



Comma

Peacock



LOTHIAN BUTTERFLY REPORT 2022

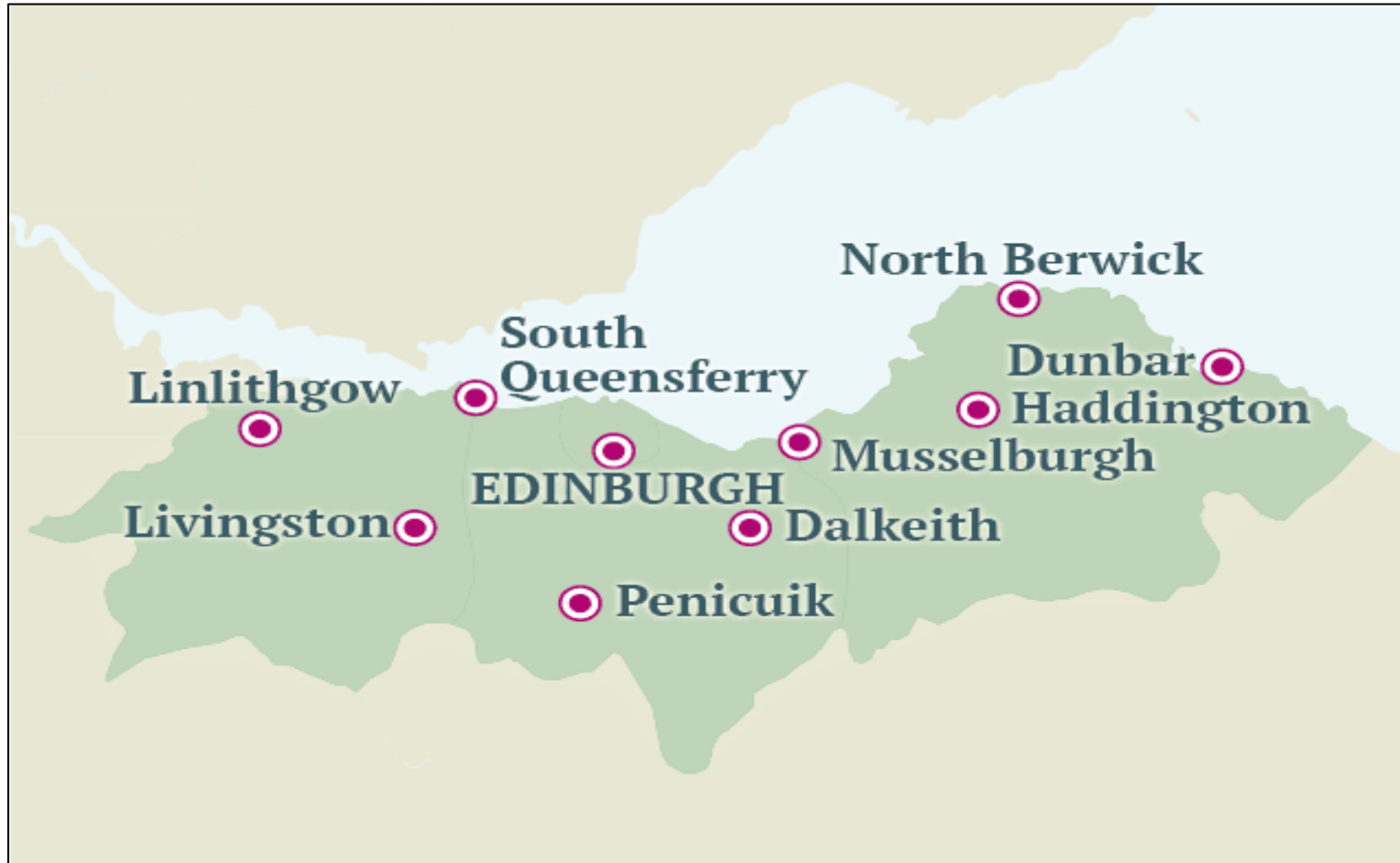
Lothian Butterfly Report 2022

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1. Lothian Regional Map

The region covers East Lothian, Mid-Lothian, Edinburgh, and West Lothian and is shown on the map below.



2. Brief Outline of the Region

The following outlines general information on the Lothian region: -

1. Overall area is 1,700 square km.
2. Majority of butterfly records are from East Lothian and Edinburgh.
3. The landscape is quite diverse in that it is a mixture of built-up areas, farming, woodlands, hills, beaches, grasslands, and marshes.
4. Currently twenty-seven species of butterfly can be seen in the region.
5. Peak butterfly season is mid-July to mid-August.
6. There are around 20 Transects that are walked each week between April and September by volunteers for the UKBMS (Butterfly monitoring scheme).
7. Most records are sent via iRecord (this includes those who record using iNaturalist and the results of the UKBMS Transects which are imported into iRecord).
8. The best sites to visit to see the greatest number of species of butterfly are: -

Aberlady Local Nature Reserve (Coastal & Marsh - East Lothian)

Whitesands to Torness (Coastal - East Lothian)

Gullane (Coastal - East Lothian)

Holyrood Park (Grasslands & Rocky Outcrops – Edinburgh)

3. First & Last Sightings in 2022

The table below shows the first and last dates that butterfly species were seen by recorders in 2022. Generally, the dates are in line with what you would expect for the time periods when the listed species are on the wing. There are records where the dates are early or late for Peacock, Small Tortoiseshell and Red Admiral. This is due to recorders finding adults of these species hibernating for the winter in sheds and old buildings. Whilst Red Admiral is a migrant species, due to climate change this butterfly now appears to be over wintering in the UK as adults.

Species	First Date	Species	Last Date
Peacock	01/01/2022	Green Hairstreak	04/06/2022
Small Tortoiseshell	01/01/2022	Brimstone	22/06/2022
Red Admiral	16/01/2022	Orange-tip	27/06/2022
Comma	18/03/2022	Large Skipper	04/07/2022
Large White	24/03/2022	Small Pearl-bordered Fritillary	10/07/2022
Speckled Wood	24/03/2022	Small Skipper	26/07/2022
Wall	24/03/2022	Northern Brown Argus	05/08/2022
Brimstone	25/03/2022	Clouded Yellow	09/08/2022
Green-veined White	25/03/2022	Small Copper	17/08/2022
Orange-tip	25/03/2022	Purple Hairstreak	23/08/2022
Holly Blue	26/03/2022	Dark Green Fritillary	26/08/2022
Small Copper	26/03/2022	Ringlet	27/08/2022
Small White	27/03/2022	Grayling	31/08/2022
Green Hairstreak	17/04/2022	Common Blue	09/09/2022
Common Blue	28/04/2022	Small Heath	11/09/2022
Painted Lady	08/05/2022	Meadow Brown	23/09/2022
Small Heath	08/05/2022	Green-veined White	29/09/2022
Meadow Brown	18/05/2022	Painted Lady	01/10/2022
Ringlet	26/05/2022	Wall	02/10/2022
Small Skipper	01/06/2022	Small White	10/10/2022
Large Skipper	03/06/2022	Large White	12/10/2022
Northern Brown Argus	04/06/2022	Comma	13/10/2022
Grayling	12/06/2022	Speckled Wood	24/10/2022
Small Pearl-bordered Fritillary	19/06/2022	Holly Blue	12/11/2022
Dark Green Fritillary	20/06/2022	Red Admiral	13/11/2022
Clouded Yellow	11/07/2022	Small Tortoiseshell	27/11/2022
Purple Hairstreak	13/08/2022	Peacock	05/12/2022

4. Records / Recorders

Over the past few years both the numbers of records and recorders is increasing, with the number of records doubling and the number of recorders tripling (with 2019 being an exceptional year).

The table below shows the numbers for the last eight years during which Simon Metcalfe had been the Lothians recorder. The average records per recorder varies between 9 and 32 over the eight-year period.

Year	Nr of Records	Nr of Recorders	Average Records / Recorder
2015	6,910	219	32
2016	4,950	243	20
2017	6,137	399	15
2018	9,537	628	15
2019	13,999	1,542	9
2020	9,094	581	16
2021	11,002	613	18
2022	11,815	508	23

The increase in records and recorders is influenced by the following factors: -

- a) Use of Butterflies iRecord app which is easy for recorders to download and use.
- b) Butterfly Conservation's increased press coverage and promotion of the Big Butterfly Count.
- c) Training courses and meadow planting organised by Anthony McCluskey at Butterfly Conservation Scotland.

On behalf of Butterfly Conservation, a big thanks to all those who record butterflies and contribute records. Each year's records are sent to Butterfly Conservation in March and are incorporated into the UK database. The data is then used for reporting on the impact of climate change, yearly trends and the state of nature reports produced by Butterfly Conservation and other Nature Organisations.

All sightings are verified by Simon Metcalfe, the Lothians recorder, using the techniques noted below (especially for those sightings of butterflies which are rare or new to the region): -

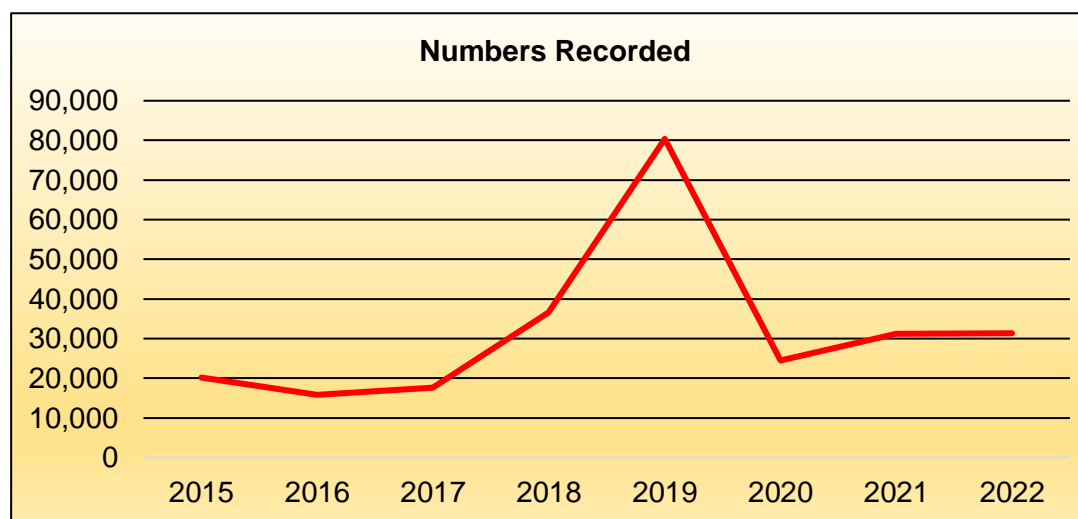
- a) Reviewing whether the date when the butterfly is seen is within the species flight period.
- b) Reviewing whether the butterfly has been seen in the habitat that is suitable for it.
- c) Requesting a photo of the butterfly (for rarer butterflies) to verify what has been seen.
- d) Assessing the experience of the recorder. New recorders may have records queried while recorders who have sent records over several years are approved.

5. Species Reports

This section of the report outlines a review of the 2022 year for the species seen in the Lothians and how this reflects the overall trend over the last eight years. The review groups the butterfly species into similar looking species for ease of reporting on trends.

The graphs show the trends for the numbers of butterflies seen over the last eight years whilst the maps included in the report show the spread of the butterflies across the Lothian region.

Year	Nr of Species Recorded	Nr Recorded
2015	23	20,161
2016	23	15,817
2017	24	17,616
2018	24	36,532
2019	25	80,386
2020	24	24,486
2021	28	31,240
2022	27	31,390



The table and graph above show that the Nr of Species Recorded has increased from 23 in 2015 to 27 in 2022 reflecting an increase in the species that are being seen in the region. The new species that have been seen in recent years are Large Skipper, Brimstone, Clouded Yellow and Purple Hairstreak.

The numbers recorded have increased from circa 20,000 to 31,000 reflecting the increase in those who are sending butterfly records. The numbers recorded are likely to include a significant amount of double counting where recorders who have visited the same location on the same day or within a few days of each other are likely to have counted the same butterfly. Butterfly Conservation analyse the data to assess the overall abundance, species seen and location in the national grid 1km grids.

The numbers recorded in 2019 at circa 80,000 is an exceptional year due to the significant influx of Painted Lady butterflies which are migratory. In 2019 the Painted Lady made up 51% of the butterflies recorded.

A. Skippers

Currently there are two species from the Skipper family that can be seen in the Lothian region. These are the Small Skipper and the Large Skipper.

Small Skipper

Sightings and numbers of this butterfly have increased in each year over the last eight years with 1,887 being recorded in 2022.

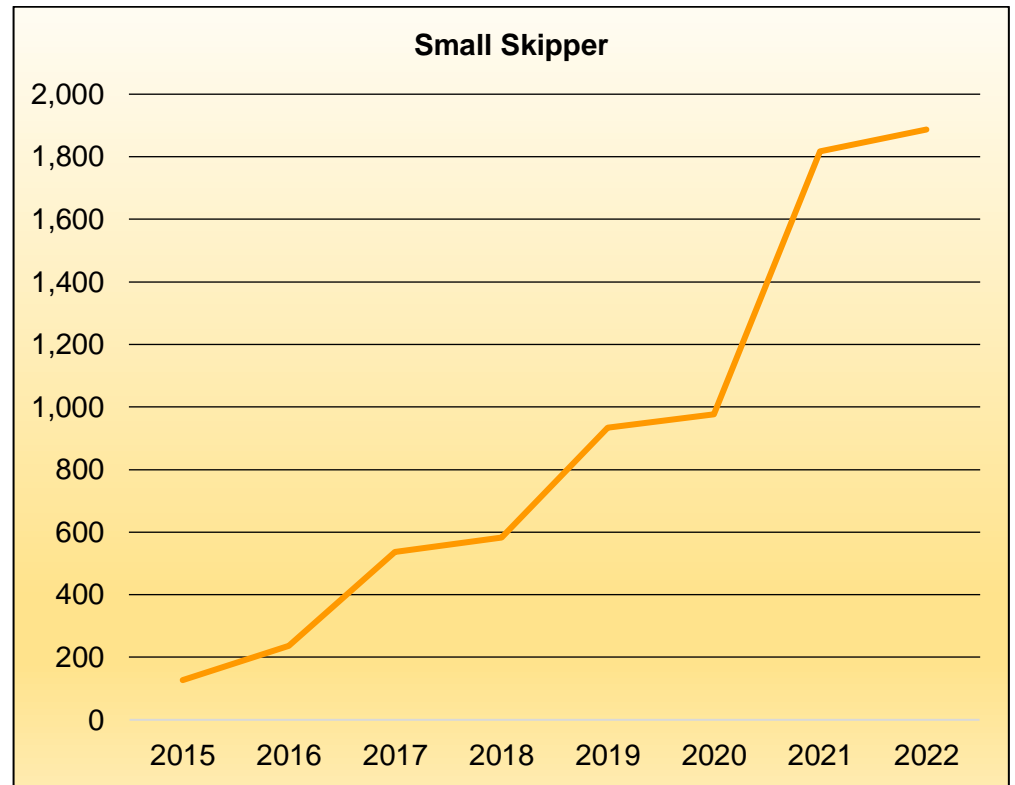
The Small Skipper was first recorded in 2011 at Aberlady Local Nature Reserve and has since spread out across the region. It has recently been seen at Livingston in West Lothian.

It is most abundant in East Lothian and Edinburgh and is likely to continue its spread into Mid and West Lothian in future years.

The movement of this butterfly reflects the warmer climate that has been experienced over the last 20 years which is causing the adults to migrate north to new locations.

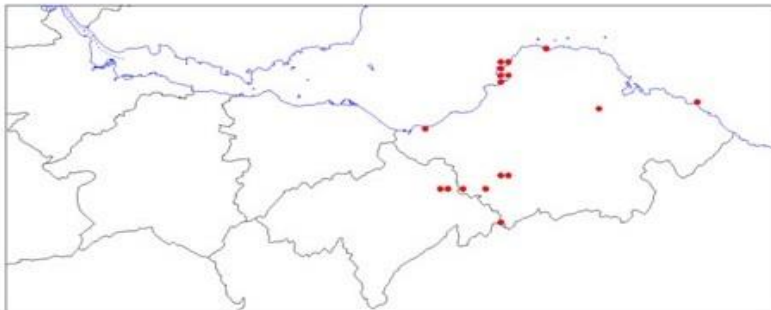


Small Skipper



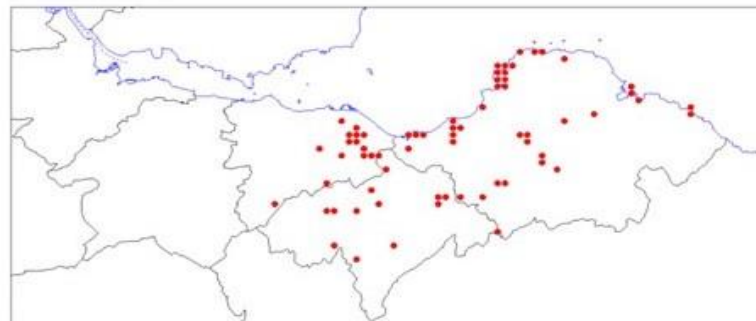
The maps below show the spread of the Small Skipper from 2015 to 2019 to 2022.

Small Skipper



2015

Small Skipper



2019

Small Skipper



2022

Large Skipper

The first recorded sighting of the Large Skipper was in 2017. Since then the records have increased to 14 in 2022. The sightings are all in East Lothian with the main site being Levenhall near Musselburgh. It can be difficult to distinguish the Large Skipper from the Small Skipper as the two species are remarkably similar and, given that they can be seen in similar habitats, when sending records by iRecord it is always useful to submit a photo to confirm the identification of the Large Skipper.

B. Browns

Seven species of brown butterflies can be seen in the Lothians some which are common and some which are spreading across the area and some which are restricted to certain locations due to their habitat requirements.

Wall

This butterfly's sightings have increased in each year over the last eight years except 2022 when there was a decrease from 1,040 recorded in 2021 to 718 being recorded in 2022.

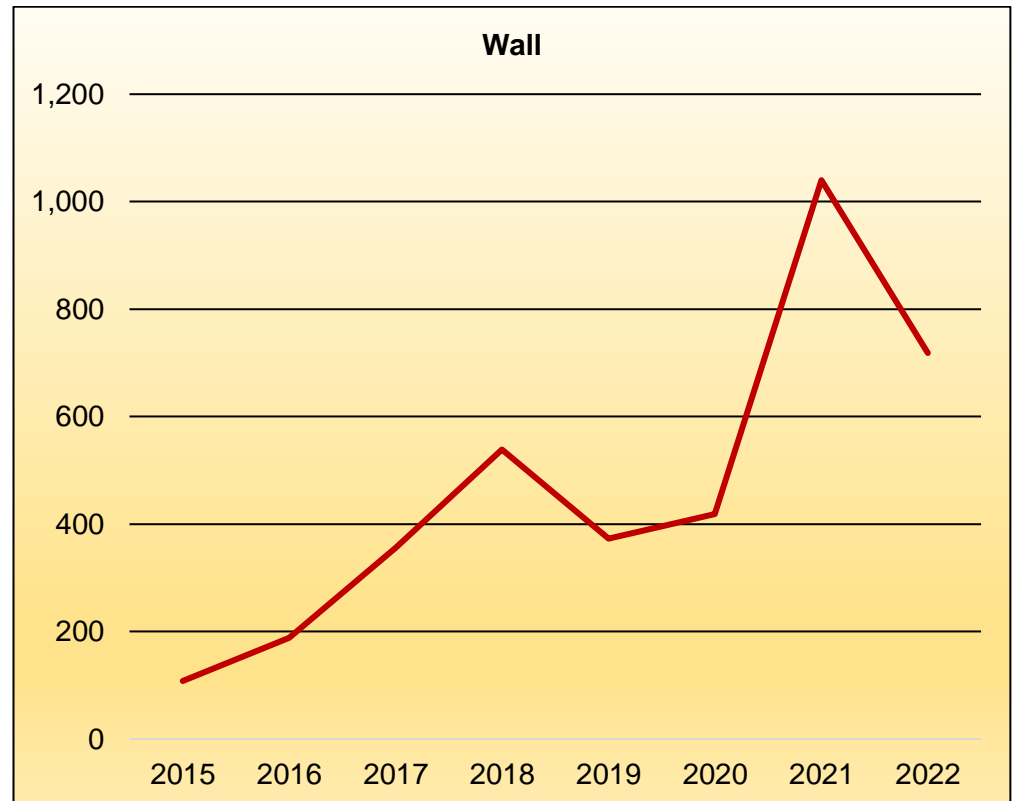
The Wall started to be seen in 2005 at Traprain Law and has since spread out across the East Lothian region along the coast and inland at certain locations. It has also moved into Edinburgh.

The best places to see this butterfly are Aberlady Local Nature Reserve and Holyrood Park.

The movement of this butterfly reflects the warmer climate that has been experienced over the last 20 years which is causing the adults to migrate north to new locations.

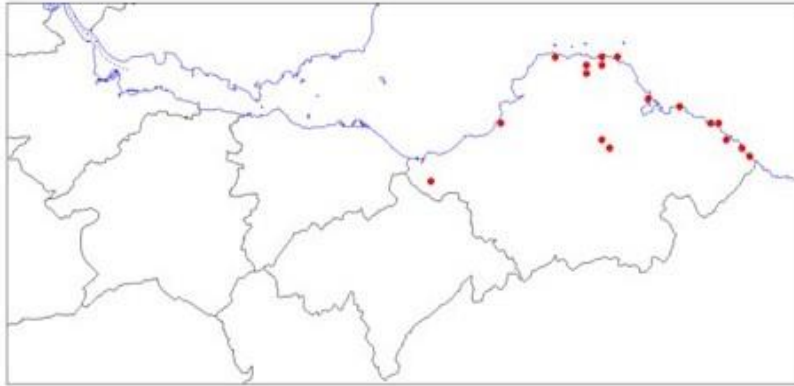


Wall



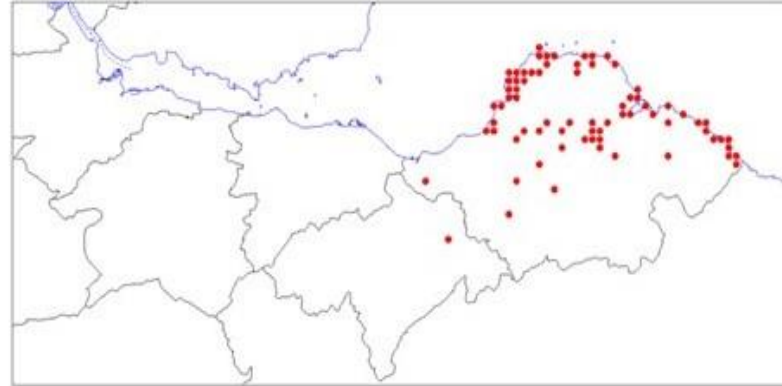
The maps below show the spread of the Wall from 2015 to 2019 to 2022.

Wall



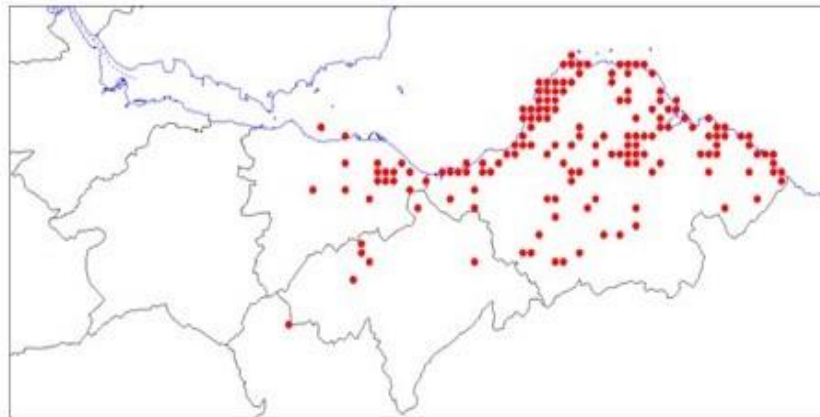
2015

Wall



2019

Wall



2022

Speckled Wood

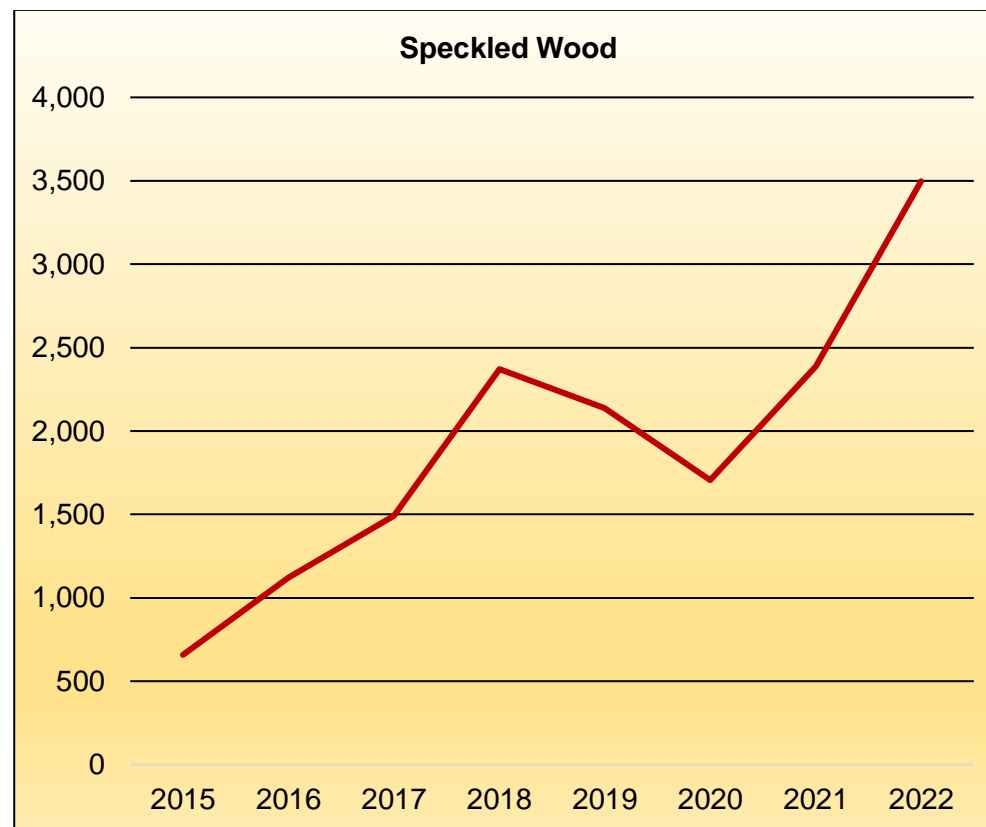
This butterfly's numbers have increased in each year over the last eight years with 3,497 being recorded in 2022.

The Speckled Wood started to be seen in 2005 / 06 at Traprain Law and Tynninghame and has since spread out across the Lothian region mainly in East Lothian and Edinburgh. A few sightings have been made in West Lothian and it is likely that the butterfly will spread to new locations in West Lothian in future years.

The movement of this butterfly reflects the warmer climate that has been experienced over the last 20 years which is causing the adults to migrate to new locations.

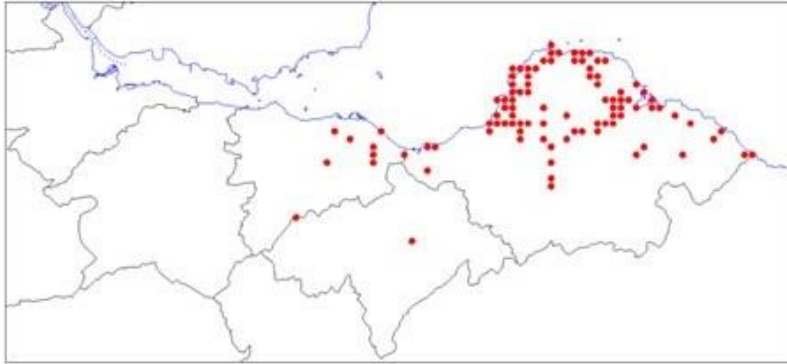


Speckled Wood



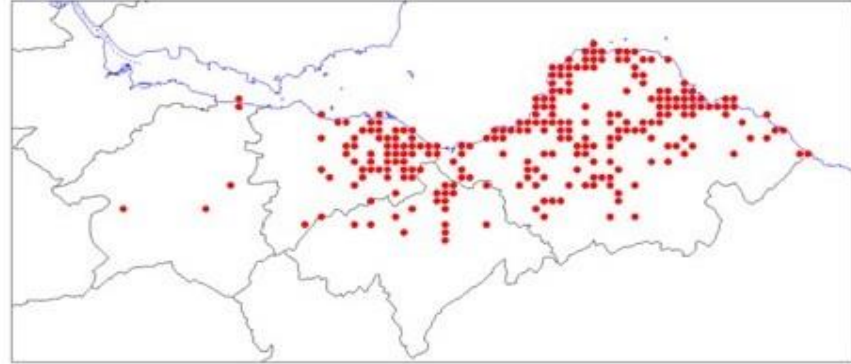
The maps below show the spread of the Speckled Wood from 2015 to 2019 to 2022.

Speckled Wood



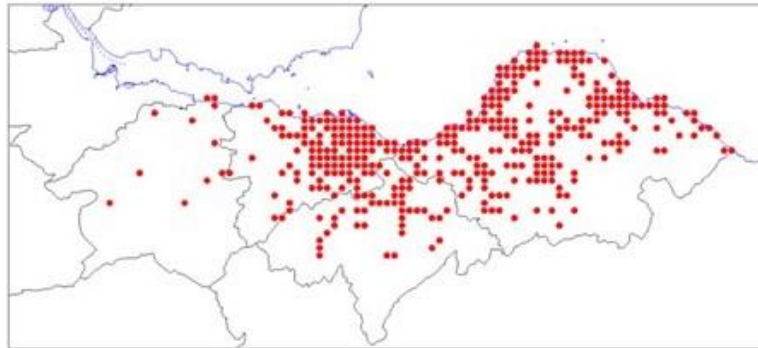
2015

Speckled Wood



2019

Speckled Wood



2022

Common Browns

The butterflies included in this section are the common browns which can be seen across the whole of Lothians at many locations. The species included in this section are Meadow Brown, Ringlet and Small Heath.

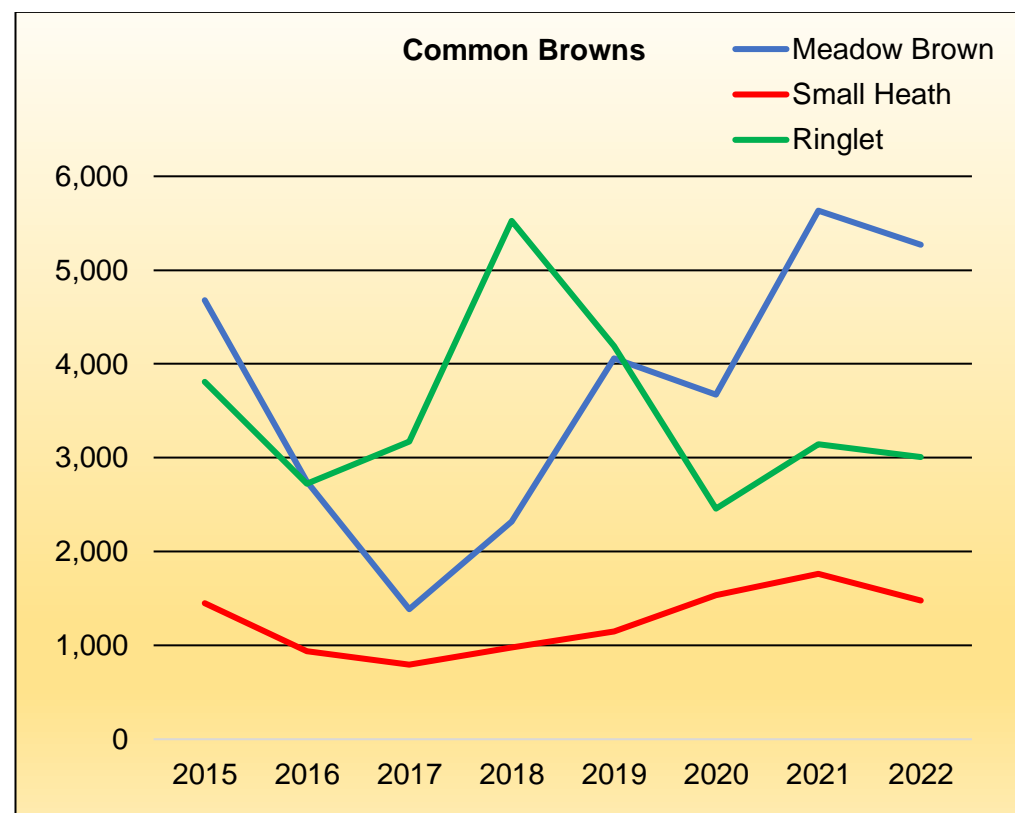
Meadow Brown numbers have varied over the last eight years with a low in 2017 likely to be caused by a colder wet summer. Numbers seen were slightly down in 2022 compared to 2021. The high numbers (above 5,000) seen in 2021 and 2022 is likely to be due to warmer summers. There is a slight overall increase between 2015 and 2022 probably due to the increase in recorders.



Mating Meadow Browns

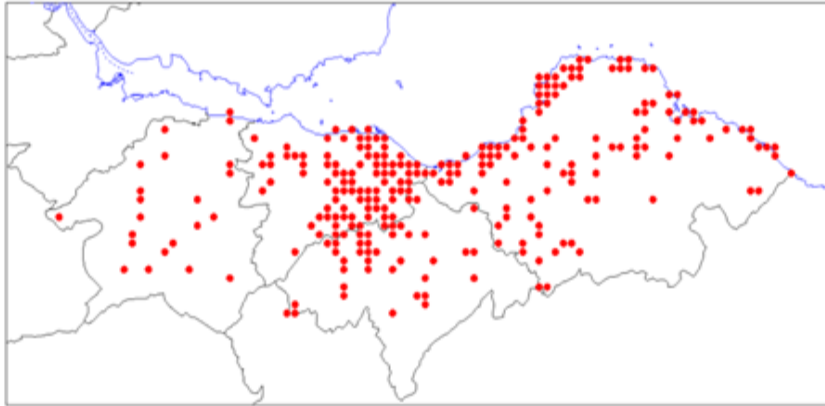
Ringlet numbers peaked in 2018 decreasing to a low in 2020 with numbers rising in 2021. Numbers seen in 2022 are slightly lower than 2021. Overall there is a decrease in the numbers recorded by 800 between 2015 and 2022.

Small Heath numbers generally vary within a band of 1,000 – 2,000. There is a slight dip in 2017 probably due to a colder wetter summer. There is an increase in 2021 and a slight decrease in 2022.

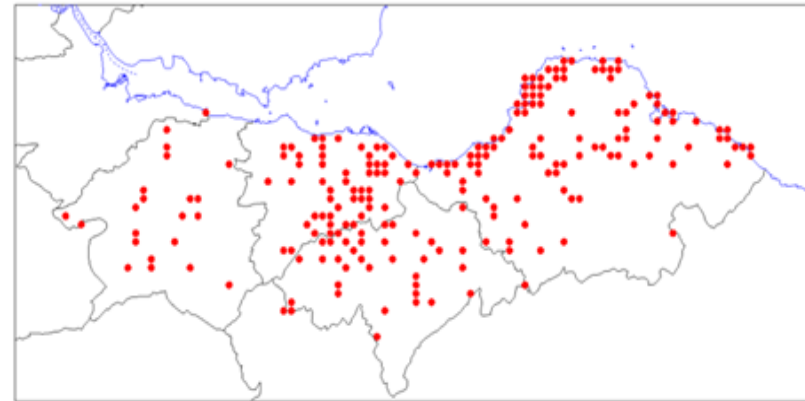


The maps for the sightings in 2022 for the above three species are shown below.

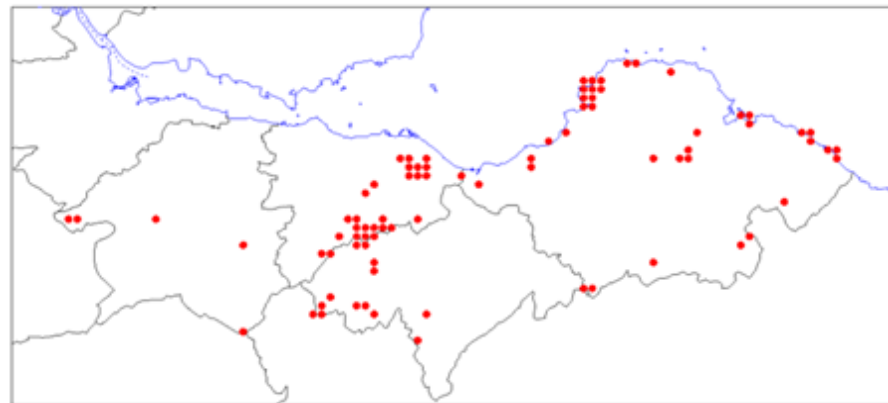
Meadow Brown



Ringlet



Small Heath



Grayling

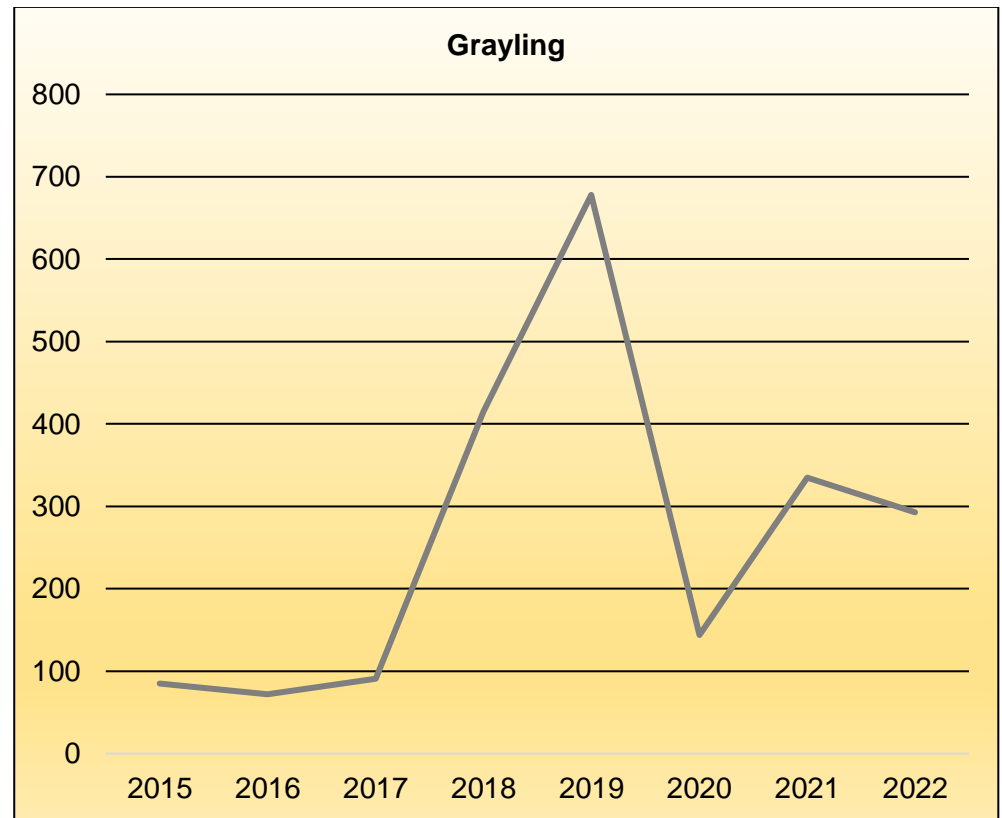
Grayling is restricted to a small number of sites across the region. The three main locations where good numbers of Grayling can be seen every year are Calton Hill in Edinburgh, Holyrood Park, Edinburgh and Meadowmill near Prestonpans. There are no records for Grayling in Mid or West Lothian.

Numbers seen vary across the eight years with a peak in 2019. Overall the numbers seen have increased from 85 in 2015 to 293 in 2022.

What factors determine the numbers of Grayling seen in each year is difficult to understand, however the setting up of a specific Grayling transect in Holyrood Park which is walked once a week is likely to have increased the numbers recorded.

A more detailed review of numbers recorded on this transect could be undertaken once the transect has been walked for 5-10 years. The Grayling sightings map is shown below.

Grayling



Large Heath

The Large Heath is in remoter areas of the region, so the small numbers seen in each year result from recorders who specifically visit the sites to find the butterfly. Over the last three years there have been no recorded sightings of this butterfly. Whether this is due to the butterfly becoming locally extinct or just that the sites have not been visited can only be figured out by further investigation. Historically this butterfly has been seen at Toxside Moss near to Gladhouse Reservoir.

C. Whites & Yellows

Six species of butterfly can be seen in the Lothians region, four which are common whites and two which are uncommon yellows which could be moving into the region due to climate change.

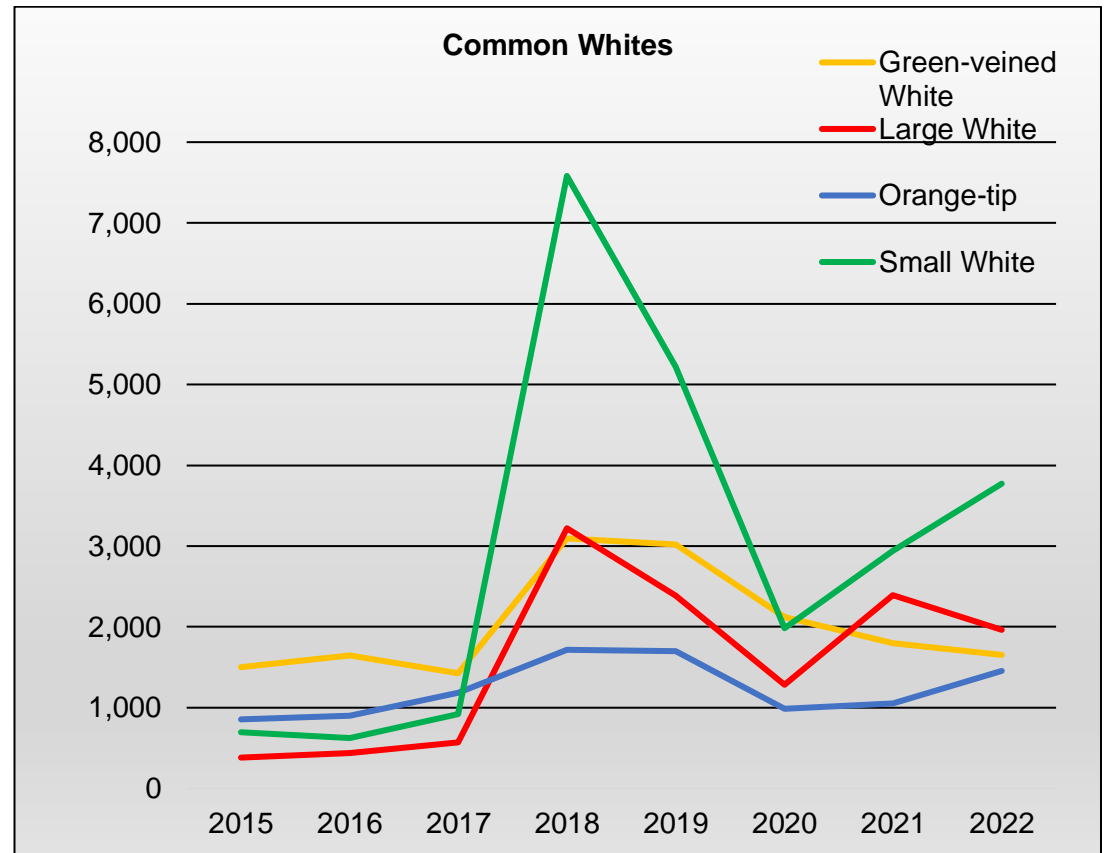
Common Whites

The butterflies included in this section are the common whites which can be seen across the whole of the Lothians at many locations. The species are Green-veined White, Orange-tip, Large White and Small White.

Large White numbers seen peaked in 2018. Numbers seen in 2022 are slightly lower than 2021. Overall numbers seen have increased from 382 in 2015 to 1,953 in 2022 which is a significant amount. Whether this is due to the number of recorders, the Big Butterfly Count (where these butterflies are possibly most common) or another factor such as climate change cannot be determined at this time.



Mating Orange-tips

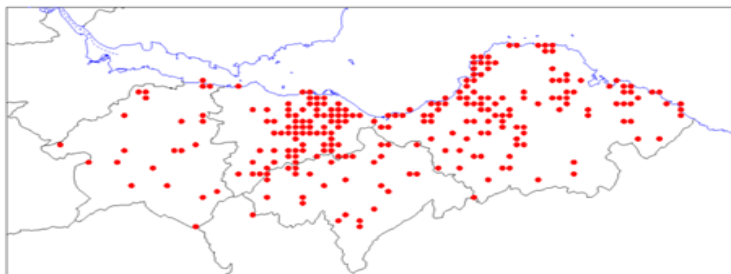


Green-veined White numbers seen have varied over the last eight years with a peak in 2018 / 2019. Overall the numbers seen are at a similar level when 2015 is compared to 2022.

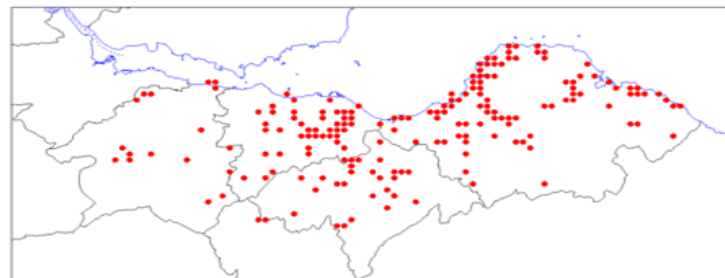
Orange-tip numbers seen generally vary within a band of 1,000 – 2,000. There is a peak in 2018 / 2019 and a slight decrease in 2020 / 21 with numbers seen rising in 2022. Overall the numbers seen have increased from 855 in 2015 to 1,454 in 2022.

The maps for the sightings in 2022 for the above four species are shown below.

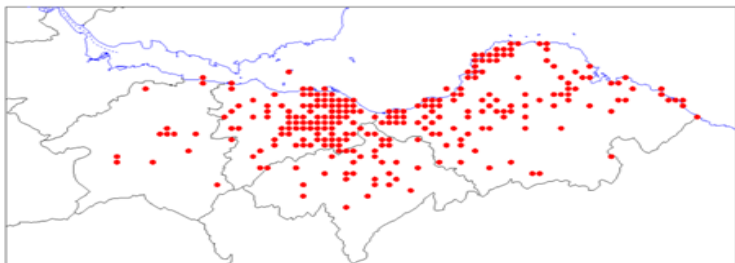
Green-veined White



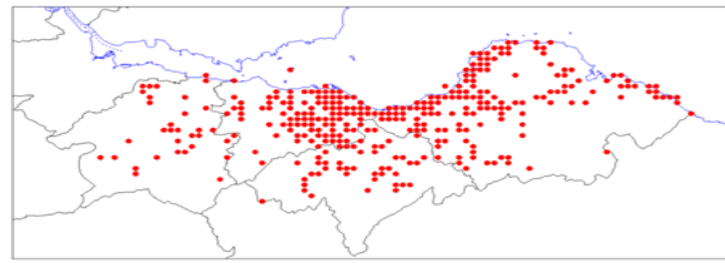
Orange-tip



Large White



Small White



Yellows

In recent years there have been sightings of Brimstone and Clouded Yellow in the region (by experienced recorders). Clouded Yellows are migratory butterflies from Europe and may be breeding in Southern England, so the numbers seen are only 1 or 2 each year. Brimstone numbers seen in the last two years are 5 in 2021 and 8 in 2022. There is the potential due to climate change for this butterfly to spread across the Lothians in future years if the non-native foodplant, Buckthorn, becomes established through planting.

D. Hairstreaks

Two species of Hairstreak can be seen in the Lothians, Green Hairstreak and Purple Hairstreak.

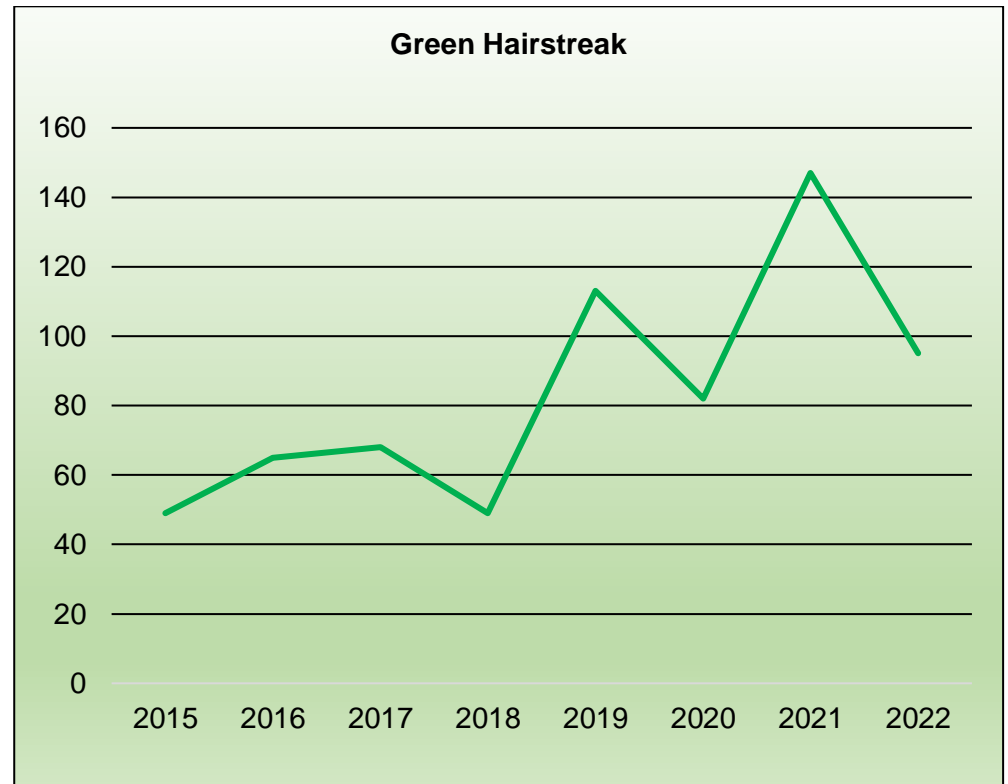
Green Hairstreak

Green Hairstreak's preferred habitat of scrubland means that this butterfly is only found in a few places in the Lothians. The main locations are in the Pentlands at Bonaly Country Park, Allermuir Hill and Castlelaw Hill.

The numbers seen in 2022 are lower than 2021 and over the past five years there is a trend of numbers increasing one year and then decreasing the next.

Overall numbers have increased since 2015. However this is likely to be the result of more recorders searching for the butterfly. The sightings map is shown below.

Green Hairstreak



Purple Hairstreak

Historically, Purple Hairstreak sightings have been very infrequent, probably due to their preferred habitat being the tops of oak trees and their habit of flying mainly in the evening. They are very rarely recorded at ground level. The flight period is mid-July to early September.

In recent years, surveys have been completed to find whether this Hairstreak is present in the Lothians. The result has been the discovery of the butterfly in a handful of locations, including Woodhall Dean and Binns Mill. There is the potential for new sites to be identified over the next few years.

E. Blues & Coppers

There are four butterflies that can be seen in the Lothians, two which are common, and one which can only be seen in certain locations and one which is expanding across the Lothians.

Common Blue

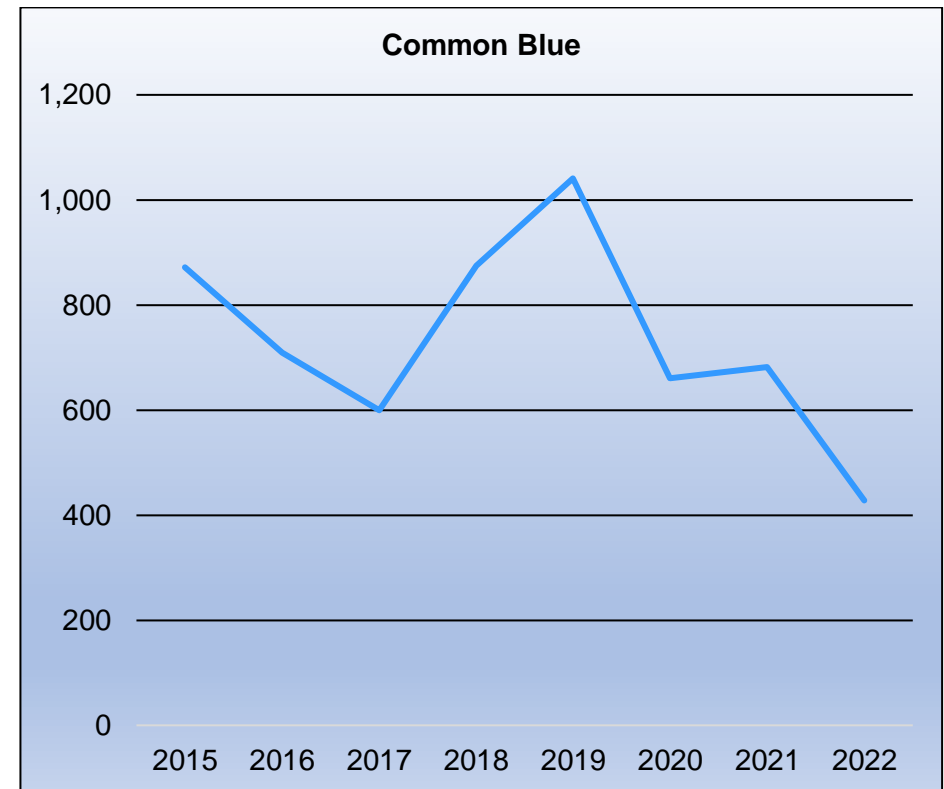
Common Blue sightings peaked in 2019 and since then have been decreasing to a low of 428 in 2022.

Overall sightings have halved since 2015 which could suggest that this butterfly is on a long term decline in the Lothians. The next few years will show if the trend continues or if there is an increase in sightings.

The Common Blue can be seen at various locations along the East Lothian coast including Aberlady Local Nature Reserve. The butterfly can be seen at Holyrood Park.



Male Common Blue

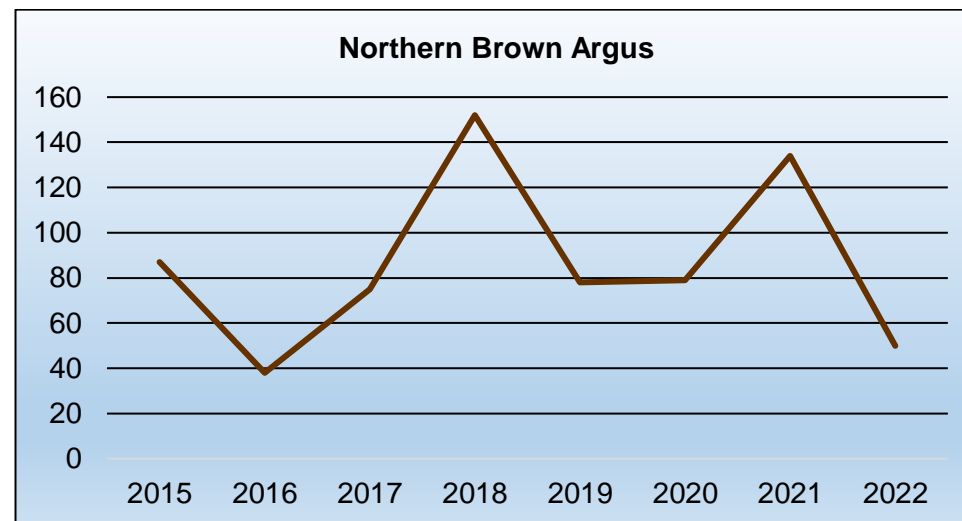


Northern Brown Argus

This butterfly was first identified as a separate species at Holyrood Park where it can still be seen. It can also be seen at Linn Dean and Wester Aikengall in East Lothian.

The numbers seen peaked in 2018 and 2021 although there was a significant decrease in the numbers seen in 2022.

During 2022 a few butterfly enthusiasts have visited sites to find the caterpillars' food plant Rockrose to potentially identify whether there are new sites where this butterfly can be found. Whether the 2022 decrease is a longer term decline will be shown in the numbers seen in the next few years.

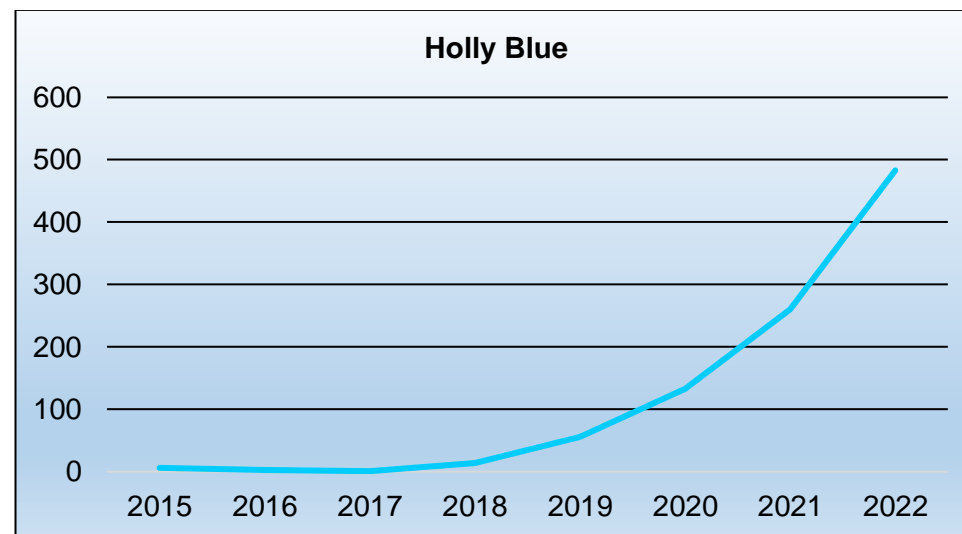


Holly Blue

In the last few years the number of sightings have increased dramatically from there only being a few between 2015 – 2018 to over 480 being seen in 2022. This butterfly is spreading due to climate change.

This species can be seen along the East Lothian coast from North Berwick to Prestonpans. It can be seen at inland sites such as Haddington and Holyrood Park.

The records over the next few years will show whether the Holly Blue expands into other areas of East Lothian and Edinburgh.



Small Copper

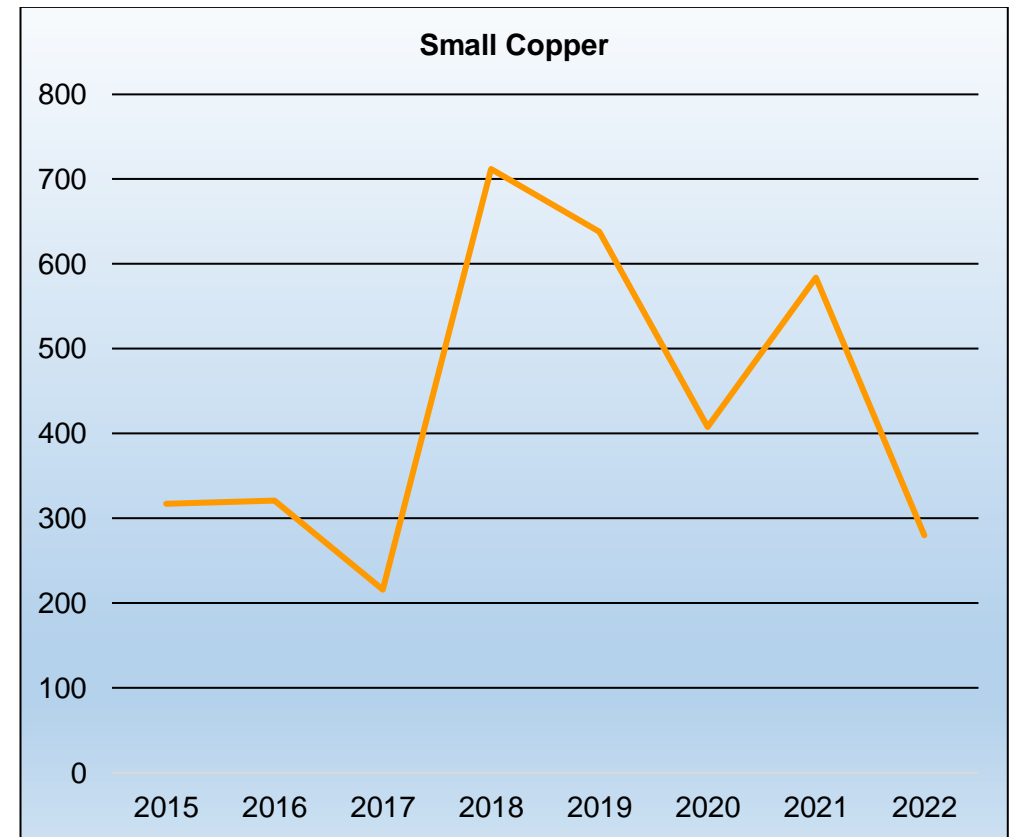
The sighting of Small Copper halved in 2022 compared to 2021 so that the numbers seen in 2022 are similar to those seen in 2015.

The numbers seen suggests that the Small Copper fluctuates with an increase then a subsequent decrease over the last eight years. Whether this continues will be shown in future years and the cause of the fluctuations cannot be identified.

The Small Copper can be seen at many different locations however the numbers seen are generally low.

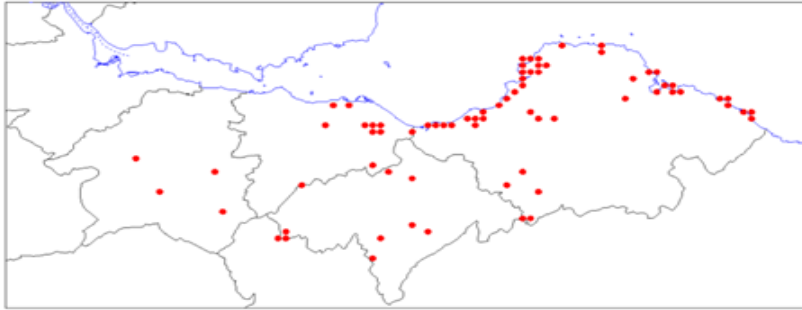


Small Copper

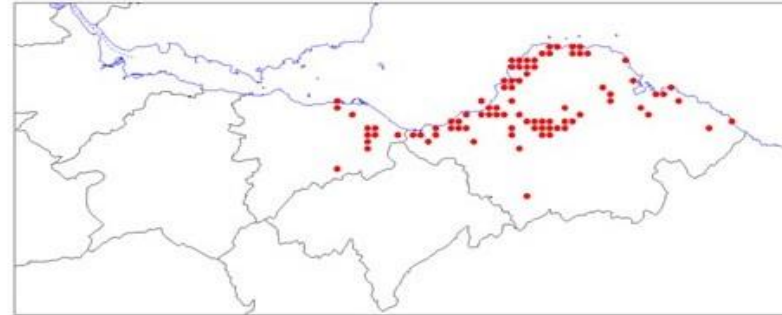


The maps for the sightings in 2022 for the above four species are shown below.

Common Blue



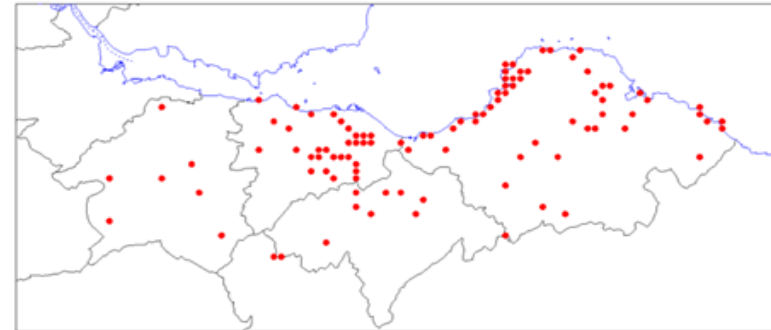
Holly Blue



Northern Brown Argus



Small Copper



F. Fritillaries

There are two butterflies that can be seen in the Lothians, one which is fairly widespread in low numbers, and one which can only be seen in a few locations due to the location of its foodplant in bogs.

Dark Green Fritillary

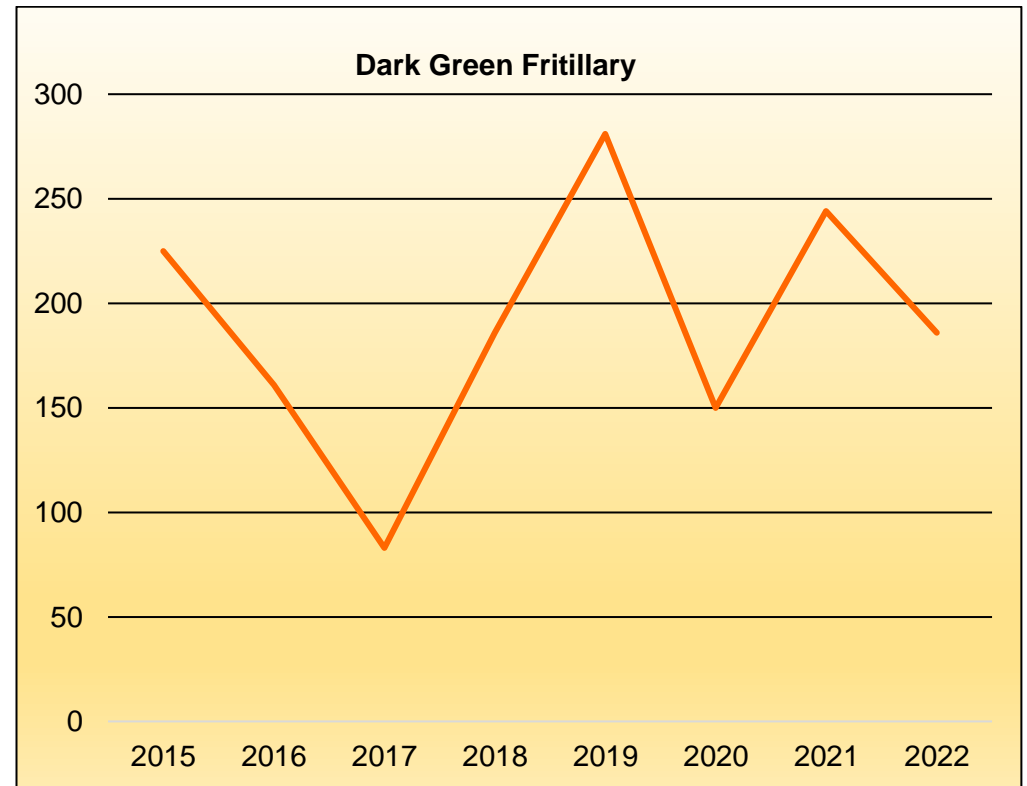
The sightings of Dark Green Fritillary have fluctuated over the last eight years. Whether this is a cyclical trend determined by the availability of caterpillar foodplants or other factors would require further investigation.

In 2022 the sightings were lower than 2021 which would follow the cyclical trend.

The best location to see this butterfly is Aberlady Local Nature Reserve. It can be seen at various locations along the East Lothian coast and at a few locations elsewhere in the Lothians.



Dark Green Fritillary



The sightings map for 2022 is shown below.

Dark Green Fritillary



Small-Pearl Bordered Fritillary

The SPBF sightings have fluctuated over the last eight years.

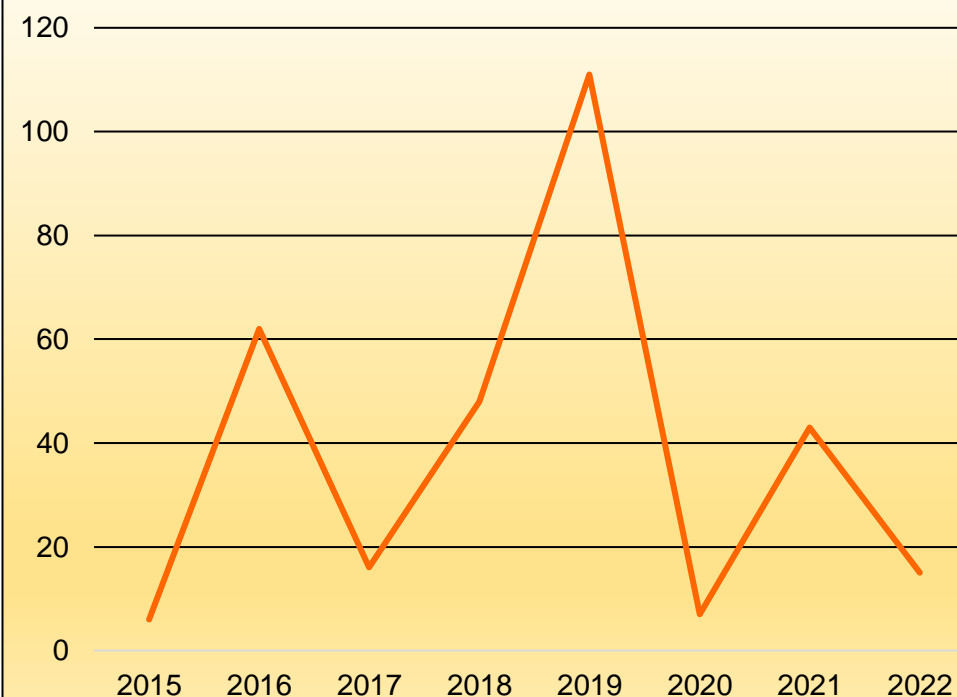
In 2022 the sightings were lower than 2021.

The best locations to see this butterfly are Bavelaw Marsh, Fullarton and Easter Inch Moss.



Small-Pearl Bordered Fritillary

SPB Fritillary



G. Emperors & Allies

There are five butterflies that can be seen in the Lothians, two are migratory, and three are widespread across the region.

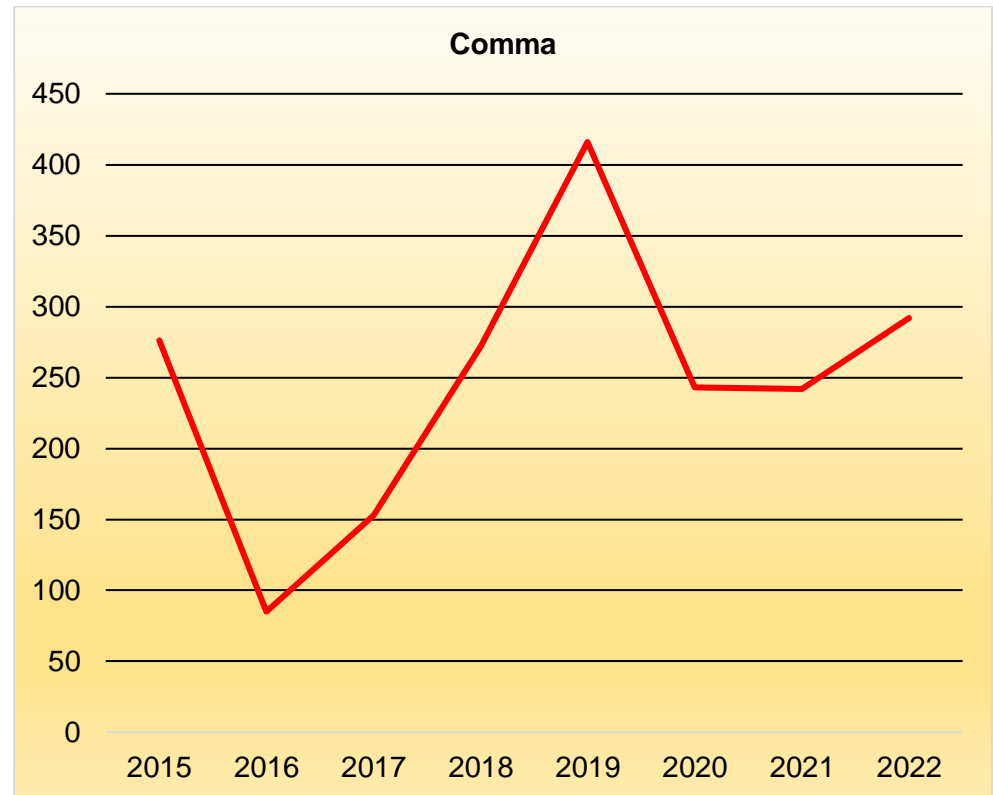
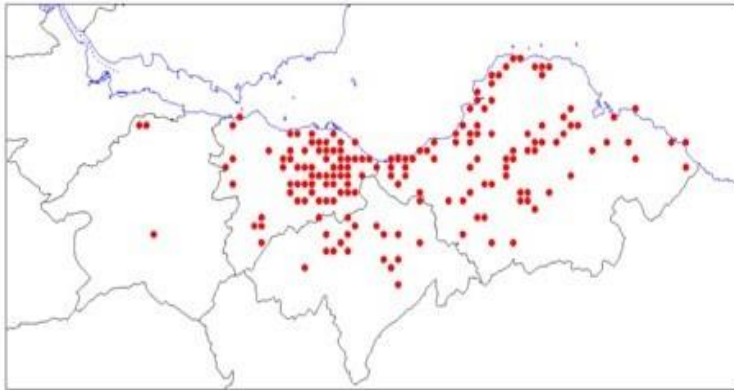
Comma

Comma sightings have fluctuated over the last eight years. The sightings peaked in 2019 and at this time they had increased by around 300 from a low in 2016 of less than 100.

In 2022 the sightings were higher than 2021.

The best locations to see this butterfly are East Lothian and Edinburgh. A photo of a Comma is on the front cover. The sightings map is shown below.

Comma



Painted Lady

Painted Lady sightings vary from 119 in 2015 to 287 in 2022. The low numbers (except 2019) are due to this species being migratory.

In 2022 the sightings were higher than 2021.

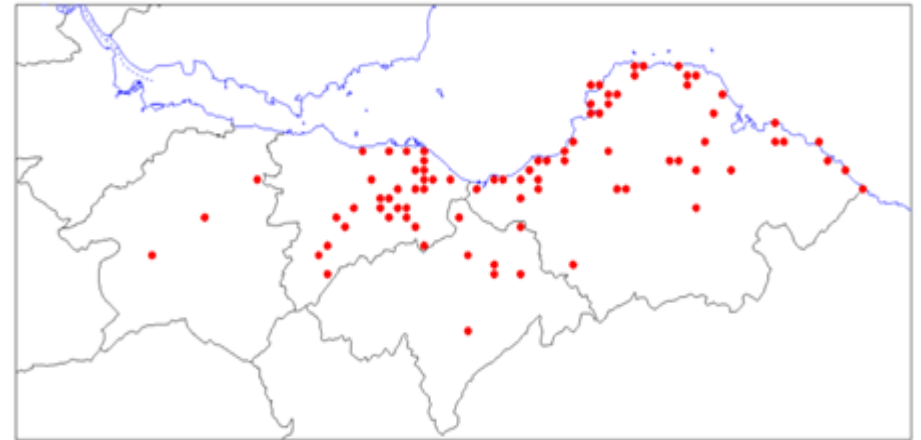
There was a Painted Lady eruption which resulted in over 40,000 sightings in 2019.

This butterfly is mainly seen in Edinburgh and East Lothian.



Painted Lady

Painted Lady



Small Tortoiseshell

In 2022 the Small Tortoiseshell continued a decline in sightings which started from a peak in 2019.

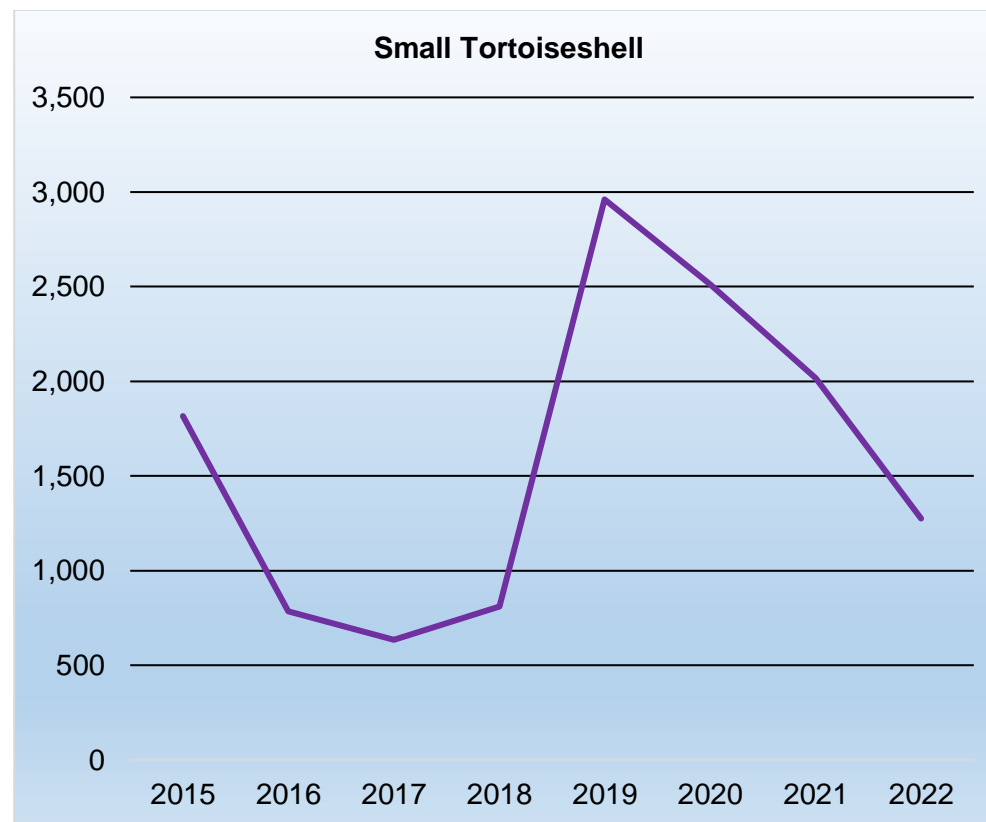
This butterfly declined from 2015 to a low of 600 – 800 in years 2016 – 2018 before there being the significant increase in sightings in 2019.

Whether the decline continues into the 2023 season will be seen in the overall sightings at the end of the season.

This butterfly can be seen across the whole of the Lothians however numbers appear to be concentrated in Edinburgh and along the East Lothian coast. The sightings map is shown below.



Small Tortoiseshell



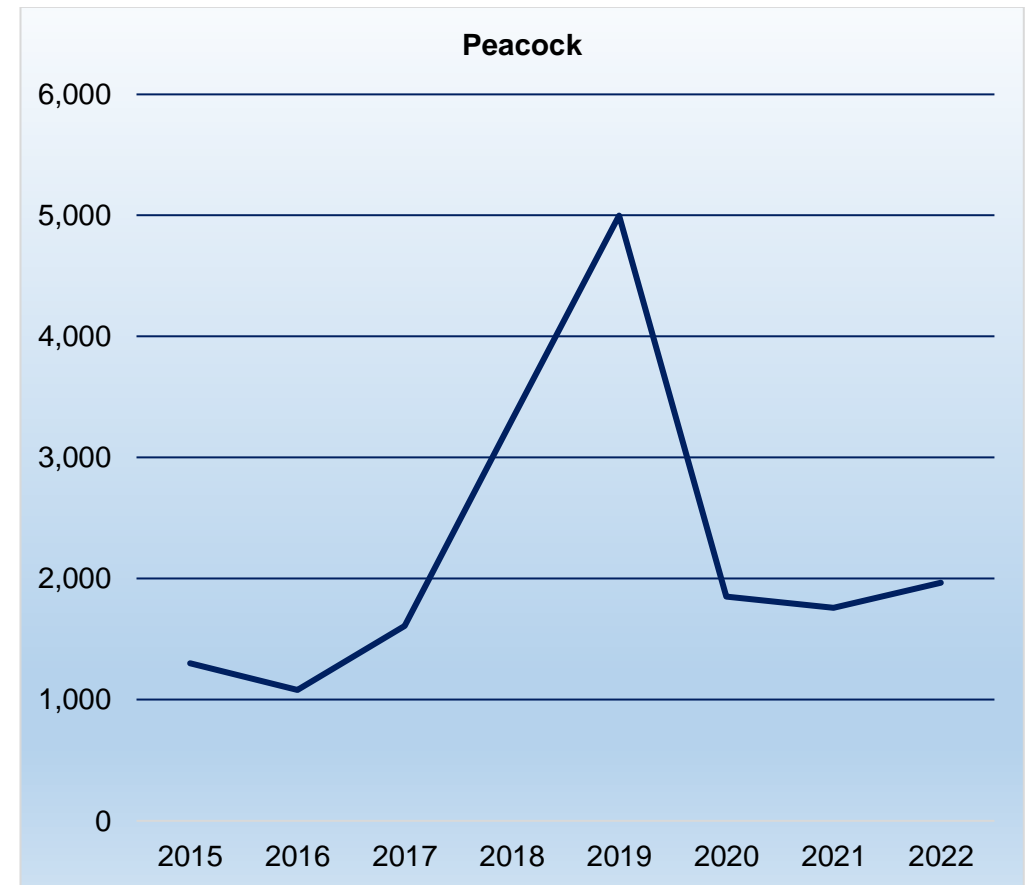
Peacock

In 2022 Peacock sightings were similar to 2020 and 2021.

The year of 2019 had just under 5,000 Peacocks counted by recorders which over the last eight years is the highest number.

There was a significant decrease between 2019 and 2020 however over the last eight years the number seen in 2022 are around 900 higher than 2015.

This butterfly can be seen across the whole of the Lothians. A photo of a Peacock is on the front cover. The sightings map is shown below.



Red Admiral

In 2022 Red Admiral sightings increased from 2021.

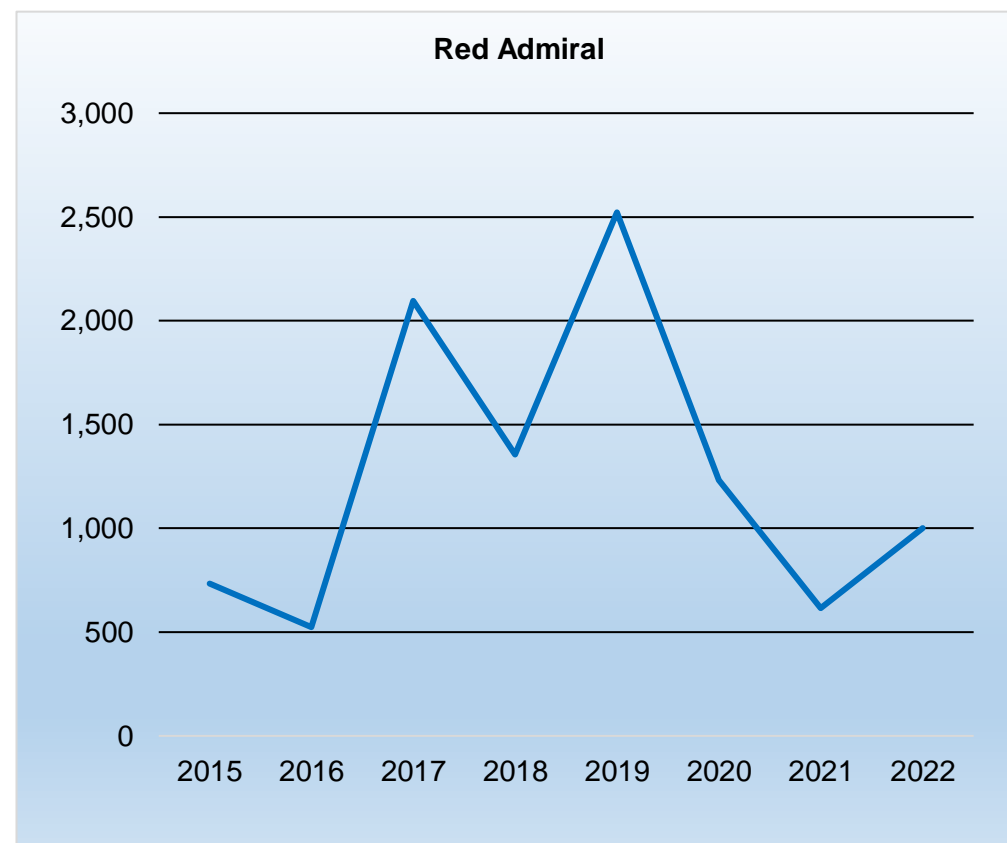
This butterfly has increases and decreases in the numbers that are seen in each year. As this butterfly is mainly migratory the fluctuations in numbers is likely to be determined by factors outside of the Lothians.

Peak numbers were in 2019. Over the last eight years the total numbers seen has increased from around 750 to 1,000. Whether this is due to the butterfly migrating further north in response to climate change may be determined in future years.

This butterfly can be seen across the whole of the Lothians. The sightings map is shown below.

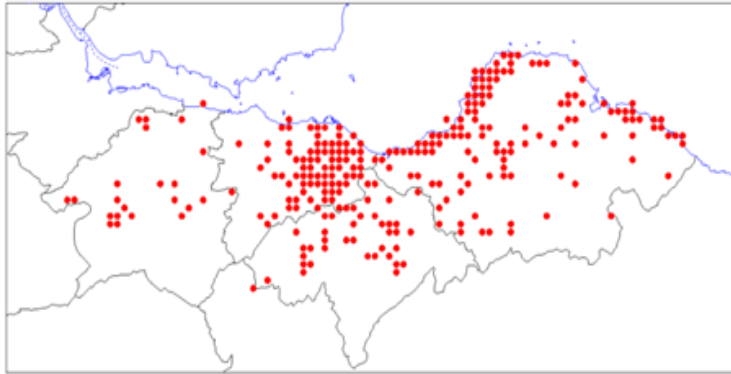


Red Admiral

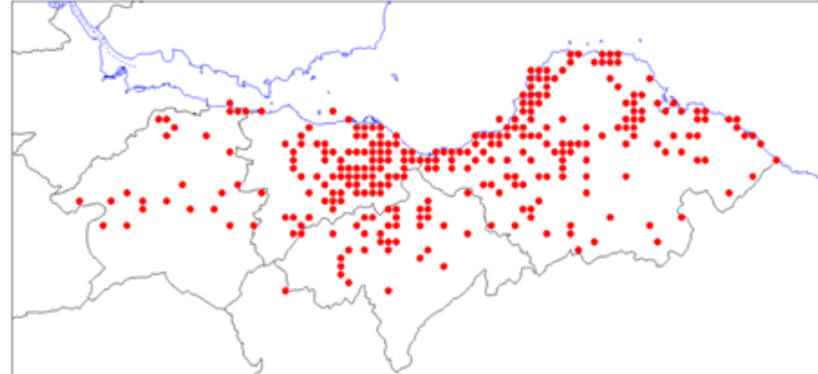


The maps for Small Tortoiseshell, Peacock and Red Admiral are shown below for 2022.

Small Tortoiseshell



Peacock



Red Admiral

