased to a point of concern is the Box Moth *Cydalima perspectalis*.

Moths in decline

At the same time there are changes for the worse, with many moths being seriously in decline both in abundance (3) and distribution (4).

Older people recall the “car number plate effect”. Once, the plate was illegible after a summer night drive. Now, there are the remains of just a few insects. This is no myth. In a landmark report that was widely publicised, it was shown that the drop in abundance was essentially down to declines in southern England (ref 3: this is available free through the Butterfly Conservation website).

This pattern of decline may be because, in a warming climate, shifts in populations of moths northwards are not so easily compensated by gains as incoming moths have to cross the sea.

Declines could be due to more intensive land use and increasing light pollution, too, as the long run of continuous data reported (3) uses trapping with light sources that are relatively inefficient compared with today's lighting.

Between 1968 and 2007, fifteen species declined nationwide by 94% or worse. How are these faring now, in Surrey? Have they declined to RDB status or even extinction? A cursory trawl through the records, mainly from Surrey Moth Group members, with some from the NMRS, shows a mixed picture (see Table).

The state of Britain's most declining moths in Surrey

Species (decline 1968-2007)	Changes in Surrey, 2000 to 2018
<i>Macaria wauaria</i> V-moth (>99%)	Further decline: singles only in 2000, 2001, 2004, 2006 & 2011.
<i>Euxoa nigricans</i> Garden Dart (98%)	At low abundance: three to nine recorded each year, no obvious trend.
<i>Graphiophora augur</i> Double Dart	No records, though in 27 tetrads in the 1997 Atlas (1).

<i>Ennomos fuscantaria</i> Dusky Thorn	Continued decline then recovery, illustrated by annual counts in four gardens with maxima of 19 to 56 in their best year (see graph). Recorded every year.
<i>Tholera cespitis</i> Hedge Rustic (97%)	Occurred 2000-13, then only one record of a single moth in 2017. In the four gardens, the last year that more than one was recorded was 2011.
<i>Diloba caeruleocephala</i> Figure of Eight (96%)	Records for every year to 2015, but records in database incomplete 2016-18.
<i>Eulithis mellinata</i> Spinach	Records for every year 2000-13, then 2016-17.
<i>Pelurga comitata</i> Dark Spinach	Records for 2000-05, 2008-14 & 2016. Hard to judge after 2015 as records in database incomplete 2016-18. Its occurrence suggests slow decline continues for what was a fairly local moth even from 1976- 1996: in 29 tetrads in the 1997 Atlas (1). National status may have to be changed from Common to Local.
<i>Xestia agathina</i> Heath Rustic (95%)	Records for 2001-16, then records in database incomplete to 2018. Far more regular on NW Surrey heaths and a few appearances in the gardens near heathland.
<i>Stilbia anomala</i> Anomalous (94%)	Always local nationally and only confirmed as a resident in Surrey in 1995. Apparently established, with records for 2000, 2003, 2005-6, 2008, 2013-14, 2016 & 2018. A few appearances in the gardens near heathland.
<i>Cirrhia gilvago</i> Dusky-lemon Sallow	Records for 2000, 2003, 2007, 2009-10 & 2013. Rare in Surrey previously, with no records 1992-96 and only 13 tetrads in the 1997 Atlas (1).
<i>Euoxa tritici</i> White-line Dart	Records for 2000, 2002-06, 200-10, 2013 & 2016. Of the four gardens I refer to, mine is the only one with a record: two in 2004. The last two records required some dedicated fieldwork, being recorded to light on Leith Hill and at Brookwood Cemetery. Uncommon before 2000 in Surrey, only recorded in 23 tetrads from 1976- 1996 (1).
<i>Luperina testacea</i> Flounced Rustic	Peaks of 16 in 2001 and 20 in 2016, with numbers collapsing to four individuals in three years from 2003-05 in my Chobham Garden. In a New Haw garden, numbers declined annually from a maximum of 530 in 2011 to 103 in 2018. The other two gardens had very few moths: five in 1997, three in 2010, then a single or none from 2011-18; and between one and eight each year 2009-18, no trend. We need more garden data before drawing any firm conclusions. Recorded every year.
<i>Dasypolia templi</i> Brindled Ochre	Never resident in Surrey; a single record of a vagrant.
<i>Paradiarsia glareosa</i> Autumnal Rustic (94%)	Recorded every year, possible peak of occurrence between 2009-2011. Numbers always appear low, though: eight to light at Norbury Park (near Mickleham) on 4/10/16 (six traps) was the highest I've seen.

The most declining three make worrying reading, and the Dusky-lemon Sallow, which depends on Elm (mostly Wych Elm) for its larval foodplant is not faring well.

However, Dusky Thorn, after continuing to decline through to 2010-2012, seems to be making a recovery, at least in Surrey (Figure 1). We see it more regularly at field meetings, too.



Dusky Thorn, © MV Angel

The two heathland-associated species, Heath Rustic and Anomalous, seem to be doing relatively well in Surrey.



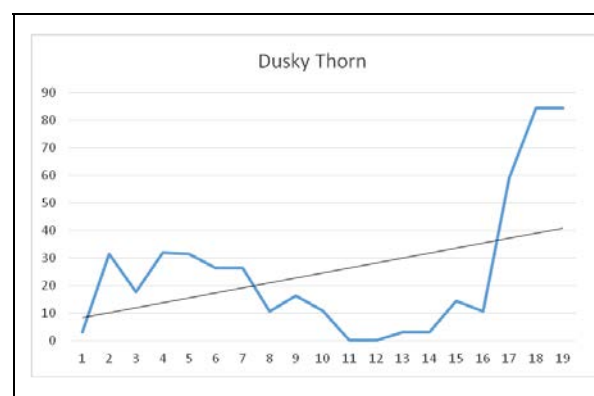
Heath Rustic, © PR Wheeler

The Flounced Rustic was probably one of those “number plate” moths - still common but nothing like so numerous. I'd like to get some more data for this moth and try and plot it, but the garden maxima of five for one to 530 for another is challenging. Perhaps I should plot them on a log scale? Any statisticians who tolerate biologists' field data out there?

There is always a problem with compiling the Annual Report for moths in April because some records - numbering tens of thousands - have not yet been added to databases. This is the case here, but I think this article still gives a good representation of the state of Surrey's moths.

Dusky Thorn moth abundance in Surrey

The data for this plot is from four gardens. The y-axis shows Index values, with 100 for the highest annual count in each garden. Years 2000-2018 are numbered 1 to 19 on the x-axis. A trend line is shown, but its statistical significance has not been determined.



Scarce and priority moths in Surrey

As in the last two years, there are good records of scarce and priority moths in Surrey. The table below gives a good impression of these interesting finds in Surrey but the records are not complete, nor verified by the county recorder. I estimate that I see about 20% of the records and make an effort to include records that I am reasonably confident will be verified.

Nationally Scarce and Surrey-notable moths

**recorded frequently enough to be excluded from this table in next year's report*

B&F #	Moth species	Status and occurrence in 2018
21	<i>Ectoedemia sericopeza</i>	Nationally Scarce A ● Chobham (SU977625): one to light on 15/8
121	<i>Pseudopostega crepusculella</i>	Nationally Scarce B ● New Haw (TQ047625): four to light - 30/6-16/7
147	<i>Nemophora metallica</i>	Nationally Scarce B ● Merrow (TQ034508): 12 by day on 26/6
163	<i>Adscita statices</i> Forester	Surrey notable (1) - Local ● Merrow (TQ034508): two by day on 26/6

173	<i>Apoda limacodes</i> Festoon	<i>Nationally Scarce B but regular in woodland and parkland with oaks in Surrey*</i> <ul style="list-style-type: none"> Ashted Common 12, Chobham: seven, Chobham Common: two, Horton Country Park: one, Boundstone: 12 All to light
200	<i>Psychoides filicivora</i>	<i>Surrey notable (2) - Local</i> <ul style="list-style-type: none"> Chobham (SU977625): one by day on 17/11
215	<i>Nemapogon granella</i> Corn Moth	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> Chobham (SU977625): 22 seen, remaining more abundant than <i>N. cloacella</i> in my garden - 14/6 to 5/11, most adults at dusk
217	<i>Nemapogon wolffiella</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> Cobham (TQ129604): one by day on 14/7
218	<i>Nemapogon variatella</i>	<i>RDB3</i> <ul style="list-style-type: none"> Chobham (SU977625): one seen in my garden at dusk on 26/6 Ashted Common (TQ169598): 20-plus on 13/6, flying around woodpile at dusk. One gen. det. done
226	<i>Triaxomasia caprimulgella</i>	<i>RDB1. First Surrey record</i> <ul style="list-style-type: none"> Putney (TQ233745): one to light on 29/6
262	<i>Lyonetia prunifoliella</i>	<i>RDB1. Not in 2012 Atlas (2)</i> <ul style="list-style-type: none"> Putney (TQ233745): four to light - 2/6 to 16/7, confirmed from voucher
289	<i>Caloptilia falconipennella</i>	<i>Nationally Scarce B but well-recorded in Surrey*</i> <ul style="list-style-type: none"> Chobham (SU977625): adult to light on 7/4 Goldsworth Park (SU983589): leaf-roll on alder on 28/9 New Haw (TQ047625): adult to light on 19/7, 22/7
336	<i>Phyllonorycter dubitella</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> Cobham (TQ133600): two mines found on 8/11, opened to check species
340	<i>Phyllonorycter scopariella</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> Chobham Common (SU975631): one tapped from broom at dusk, 8/6
355	<i>Phyllonorycter scabiosella</i>	<i>RDB2, BAP3</i> <ul style="list-style-type: none"> Box Hill Zig-zag (TQ176520): three mines on 8/8
370	<i>Sesia apiformis</i> Hornet Clearwing	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> Earlswood Common (TQ 275492): one to HOR pheromone lure, 26/6
388	<i>Prochoreutis myllerana</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> Richmond Park (TQ1973): ~10 by day on 18/8
390b	<i>Choreutis nemorana</i> Fig-tree Skeletonizer	<i>Adventive, very scarce</i> <ul style="list-style-type: none"> Putney (TQ235749): leaf damage, folds and an abandoned cocoon found on fig trees on 1/11
449a	<i>Prays citri</i>	<i>Adventive, very scarce</i> <ul style="list-style-type: none"> Putney (TQ233745): one to light on 30/5, confirmed from voucher
449b	<i>Prays peregrina</i>	<i>Adventive colonist, scarce</i> <ul style="list-style-type: none"> Putney (TQ233745): three to light - 6/7, 8/7 and 19/9
456	<i>Ypsolopha horridella</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> Compton Field Farnham (SU858461): one to light on 26/7

481	<i>Epermenia falciformis</i>	<i>Surrey notable (2) - Local</i> ● Sable Wood (SU851448): one to light on 2/8
487	<i>Coleophora lutarea</i> Stitchwort Case-bearer	<i>Nationally Scarce B</i> ● Chobham (SU977625): one to light on 3/5 ● Chobham Common (SU975631): one by day on 3/5
637	<i>Crassa tinctilla</i>	<i>Nationally Scarce B</i> ● Oaken Wood Chiddingfold (SU990338): one to light on 9/6
642a	<i>Metalampra italica</i>	<i>Surrey notable (2) - migrant colonist, appears to be increasing*</i> ● Chobham: two, Cobham: 11, New Haw: two, Wimbledon Common: two ● Compton Field Farnham: three, Boundstone: 13
704	<i>Agonopterix scopariella</i>	<i>Surrey notable (2) - Local</i> ● Cobham (TQ129602): two to light - 3/3, 11/5
719	<i>Ethmia quadriella</i>	<i>Nationally Scarce B. Not in 2012 Atlas (2)</i> ● Reigate (TQ257510): two to light - 16/7, 18/7
736	<i>Monochroa lucidella</i>	<i>Surrey notable (2) - Local</i> ● Horsell Common (SU995607): one to light on 29/7
732	<i>Eulamprotes unicolorella</i>	<i>Nationally Scarce B</i> ● Oaken Wood Chiddingfold (SU990338): nine to light on 9/6
758	<i>Recurvaria nanella</i>	<i>Nationally Scarce B</i> ● New Haw (TQ047625): one to light on 9/7
775	<i>Teleiodes sequax</i>	<i>Surrey notable (2) - Local</i> ● Denbies Landbarn (TQ149501): two, the first moths to light on 10/7
800	<i>Gelechia rhombella</i>	<i>Nationally Scarce B</i> ● New Haw (TQ047625): one to light on 24/6
808	<i>Platyedra subcinerea</i>	<i>Nationally Scarce B but well-recorded in Surrey*</i> ● Cobham (TQ129604): one to light on 8/7 ● New Haw (TQ047625): one to light on 14/8
809	<i>Pexicopia malvella</i> Hollyhock Seed Moth	<i>Nationally Scarce B but well-recorded in Surrey*</i> ● Chobham (SU977625): one to light on 15/8 ● Cobham (TQ129604): one to light on 14/8 ● Oxshott Heath (TQ139609): two to light on 14/8 ● New Haw (TQ047625): two to light - 26/6, 6/7
877	<i>Stathmopoda pedella</i>	<i>Nationally Scarce B</i> ● Boundstone (SU831437): one to light on 22/7
879	<i>Batrachedra pinicolella</i>	<i>Nationally Scarce B</i> ● New Haw (TQ047625): two to light - 21/5, 18/6
891	<i>Mompha sturnipenella</i>	<i>Nationally Scarce B</i> ● New Haw (TQ047625): five to light - 15/5-8/8
907	<i>Dystebenna stephensi</i>	<i>Nationally Scarce A</i> ● Putney (TQ233745): one to light on 27/6
902	<i>Chrystoclysta lathamella</i>	<i>RDB2</i> ● Chobham Common (SU974634): one tapped from willow at dusk, 8/6

910	<i>Sorhagenia janiszewskae</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none">Denbies Landbarn (TQ149501): two to Gem light on 6/8, gen. det.
952	<i>Commophila aeneana</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none">Thames Ditton (TQ169655): one by day on 3/6
1088	<i>Pseudosciaphila branderiana</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none">Oaken Wood, Chiddingfold (SU990338): one to light on 9/6Ashted Common (TQ171597, TQ169597): 14 to light on 13/6
1104	<i>Endothenia quadrimaculana</i>	<i>Surrey notable (2) - Local</i> <ul style="list-style-type: none">Cobham (TQ129604): one to light on 8/7
1114	<i>Eudemis porphyra</i>	<i>Nationally Scarce A</i> <ul style="list-style-type: none">Ashted Common (TQ171597, TQ169597): four to light on 2/7
1122	<i>Ancylis obtusana</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none">Ashted Common (TQ171597): one to light on 13/6
1125	<i>Ancylis unculana</i>	<i>Nationally Scarce B. Well-recorded on the chalk in Surrey, reputedly commoner here than anywhere else in GB (2)*</i> <ul style="list-style-type: none">Denbies Landbarn (TQ139500): two to light on 6/8Sable Wood (SU851448): one to light on 6/7
1135	<i>Epinotia demarniana</i>	<i>Nationally Scarce B but well-recorded in Surrey*</i> <ul style="list-style-type: none">Ashted Common (TQ171597): eight to light on 13/6
1267	<i>Cydia cosmophorana</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none">Boundstone (SU831437): one to light on 2/6 (i/d from image)
1299	<i>Crambus hamella</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none">Black Pond Esher Common (TQ128623): 15 to light on 28/8
1323	<i>Pediasia contaminella</i>	<i>Nationally Scarce B but well-recorded on dry grassland in Surrey*</i> <ul style="list-style-type: none">Ashted Common (TQ169597): one to light on 2/7Cobham (TQ129604): one to light, 25/7; (TQ128600): one to light, 3/9Chobham (SU977625): five to light: 1/7, 26-27/9Denbies Landbarn (TQ138500): two to light on 10/7Farnham Heath (SU853436): three to light - 17/7, 2/10Boundstone (SU831437): three to light on 15/7-10/10Compton Field Farnham (SU858461): 16 to light on 12/7-13/9Sable Wood (SU851448): six to light on 2/8Thursley Common (SU902415): one to light on 19/7Warren Road (TQ014494): six adults to light on 28/6Woking (SU999583): two at supermarket security lights 10/7 and 30/7Horsell Common (SU995607): one to light on 29/7
1328	<i>Schoenobius gigantella</i>	<i>Local. New to Surrey since 2012 Atlas (2)</i> <ul style="list-style-type: none">Horsell Common (SU995607): a male to light on 29/7
1355a	<i>Musotima nitidalis</i>	<i>Adventive. Not in 2012 Atlas (2)</i> <ul style="list-style-type: none">Wimbledon Common (TQ227715) on 8/6Putney (TQ233745): one to light on 27/5
1356a	<i>Evergestis limbata</i>	<i>Nationally Scarce B. Not in 2012 Atlas (2) - second Surrey record</i> <ul style="list-style-type: none">Farnham Heath (SU853436): one to light on 4/9
1382	<i>Anania verbascalis</i>	<i>Nationally Scarce B</i> <ul style="list-style-type: none">Farnham Heath (SU853436): one to light on 1/6

1403a	<i>Duponchelia fovealis</i>	<i>Surrey notable (2) - adventive</i> ● Weybridge- Broadwater (TQ091659): one to light on 31/7
1397a	<i>Diplopseustis perieresalis</i>	<i>Adventive, scarce</i> ● Putney (TQ233745): one to light on 19/8
1441	<i>Oncocera semirubella</i>	<i>Nationally Scarce B. Locally common on chalk downland in Surrey*</i> ● Denbies Landbarn (TQ1349, TQ1350, TQ1450): 18 to light on 10/7, a further two on 2/8
1444	<i>Pempelia obductella</i>	<i>RDB3</i> ● Denbies Landbarn (TQ148501): two to light on 10/7
1449	<i>Elegia similella</i>	<i>Nationally Scarce B. Starting to be seen regularly to light in Surrey</i> ● Chobham: two to light - 15/6, 1/7 ● Boundstone (SU831437): five to light on 7/6
1450	<i>Ortholepis betulae</i>	<i>Nationally Scarce B</i> ● Farnham Heath (SU853436): one to light on 17/7
1454a	<i>Dioryctria schuetzeella</i>	<i>Nationally Scarce B</i> ● Farnham Heath (SU853436): two to light on 17/8
1454b	<i>Dioryctria sylvestrella</i>	<i>Nationally Scarce B</i> ● Chobham: one to light on 12/7
1457	<i>Hypochalcia ahenella</i>	<i>Nationally Scarce B.</i> ● New Haw (TQ047625): one to light on 3/6
1461	<i>Assara terebrella</i>	<i>Nationally Scarce A</i> ● Chobham (SU977625): one to light on 8/6 ● New Haw (TQ047625): one to light on 3/7
1493	<i>Buckleria paludum</i> Sundew Plume	<i>Nationally Scarce A</i> ● Thursley Common (SU902415): one to light on 19/7
1676	<i>Cyclophora annularia</i> The Mocha	<i>Nationally Scarce B</i> ● Denbies Landbarn (TQ138500, TQ139500): five to light on 6/8 ● Farnham Heath (SU853436): one to light on 4/9 ● Boundstone (SU8343): three to light - 14/5, 5/6, 13/8 ● Reigate (TQ257510): two to light
1687	<i>Scopula ornata</i> Lace Border	<i>Nationally Scarce A</i> ● Denbies Landbarn (TQ1350, TQ1450): nine to light or netted at dusk on 10/7, 13 to light on 2/8 ● Pewley Down (TQ006489): one to light on 9/8 ● Box Hill Zig-zag (TQ176520): three disturbed by day on 8/8
1692	<i>Scopula immutata</i> Lesser Cream Wave	<i>Surrey notable (1) - Local</i> ● Esher-West End Common (TQ123634): two to light on 20/6
1721	<i>Epirrhoe biriviata</i> Balsam Carpet	<i>Surrey notable (1) - uncommon</i> ● New Haw (TQ047625): one to light on 17/7
1731	<i>Scotopteryx bipunctaria</i> Chalk Carpet	<i>Nationally Scarce B, BAP1</i> ● Denbies Landbarn (TQ1350): six to light or netted at dusk on 10/7, nine to light on 2/8
1736	<i>Catarhoe cuculata</i> Royal Mantle	<i>Surrey notable (1) - Local</i> ● Denbies Landbarn (TQ148501): one to light on 10/7

1739	<i>Epirrhoe rivata</i> Wood Carpet	Surrey notable (1) - Local ● Denbies Landbarn (TQ1350): four to light on 10/7
1823	<i>Eupithecia venosata</i> Netted Pug	Surrey notable (1) - Local ● Reigate (TQ257510): one to light on 10/6
1828	<i>Eupithecia satyrata</i> <i>ssp. satyrata</i> Satyr Pug	Surrey notable (1) - Local ● Oaken Wood Chiddingfold (SU990338): three to light on 9/6 - some genitalia determinations ● New Haw (TQ047625): one to light on 16/7
1836	<i>Eupithecia denotata</i> Campanula Pug	Nationally Scarce A ● Pewley Down (TQ007488): ~10 larvae on 27/8 on <i>Campanula trachelium</i> . Adults raised.
1856	<i>Eupithecia laricata</i> Larch Pug	Surrey notable (1) - common nationally ● Boundstone (SU831437): one to light on 13/5 ● New Haw (TQ047625): two to light - 21/5, 26/7
1905	<i>Pachycnemia hippocastanaria</i> Horse Chestnut	Nationally Scarce B. Well-recorded on and near heathland in Surrey* ● Farnham Heath (SU853436): 26 in year, to light 17/7-2/10 ● Sable Wood (SU851448): five to light on 6/4, 5/8 ● Boundstone (SU831437): one to light on 20/4 ● Thursley Common (SU902415): eleven to light on 19/7
1912	<i>Ennomos quercinaria</i> August Thorn	Surrey notable (1) - Local ● Kennington (TQ314770): two to light between 14-19/7
1943	<i>Hypomecis roboraria</i> Great Oak Beauty	Nationally Scarce B ● Ashted Common (TQ171597, TQ169597): 14 to light on 13/6 ● Boundstone (SU831436): one to light on 5/6 ● Oaken Wood, Chiddingfold (SU990338): one to light on 9/6
1967	<i>Asptates gilvaria</i> Straw Belle	RDB2, BAP1 ● Box Hill Zig-zag (TQ175521): two disturbed by day on 8/8
1996	<i>Furcula bicuspis</i> Alder Kitten	Surrey Notable (1) - Local ● New Haw (TQ047625): one to light on 26/5
2009	<i>Ptilodon cucullina</i> Maple Prominent	Local, not in 1997 Atlas (1) ● Cobham (TQ128604): one to light on 1/8 ● Weybridge, Broadwater (TQ091659): one to light on 31/7
2031	<i>Leucoma salicis</i> White Satin	Surrey notable (4) - Local ● Esher, West End Common (TQ123634): one to light on 20/6
2039	<i>Atolmis rubricollis</i> Red-necked Footman	Surrey notable (1) - Local ● Sable Wood (SU851448): one to light on 8/6 ● Oaken Wood, Chiddingfold (SU990338): one to light on 9/6
2051	<i>Lithosia quadra</i> Four-spotted Footman	Nationally Scarce A, Migrant ● Boundstone (SU831437): one to light on 13/10
2085	<i>Agrotis vestigialis</i> Archer's dart	Surrey notable (1) - Local ● Farnham Heath (SU853436): two on 22/8 ● Boundstone (SU831437): one to light on 2/9
2119	<i>Peridroma saucia</i> Pearly Underwing	Migrant ● Boundstone (SU831437): one to light on 19/8

		<ul style="list-style-type: none"> • Sable Wood (SU851448): one to light on 23/8
2159	<i>Lacanobia suasa</i> Dog's tooth	<i>Surrey notable (1) - Local</i> <ul style="list-style-type: none"> • New Haw (TQ047625): one to light on 10/5
2165	<i>Hadena perplexa</i> Small Ranunculus	<i>Extinct in GB from around 1930, now re-established. pRDBK</i> <ul style="list-style-type: none"> • Kennington (TQ314770): two to light between 9-14/6 • New Haw (TQ047625): two to light - 13/8, 4/9
2203	<i>Mythimna obsoleta</i> Obscure Wainscot	<i>Surrey notable (1) - Local</i> <ul style="list-style-type: none"> • Wimbledon Common (TQ227715) on 6/6
2223	<i>Calophasia lunula</i> Toadflax Brocade	<i>RDB, Surrey status vagrant in 1997 Atlas (1)</i> <ul style="list-style-type: none"> • New Haw (TQ047625): at least two to light - 3/6 to 17/7 • Kennington (TQ314770): one to light between 9-14/6
2236	<i>Xylena vetusta</i> Pale Pinion	<i>Surrey notable (1) - Local</i> <ul style="list-style-type: none"> • Boundstone (SU831437): two to light - 13/4, 14/4 • New Haw (TQ047625): one to light on 21/3
2246a	<i>Dryobota labecula</i> Oak Rustic	<i>Recent colonist, not in 1997 Atlas (1)</i> <ul style="list-style-type: none"> • Wimbledon Common (TQ227715) on 6/11
2260	<i>Conistra rubiginea</i> Dotted Chestnut	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> • Chobham (SU977625): eight to light - 2/4, 7/4, 15/4, 16/10 • New Haw (TQ047625): one to light on 12/4 • Boundstone (SU8343): six to light 18/3-3/5; one at ivy on 28/9
2315	<i>Dicycla oo</i> Heart Moth	<i>RDB3, BAP1</i> <ul style="list-style-type: none"> • Harewood Estate (TQ329473): five to light on 24/6 • New Haw (TQ047625): one to light on 25/6
2371	<i>Archana dissoluta</i> Brown-veined Wainscot	<i>Surrey notable (1) - Local</i> <ul style="list-style-type: none"> • New Haw (TQ047625): one to light on 2/8
2375	<i>Rhizedra lutosa</i> Large Wainscot	<i>Surrey notable (1) - common nationally</i> <ul style="list-style-type: none"> • Horsell Common (SU995607): 14 to light by large pond at Heather Farm SANG - 5/9, 2/10 • Boundstone (SU831437): one to light on 20/10 • New Haw (TQ047625): one to light on 12/10
2391	<i>Chilodes maritima</i> Silky Wainscot	<i>Surrey notable (1) - Local</i> <ul style="list-style-type: none"> • New Haw (TQ047625): one to light on 6/7
2394	<i>Stilbia anomala</i> Anomalous	<i>Surrey notable (1) - Local</i> <ul style="list-style-type: none"> • Chobham (SU977625): one to light on 2/9 • Black Pond Esher Common (TQ128623): one to light on 28/8
2396	<i>Elaphria venustula</i> Rosy Marbled	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> • Farnham Heath (SU853436): one to light on 1/6 • Oaken Wood, Chiddingfold (SU990338): two to light on 9/6
2412	<i>Deltote uncula</i> Silver Hook	<i>Surrey notable (1) - Local</i> <ul style="list-style-type: none"> • Thursley Common (SU902415): one to light on 19/7
2418	<i>Earias clorana</i> Cream-bordered Green Pea	<i>Nationally Scarce B</i> <ul style="list-style-type: none"> • New Haw (TQ047625): one to light on 26/5
2436	<i>Macdunnoughia confusa</i> Dewick's Plusia	<i>Migrant colonist- scarce, two records of migrants only in 1997 Atlas</i> <ul style="list-style-type: none"> • New Haw (TQ047625): one to light on 6/7

2439	<i>Plusia festucae</i> Gold Spot	Surrey notable (1) - common nationally <ul style="list-style-type: none"> Denbies Landbarn (TQ139500): one to light on 6/8 Farnham Heath (SU853436): one to light on 17/7 Compton Field Farnham (SU858461): one to light on 26/7 New Haw (TQ047625): one to light on 19/8
2451	<i>Catocala fraxini</i> Clifden Nonpareil	Migrant, transitory resident - scarce <ul style="list-style-type: none"> Cobham (TQ128600) to light on 3/9 Sable Wood (SU851448): one to light on 26/9 Reigate (TQ257510): two to light - 8/9, 13/9
2468	<i>Pechipogo strigilata</i> Common Fan-foot	Nationally Scarce A, BAP1 <ul style="list-style-type: none"> Ashtead Common (TQ171597): one to light on 13/6
2475	<i>Parascotia fuliginaria</i> Waved Black	Nationally Scarce B <ul style="list-style-type: none"> Ashtead Common (TQ168597, TQ169597): three to light on 2/7 Cobham (TQ129604): one to light, 17/7; (TQ129602): one to light, 25/7 Sable Wood (SU851448): two to light on 6/7 New Haw (TQ047625): one to light on 2/7
2480	<i>Hypena rostralis</i> Buttoned Snout	Nationally Scarce B, BAP2 <ul style="list-style-type: none"> Chobham (SU977625) on 26/9 Kennington (TQ314770): two to light between 12-18/5 Wimbledon Common (TQ227715) on 8/6 New Haw (TQ047625): two to light - 17/5, 16/7
2493	<i>Macrochilo cribrumalis</i> Dotted Fan-foot	Nationally Scarce B, Surrey status extinct in 1997 Atlas (1) <ul style="list-style-type: none"> Horton Country Park (TQ196629): one to light on 18/6 Putney (TQ233745): one to light on 5/7
2495	<i>Trisateles emortualis</i> Olive Crescent	RDB3, not in 1997 Atlas (1) <ul style="list-style-type: none"> Putney (TQ233745): one to light on 19/6

This list includes moths that are fascinating in their diversity. Some are very rare, even endangered or, like the Common Fan Foot, seriously declining to the extent it is now a biodiversity action plan priority species (BAP1).



Triaxomasia caprimulgella - first Surrey record
© RJ Arnfield

Others may be establishing themselves, or are scarce nationally but relatively common in Surrey. Some appear to be wanderers or vagrants: the nearest resident Olive Crescent moths to Putney are in the Chilterns, while suburban New Haw is between the great parklands of Windsor Park and

Ashtead Common which have long been considered the stronghold of the Heart Moth.



Lace Border, © RJ Arnfield

Three rare moths, the Straw Belle, Heart Moth and Lace Border are only found in a few areas with appropriate habitat management and it is critical that this continues. That good work is underpinned by plans such as the Regional Conservation Strategies we have been busy with in the last few years, while volunteers on the ground help ensure the conservation work gets done. Those three mentioned moths would be in a grave state nationally without their conservation in Surrey.

A species not on this list, the Betony Case Barer *Colephora wockeella*, is more or less restricted to a single site in Surrey. We could have almost certainly added this RDB1 moth with some focused field work along a single ride in the Chiddingfold complex. These one-year lists will always have many omissions depending on where recorders have been able to get to in the year.



Evergestis limbata, © MV Angel



Anania verbascalis, © MV Angel



Stilbia anomala Anomalous, © PR Wheeler

I note there are a good number of species that depend on a healthy tolerance of untidiness. As I write, I can see a larval skin of *Nemapogon granella* (215 in the list above) hanging from the

bird feeder with the mouldy peanuts at its base. The other tineids (217-226) all depend on mouldy detritus and dead wood, as does the beautiful little *Dystebenna stephensi* (907). I once recorded the latter in a most unsightly, decaying stunted oak on Fairmile Common, along with a Tanner Beetle (also Nationally Scarce A).

The Hornet Moth (370) caterpillars feed internally on the wood of hybrid black poplar. Infestations can make a mess of their host tree (which should still be conserved), but a few exuviae or a male to a lure are not a matter of any concern. Another beautiful (illustrated) and scarce moth, *Commophila aeneana* (952), has ragwort as its only larval foodplant.



Commophila aeneana, © RJ Arnfield

This moth was also recorded at Hutchinson's Bank in 2016. Along with the Cinnabar moth (common but declining), they show that elimination of ragwort - a task pursued enthusiastically by some - should be resisted.

References

1. Collins (1997), *Larger Moths of Surrey*
2. Palmer, Porter & Collins (2012), *Smaller Moths of Surrey*
3. Fox, Parsons, Chapman, Woiwod, Warren & Brooks, *The State of Britain's Larger Moths 2013*, Butterfly Conservation and Rothamsted Research
4. Hill, Randle, Fox & Parsons (2010), *Provisional Atlas of the UK's Larger Moths*

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Transect report

Bill Downey, Transect Coordinator

Records were returned from 120 transects in VC17 in 2018 and over 208,000 butterflies were recorded. This is an increase from the 105 routes walked in 2017 and 95 in 2016. My thanks to all the 170 walkers who recorded data.

Transect walking depends on the availability of walkers and many routes are walked by people in their immediate locality. This does not necessarily provide the ideal coverage for our area and there are other principles that underlie the recording strategy:

- It is important to achieve a good geographical spread across VC17 and to include areas where monitoring in the past has been weak, e.g. SW London, the west and south of Surrey.
- To monitor areas where our rarest butterflies occur: the chalk of the North Downs, the Surrey Heaths and the clay of the West Weald.
- To monitor the key areas for nature conservation, e.g. National Nature Reserves (NNR), Special Areas of Conservation (SAC) and Sites of Special Scientific Interest (SSSI). These tend to be butterfly hotspots.
- A transect becomes more statistically significant over a period of years as more data accrues on butterfly numbers at the site. For this reason we prioritise lapsed routes with long data runs over the creation of new transects. In practice this is not always possible if the design of the initial route was flawed or its course was never properly recorded.
- It is important to monitor priority species as identified in the Regional Conservation Strategy for our area, as below.

Highest Priority - Wood White, Grayling, Silver-studded Blue and Adonis Blue

High Priority - Dingy Skipper, Grizzled Skipper, Silver-spotted Skipper, Dark Green Fritillary, White Admiral, Purple Emperor, Brown Hairstreak, White-letter Hairstreak, Small Blue, Chalk Hill Blue

The intent is to monitor these species with enough transects to give a meaningful measure of

abundance. Note that canopy species - such as the Purple Emperor and the White-letter Hairstreak - are not amenable to the transect methodology, and that the Brown Hairstreak is best monitored via egg counts.

As more transects are walked - and with the inevitable churn of people - more work has to go into maintaining the network. For this reason we do not propose to increase the extent of our coverage so quickly in future years.

Meanwhile, there is more demand for monitoring from land managers:

- The National Trust, with its *Land, Outdoors and Nature* strategy where butterfly monitoring is one of its four measures
- The City of London Commons - currently reviewing all of its management plans
- The Surrey Wildlife Trust, where the new Chief Executive wants to work more closely with species groups
- The Downlands Project wants more monitoring on land they manage
- From some Borough Councils, e.g. Waverley
- It is an aim of Butterfly Conservation's *Big City Butterflies* project to increase monitoring and engagement in London

A lot of effort goes into creating and maintaining our network of transects and the data generated contributes to the national picture. However, it is also important to use this information as advocacy for the conservation of butterflies within our area. Land managers and councils like clear messages on conservation and look to us to interpret the data for them. We started this (with some of the London Boroughs) at the end of the 2018 season, and it is something that we will explore further in the coming year.

Coupled with this is the need to obtain better local statistics from our data and so it is good that Butterfly Conservation intends to review this. We need to be able to generate basic information such as a comparison of butterfly numbers at different sites over a period of years - only possible at present with a lot of hand-crafting.

In all, 14 new routes were added to our portfolio in 2018 and two old routes were reinstated:

1. Whitmoor Common	Surrey Wildlife Trust
2. Hankley Common North	MoD
3. Elstead Common	Surrey Wildlife Trust
4. Stave Hill Ecology Park, Rotherhithe	London Borough of Southwark
5. One Tree Hill and Brenchley Gardens	London Borough of Southwark
6. Dulwich Park	London Borough of Southwark
7. Streatham Common	London Borough of Lambeth
8. Wandsworth Common (reinstated)	London Borough of Wandsworth
9. Ham Lands South	London Borough of Richmond
10. Lloyd Park, Croydon	London Borough of Croydon
11. Gatwick Airport – North West Zone	Gatwick Greenspace
12. Gatwick Airport – Land East of the Railway	Gatwick Greenspace
13. Hatchlands Park	National Trust
14. Langley Vale	Woodland Trust
15. Denbies Hillside – Secretaries Field	National Trust
16. Oxted Downs, Whistlers Steep (reinstated)	National Trust

So, in 2018 good progress was made:

- Three new heathland sites were added: Whitmoor Common, Hankley Common and Elstead Common. This is with a view to improving the recording of two of our highest priority species, the Silver-studded Blue and the Grayling.
- A major drive in 2018 was to improve monitoring in Inner London where previously there were only two routes: Sydenham Hill Woods and Tooting Common. Three new routes were added in 2018 - Stave Hill Ecology Park (Rotherhithe), Dulwich Park and Streatham Common - and the route at Wandsworth Common was reinstated. We know that London is under-recorded, so this was in preparation for the *Big City Butterflies* Project. We now have at least one transect in each VC17 London borough and have strengthened our links with the London Wildlife Trust, in particular their *Great North Wood* project.
- There are two new routes in Outer London, at Ham Lands (Richmond) and Lloyd Park (Croydon).
- The two new routes at Gatwick Airport add to routes walked in the Weald, which is under-recorded by transects and this is the first time we have worked with Gatwick Greenspace.
- Hatchlands Park (National Trust) and Langley Vale (Woodland Trust) are new sites where there are enthusiastic walkers. Both are possible sites for the Small Blue.
- There are two new routes on the chalk of the North Downs. Denbies Hillside Secretaries Field has the Adonis Blue and allows us to extend our monitoring of this highest priority species. Whistlers Steep is an important chalk grassland site with an abundance of spring species. This is a reinstatement, but not unfortunately of the old route which was never recorded.

As ever there is a target list of new sites for 2019 and which ones have come to fruition will be reported in the Annual Report next year.

Wider Countryside Butterfly Survey (WCBS)

Bill Downey

I took over as WCBS coordinator in 2018, and 23 out of a possible 36 monad squares were walked last year. Virtually all the squares in the northern, eastern and central parts of VC17 are now taken.

However there are a number of squares to the west and south of our area that are vacant and have proved intractably difficult to fill.

The purpose of the Wider Countryside Butterfly Scheme is to record outside the butterfly hotspots and for this reason the monad squares are randomly chosen. A difficulty with the scheme is that it is hard to match potential walkers to an available square. A number of people have expressed interest in walking in 2018 but I have not been able to accommodate them as they live many miles from a vacant monad.

Zoe Randle, the scheme coordinator, has released five more squares for Surrey which will give more scope when new walkers are identified. These are: TQ3377 Southwark, TQ0543 Winterfold, TQ2668 Mitcham, SU 9863 Chobham, TQ3354 South Caterham.

Small Blue Project update – Spring 2019

Fiona Haynes, Project Officer

I'd like to extend a huge thank you to everyone involved in the project as it's been a great success in terms of what has been achieved.

We've continued to have a good attendance at volunteer tasks and have just completed an extremely busy set of winter tasks across the project area. Weekly Friday tasks or surveys ran until the end of July when the project ended.

This winter we have completed the spending of the project budget. We paid for further bramble clearance and quarry restoration at Hackhurst Down, a good deal of scrub clearance at Brockham Quarry, some additional scrub clearance at Denbies Hillside, Blatchford West and Wholecomb Down, plus a great deal of work at Box Hill.

These works at Box Hill are all on the eastern side of the site at Duke's just above Box Hill Farm. We have had three scallops created in the side of Brodie's Drive and restored a large bare slope at the former quarry in the field below.



One of three scallops along Brodie's Drive

We also created three more scrapes in the same field and had a lot of scrub clearance undertaken to create the bare areas for creating the scrapes, as well as to reduce shading of the new scallops along Brodie's Drive above.



Quarry restoration at Box Hill

This work at Box Hill is the largest contractor job for the project and was delayed in Feb 2018 due to the weather conditions, so it was satisfying to get the works completed at the start of October, before the tracks could get too wet.

We have also installed fenced exclosures around some of our scrapes on Hackhurst Down and Wholecomb Down.

These will protect the new Kidney Vetch plants from being nibbled by rabbits and livestock and it will be interesting to see how they compare to the unfenced scrapes.



Installing a stile to exclosure on Wholecomb

Table showing where volunteers have been working since the last report which detailed tasks until Feb 2018

Site	Land manager	No. tasks	Tasks
The Mount	GBC	2	Removal of Hawthorn scrub around scrapes and Kidney vetch areas
Pewley Down	GBC	2	Scrape maintenance, seed sowing, scrub popping
Rosamund Trust Community Garden	Rosamund Trust	1	Scrape creation and scrub popping
Newlands Corner	Albury Estate	1	Scrub popping along Silver-spotted Skipper bank
Merrow Downs	GBC	2	Restoration of chalk pit by scrub removal and Kidney Vetch plug planting
Albury Organic Vineyard	Albury Estate	1	Scrape creation
West Hanger	SWT	2	Scrub/ bramble removal, scrape maintenance
Netley Plantation	SWT	3	Scrub removal, buddleia control, scrape maintenance
Netley Park	NT	3	Buddleia control, glade management, scrub popping
Blatchford Down	NT	1	Scrub removal around scrapes
Wholecomb Down	NT	3	Scrub removal around scrapes, fencing improvements
Hatchlands Park	NT	2	Quarry restoration – removal of invasive Buddleia, Sycamore felling to create bare ground, seed sowing
The Ranges, White Downs	NT	8	Scrub popping, repair and management of kidney vetch exclosures, clearing treated scrub to expose good chalk grassland flora
Denbies Hillside	NT	12	Scrub clearance, scrape creation, scrape maintenance
Denbies Vineyard	Vineyard	1	Scrape creation
Box Hill	NT	5	Removal of invasive species along butterfly and Man Orchid bank, scrub popping, scrape creation, chalk pit restoration
Juniper Hall FSC centre	FSC	1	Scrape creation
Brockham Quarry	SWT	5	Scrub clearance

We made great progress on many of these sites, and the feedback from our project partners has been very positive. They are grateful for the extra input and habitat restoration on their sites, have enjoyed working with us and are keen for us to continue to be involved.

We now have around 125 new scrapes across the Downs, all seeded with Kidney Vetch - most having been seeded more than once. Some have many young plants in them and others are taking time to get going. We have appointed Scrape Stewards to keep an eye on these areas. They will monitor the progress of the Kidney Vetch, remove seedlings of the species we don't want - such as bramble and buddleia - monitor grazing from livestock and rabbits, and report any issues back to the Branch. This is a good way to ensure that these scrapes are kept in the best condition, and also that we

pick up any interesting butterfly sightings. These scrapes will all get more locally-sourced seed sown in them at the end of the summer.

We have now recruited three new work party leaders from the volunteer group to lead work in the future. A huge thank you to Simon Riley, Libby Ralph and Sarah Henson for stepping forward. We are purchasing extra tools with funds donated by the Branch and by the Surrey Hills Conservation Volunteers to enable work parties to continue. This is great news for securing the future of Small blue in the project area.

The final few months of the project involved more scrape creation at Box Hill and Tyting Farm and scrape maintenance work.

Oaken Wood Reserve report

Harry Clarke

Many thanks to all those volunteers who have helped manage Oaken Wood. The work has been overseen by Jayne Chapman, Butterfly Conservation (BC) Reserves Officer, to a management plan agreed with Forestry Commission.

A fantastic 77 BC volunteer days have been spent on working parties (to March 2018), plus help from South Downs Volunteer Ranger Service (SDVRS) volunteers - not forgetting Phil Darley who walks the two transects at Oaken Wood, 26 times a year.

On 22 June 2018, five hundred tiny weevils *Stenopelmus rufinasus* were introduced into the main pond at Oaken Wood to control the highly invasive plant Water Fern *Azolla filiculoides*. While these weevils do not generally require a license to be released into the wild, we still obtained written permission from Forestry Commission and Natural England, as this part of the reserve is SSSI. This is the first use of a bio-control agent on any Butterfly Conservation reserve.

The weevils did a fantastic job, and this winter there was no sign of *Azolla*. However, the Wey and Arun Canal near the Sidney Wood car park had a large mat of *Azolla* this winter, so there is a danger that Oaken Wood could be re-infected in the future.

In October, we finished clearing out the ditch that runs alongside the track that runs east/west in the more grassy area of the reserve. In the beginning of December, Ian Hampshire brought heavy machinery in to remove the stumps from the ditch, and then to re-profile the ditch. During March 2019 Forestry Commission arranged to clear a strip of trees on the opposite side of the ditch.

Unfortunately, some hooligans broke the fence at the entrance to the site, and then drove along the western half of the ditch. Fortunately the damage is not too severe, although the tracks are unsightly. The long-term aim is that this ditch and adjoining area will develop into habitat suitable for Wood White, although it will take a few years for the area to recover.



Reprofiling the ditch, © Harry Clarke

In November, with the help from the SDVRS volunteers we installed deer fencing in two areas. The first area in the eastern side of the first ride in Oaken Wood is to allow the understory to recover, where it has suffered from heavy deer grazing. The second area is around the coppiced hazel near the main pond, which had been suffering badly from deer browsing. The deer fencing will be left in place for the next five years or so.

In December, we removed four mature Aspens to provide a larger area for our rarest moth, the Betony Case-bearer *Coleophora wockeella*. A survey in March of the Betony plants did not find any larvae (still hibernating), but there are plenty of signs of feeding damage from the autumn (see photo). Aspen is difficult to control as creates loads of shoots. We will attempt to control those shoots to prevent them shading out the Betony. Overall we seem to have the management about right for the moth for now.



Feeding signs of Betony Case-bearer larvae
© Gillian Elsom

In January we removed scrub from the east side of ride 4 and south side of ride 3. Scrub will be removed from the other side of those two rides during the 2019/20 winter.

In February, we opened up the glade on the east side of the pond, pollarding the large willows that

had become overgrown. By letting more light into the area, it will hopefully become more attractive to Wood Whites.

Silver-spotted Skipper

Harry Clarke

2018 was the anniversary for the national survey of the Silver-spotted Skipper that has been carried out every nine years since 1982.

Prior to the Second World War, the North Downs were mostly grassland and there was very little woodland. The top of the Downs and the scarp slope would have been grazed by sheep or cattle, whereas the bottom of the dip slope (northern side) was farmed as arable. Langley Vale farm would have been typical, growing wheat, barley or oats.

After the Second World War, the Agriculture Act 1947 was introduced with the aim of improving the efficiency of farming. The outcome of this Act was that marginal land was abandoned to concentrate on the more profitable land. This resulted in less grazing by livestock on the Downs, so that the only grazing on the Downs was by rabbits. In 1953 myxomatosis was introduced into Kent, and this spread through the rest of the country over the next couple of years. The consequences were devastating for the Downs, and scrub started to invade the rich chalk grasslands. Much of the woodland now seen on the Downs is secondary woodland that has developed since the Second World War. Pill boxes that were once in open grassland are now buried in woodlands.

The impact on the Silver-spotted Skipper population was also devastating. A butterfly that was once found all along the scarp slope of the North Downs became confined to just a few sites. There was such concern for the plight of the butterfly that English Nature arranged for national surveys to be undertaken. The first survey was in 1982 covering the South Downs, North Downs and the Chilterns. Subsequent surveys have been undertaken every nine years: in 1991, 2000, 2009 and 2018.

The maps show how the distribution of the butterfly has dramatically expanded since 1982.

There has been much speculation to explain the distribution of the Silver-spotted Skipper and its expansion. The populations on the South Downs were expanding their distribution faster than those of the North Downs.

It was thought that this was due to physical differences between the two populations, with those on the South Downs have larger thoraxes and thus able to fly further. Recent research has shown this not to be the case, and that the differences can be explained by the micro-climate.

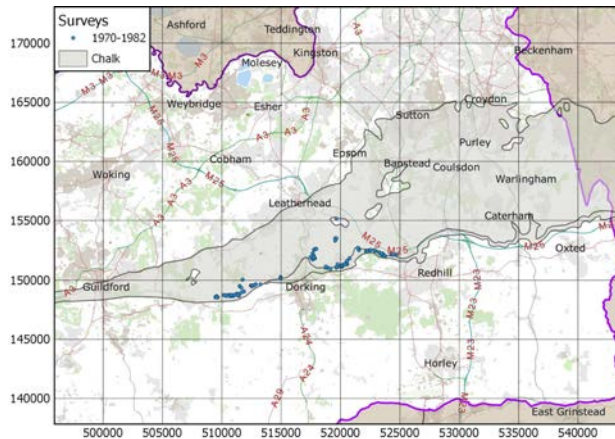
Sheep's Fescue *Festuca ovina*, is a fine-leaved grass that is the larval foodplant of the butterfly. It grows in nutrient-poor soils, and does best in grassland that is grazed. In other habitats it is out-competed by other plants.

The ideal conditions are generally found on the thin soils of the scarp slope of the North Downs (and heathlands). On the deeper soils on the dip slope and at the bottom of the scarp slope, the nutrients tend to be too high.

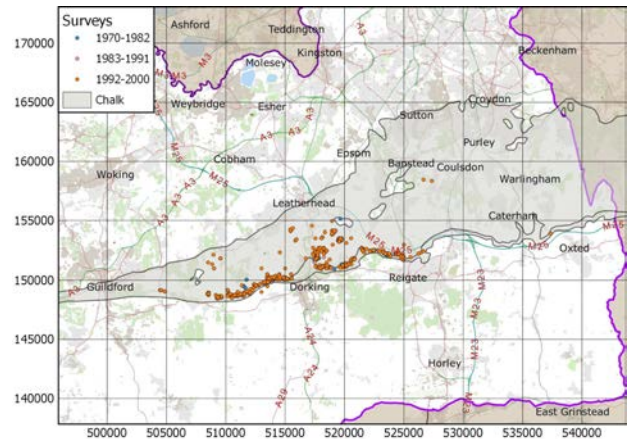
The Silver-spotted Skipper is at its north westerly limit of its range, and temperature is the limiting factor for its distribution on calcareous grasslands. Silver-spotted Skippers only start flying when the temperature is above 20°C, and females will only lay their eggs when the temperature is above 24°C. Back in 1982, at least 40% bare ground around the Sheep's Fescue plants growing on the south slope of the Downs was important to ensure the temperature was high enough for larval development. The bare ground will be a lot hotter on a sunny day, than in dense vegetation.

However, with climate warming this requirement has become less important, which has enabled the

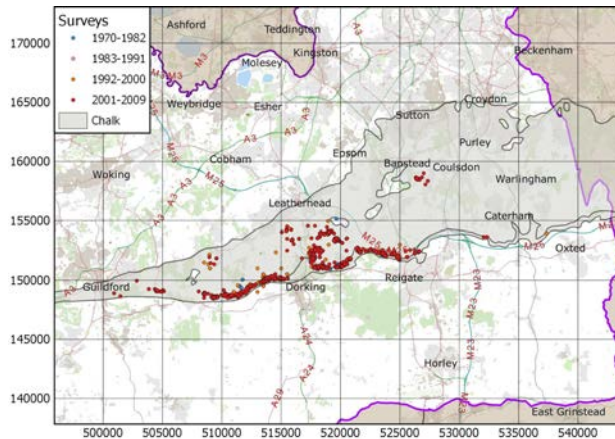
butterfly to expand its distribution. This has been assisted by improved habitat management of sites.



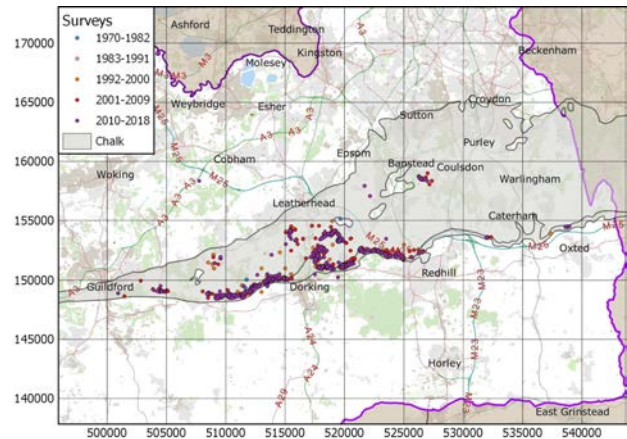
Silver-spotted Skipper distribution
1970-82



Silver-spotted Skipper distribution
1970-82, 1983-91 and 1992-2000



Silver-spotted Skipper distribution
1970-82, 1983-91, 1992-2000 and 2001-2009



Silver-spotted Skipper distribution
1970-82, 1983-91, 1992-2000, 2001-2009 and 2010-18

Hairstreaks in Surrey

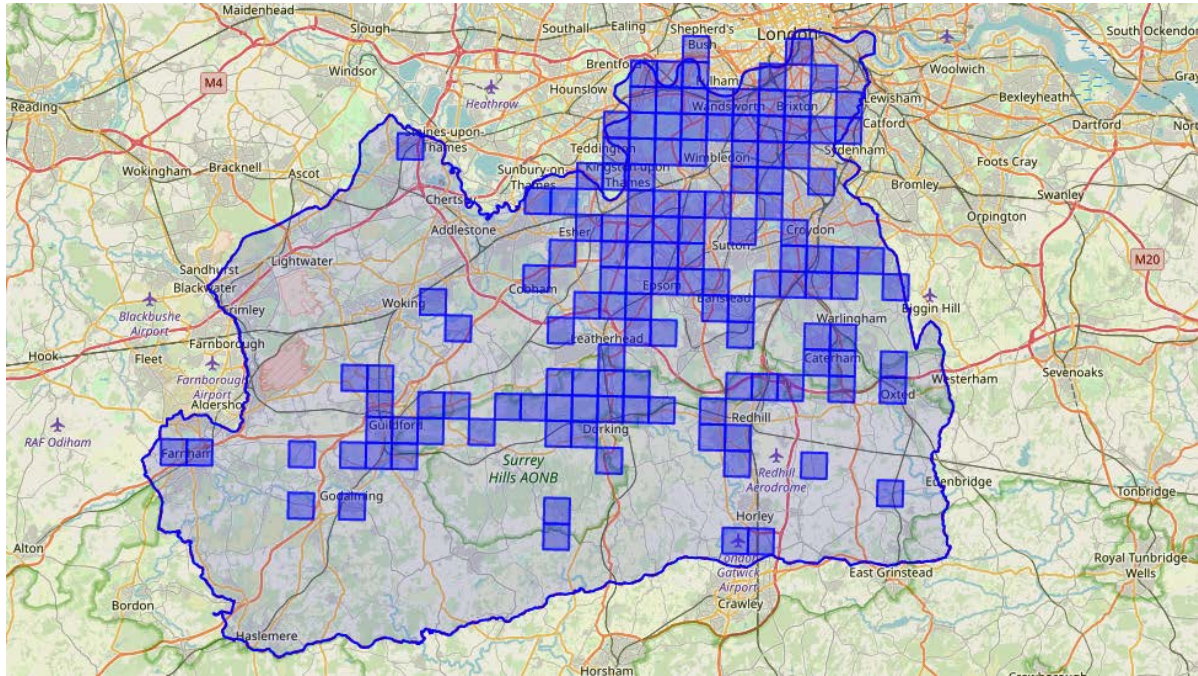
Bill Downey

There have been discussions in Butterfly Conservation about ways of monitoring Purple Hairstreaks - a species that had a very good year in 2018. A method that involves a dedicated transect walk in the early evening is being trialled.

As Species Champion for the White-letter Hairstreak, it is good to report that it had an excellent year. The hot summer appeared to benefit the species and there was a period in the second half of June when I would expect to find it on any elm tree, even unpromising stands of English Elm affected by Dutch elm disease.

The strategy has been to confirm its continuing presence in known areas and to extend our knowledge of its distribution into areas where there are few or no records. To this end searches were carried out in many new locations, and the presence of the species can now be confirmed in more areas of Surrey and SW London (see map). We now think it likely that the species is present throughout VC17.

The task for 2019 will be to find the White-letter Hairstreak in the "blank squares" in the Weald and in the west of the county.



White-letter Hairstreak distribution in VC17, 2016 to 2018

South-west London's butterflies

Simon Saville, Branch Chair

Historically, most of the Branch's focus has been on the North Downs and Surrey Heaths, home to some of our most threatened species - places with beautiful landscapes and lots of butterflies to be seen. The assumption has been that London is no good for Lepidoptera. We've been finding out that this is simply not true.

London is 47% green space, much of this being parks, gardens, cemeteries, commons and heaths. Unlike the surrounding countryside, pesticide and herbicide use is low. And, despite development pressures, green spaces are much as they were many years ago. In fact, boroughs and other landowners are managing their green spaces more sympathetically for wildlife, a trend set to continue.

London also basks in an Urban Heat Island effect, which means that temperatures can be 4 to 7°C warmer than the rest of Surrey. We suspect that this affects the phenology and distribution of species, but we don't know enough yet to prove this.

Thanks to the efforts of Bill Downey, we had 29 transects in London in 2018. Six are in Inner London:

1. Streatham Common, Lambeth (19 species on transect in 2018)
2. Tooting Common, Wandsworth (22)
3. Wandsworth Common (21)
4. Sydenham Hill Woods (Southwark) - 12
5. One Tree Hill, Southwark (19)
6. Stave Hill Ecology Park, Southwark (21)

A seventh, Brockwell Park (Lambeth) is new in 2019, and we are seeking to establish one in Burgess Park (Southwark).

A total of 26 species were recorded in 2018 on the Inner London transects:

- Small, Essex and Large Skippers
- Brimstone, Large White, Small White, Green-veined White, Orange Tip
- Green Hairstreak, Purple Hairstreak, White-letter Hairstreak
- Small Copper, Common Blue, Brown Argus, Holly Blue

- Red Admiral, Painted Lady, Small Tortoiseshell, Peacock, Comma, Silver-washed Fritillary
- Speckled Wood, Marbled White, Gatekeeper, Meadow Brown, Ringlet

This underestimates the butterflies present, because we know that additional species are seen off transect or only occasionally. A total of 28 species have been seen on Wandsworth Common in recent years, but only 21 on transect in 2018.

In Outer London, we have 23 transects:

1. Barnes Common - Richmond
2. Coulsdon Common - City of London Corporation (CoLC)
3. Coulsdon Common Merlewood Far - CoLC
4. Dollypers Hill - now LWT
5. Foxley Wood - Croydon
6. Ham Lands - Richmond
7. Happy Valley - Croydon
8. Hutchinson's Bank - LWT
9. Kenley Common - CoLC
10. Lloyd Park - Croydon
11. London Wetland Centre - WWT
12. Mitcham Common - Merton
13. Morden Hall Park - National Trust
14. New Hill - CoLC
15. Richmond Park - Royal Parks
(we are seeking to add a 2nd route here)
16. Riddlesdown - CoLC/LWT
17. Riddlesdown Quarry - CoLC
18. Roundshaw Down - Sutton
19. Selsdon Wood - Croydon
20. South Norwood Country Park - Croydon
21. Tolworth Court Farm - Kingston

22. Wimbledon Common - Conservators
23. Wimbledon Common SW & Fishponds Wood - Conservators / LWT

Despite being in Greater London, Hutchinson's Bank has a notable 37 species recorded on transect.

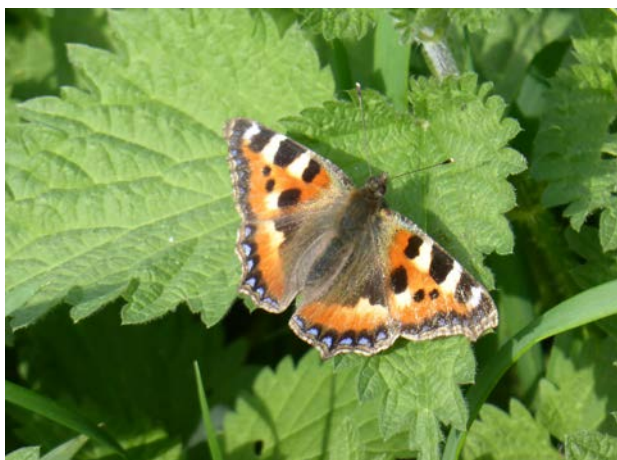
Some species are very widespread, with the Holly Blue and Small White being seen almost anywhere. The Comma is also very prevalent in parks and gardens - seen more often than Peacocks or Small Tortoiseshells.

There are indications that other species, like the Marbled White, Brown Argus, Common Blue and Silver-washed Fritillary are expanding their range.

Purple Hairstreaks are abundant on places like Wimbledon Common and Tooting Common. The White-letter Hairstreak is now found all across SW London, including very urban sites in the centre (see page 31).

In Feb 2019, we kicked-off the one-year development phase of our BIG City Butterflies project, supported by the National Lottery Heritage Fund.

If successful, this will become a four-year project from 2020. BIG City Butterflies will inspire Londoners to discover butterflies and moths, and in doing so will connect them with nature and their local green spaces. The data we gather will help us understand more about London's Lepidoptera. See <http://www.butfli.es/BigCityButterflies>.



Small Tortoiseshell, Burgess Park, © Simon Saville



Comma, Wandsworth Common, © Simon Saville