

# **Fife and Clackmannanshire Butterfly Report 2021**

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Common Blue. Photo: Gillian Fyfe

## Looking back at 2021

In 2021 the total number of butterfly records received for Fife and Clackmannanshire was 19,239. This was the lowest in the last 4 years, although only marginally lower than 2018. Perhaps recorders were hampered by the pandemic lockdown in the spring, and this combined with wet weather early on and the fairly average summer lead to fewer butterflies. However, there were many exciting developments throughout the season, including the continued spread of the Wall, and the discovery of several Purple Hairstreak colonies.

The Ringlet topped the table for the most butterfly records, although numbers were down on 2020. Meadow Brown was not far behind and up on 2020. Both Small Tortoiseshell and Peacock records were down on 2019 and 2020, with Green-veined White entering the top five after missing out since 2018.

**Table 1: Annual totals: top five species in Fife and Clackmannanshire**

Rank	2018	2019	2020	2021
1	Small White (3,179)	Painted Lady (50,396)	Ringlet (3,349)	Ringlet (2,938)
2	Peacock (2,769)	Red Admiral (16,972)	Peacock (2,469)	Meadow Brown (2,474)
3	Green-veined White (2,574)	Peacock (4,027)	Small Tortoiseshell (2,364)	Small Tortoiseshell (1,882)
4	Ringlet (1,940)	Ringlet (3,175)	Meadow Brown (1,907)	Green-veined White (1,694)
5	Large White (1,728)	Small Tortoiseshell (2,651)	Red Admiral (1,813)	Peacock (1,682)
Total - top 5	12,190	77,221	11,902	10,670

## Looking back at the UK level

The UK Butterfly Monitoring Scheme (UKBMS) is a long-term monitoring scheme (running since 1976) involving repeat sampling along transects at thousands of locations across the UK with over 2,500 volunteers. Here in Fife and Clackmannanshire there are now 15 transects monitored weekly from April to September.

From this incredible dataset 56 species can be assessed. 2021 turned out to be a slightly below average year ranking 28th in the 46-year series. Overall, it was a poor year for several common and widespread species including Meadow Brown, Ringlet, Green-veined White, Large White and Small White influenced particularly by declines in England and Wales. The continuing expansion of Wall, Speckled Wood and Ringlet in Scotland has contributed to the more positive trends for these species north of the border.

Long-term declines in abundance are influenced by several factors. Of particular importance is habitat change eg. loss of extent and condition, and fragmentation. Climate change has mixed impacts which are species dependent. The seasonal weather conditions can cause notable fluctuations in populations from one year to the next impacting on butterfly development and activity directly eg. in 2021 May was a particular wet month in eastern Scotland.

Several species fared well in Scotland in 2021 with Wall and Small Pearl-bordered Fritillary having the best year on record. Those found in Fife & Clacks that did less well were Green-veined White, Grayling, Small Copper and Small Tortoiseshell.

Distribution maps for all Fife and Clackmannanshire species from 2010 to 2020 are available on the East Scotland Branch BC website at <https://butterfly-conservation.org/in-your-area/east-scotland-branch/fife-and-clackmannanshire-butterflies>. Updated maps including 2021 data will be available in the autumn.

Distribution maps for all Scottish species can also be found on the East Scotland Branch website - <https://butterfly-conservation.org/in-your-area/east-scotland-branch/scottish-butterflies>.

## **The highlights of 2021**

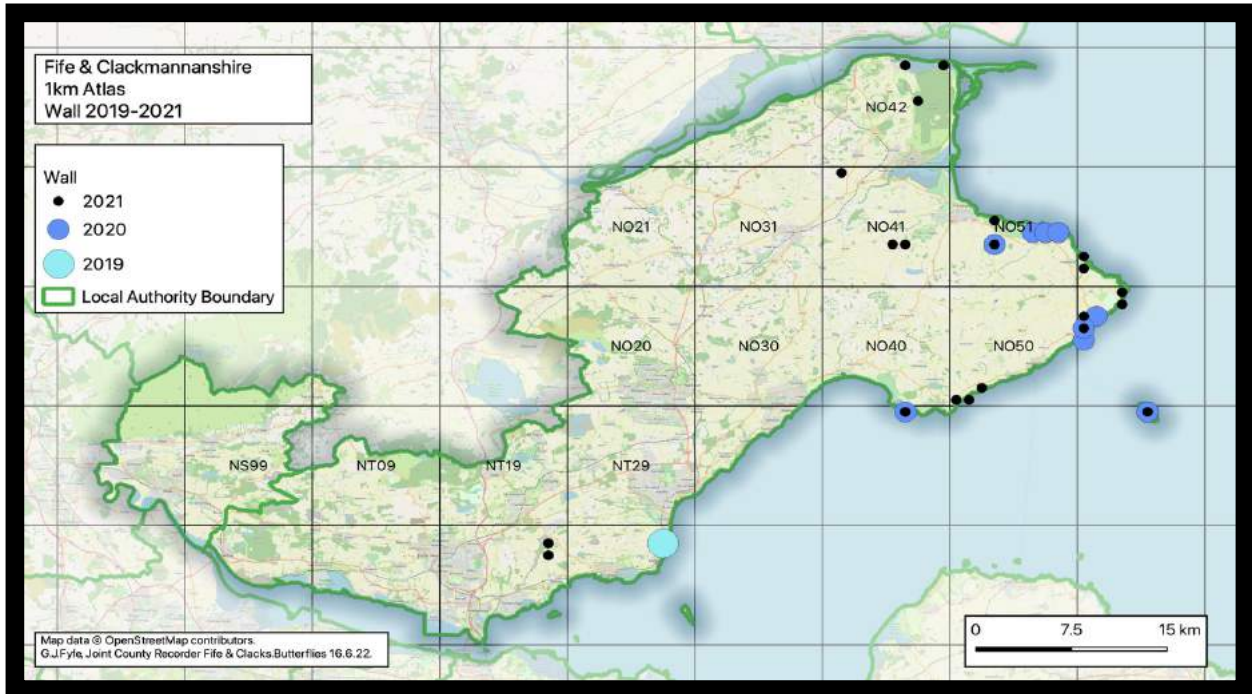
### **The Wall spreads across Fife**

Last year our headline news was that the Wall had arrived in Fife. Just to remind you, until 2019 when one was seen near Seafield, Kirkcaldy, the last record for Fife was in 1870! 2020 had 25 records with 13 from the East Neuk and 12 on the Isle of May. In 2021 there were 50 verified records from the East Neuk, Isle of May, Tentsmuir, Tayport, St Andrews, Dairsie and further west at Cullaloe Reservoir. Multiple records have been sent in from Kilminning, Kinraig and Tentsmuir suggesting that the species is gaining a foothold at these sites.

The future of this species in Fife is looking promising with the increase in sightings suggesting that it is well on the way to becoming a resident. The UKBMS data in Scotland showed a remarkable annual change of plus 182% in 2021. In central

southern England the Wall is not faring so well with extinctions occurring at many inland sites.

Map 1: The Wall

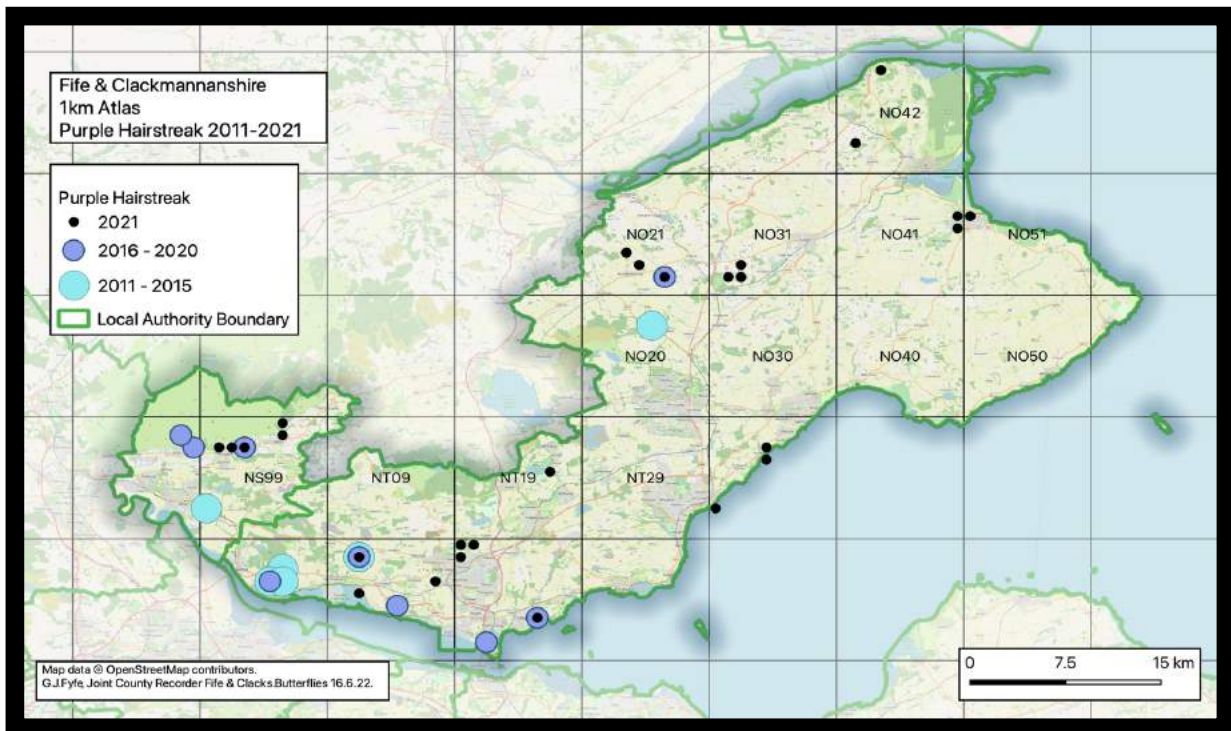


### Purple Hairstreak abound

With the raised profile of the Purple Hairstreak in 2021, recorders discovered 14 new sites ranging from St Andrews in the east, to Torryburn in the west. There were 123 verified records for Fife with the last adult sighting of the season on 28 August 2021 at Lochore Meadows. The previous three years had low numbers of records: 2020 - 20, 2019 - 26 and 2018 - 31. It just shows what a difference a focused campaign can make! Chris Stamp gave Fife recorders great support and encouragement throughout 2021, including leading an evening walk at Findatie, Loch Leven when he shared his expertise in finding these elusive butterflies.



## Map 2: Purple Hairstreak



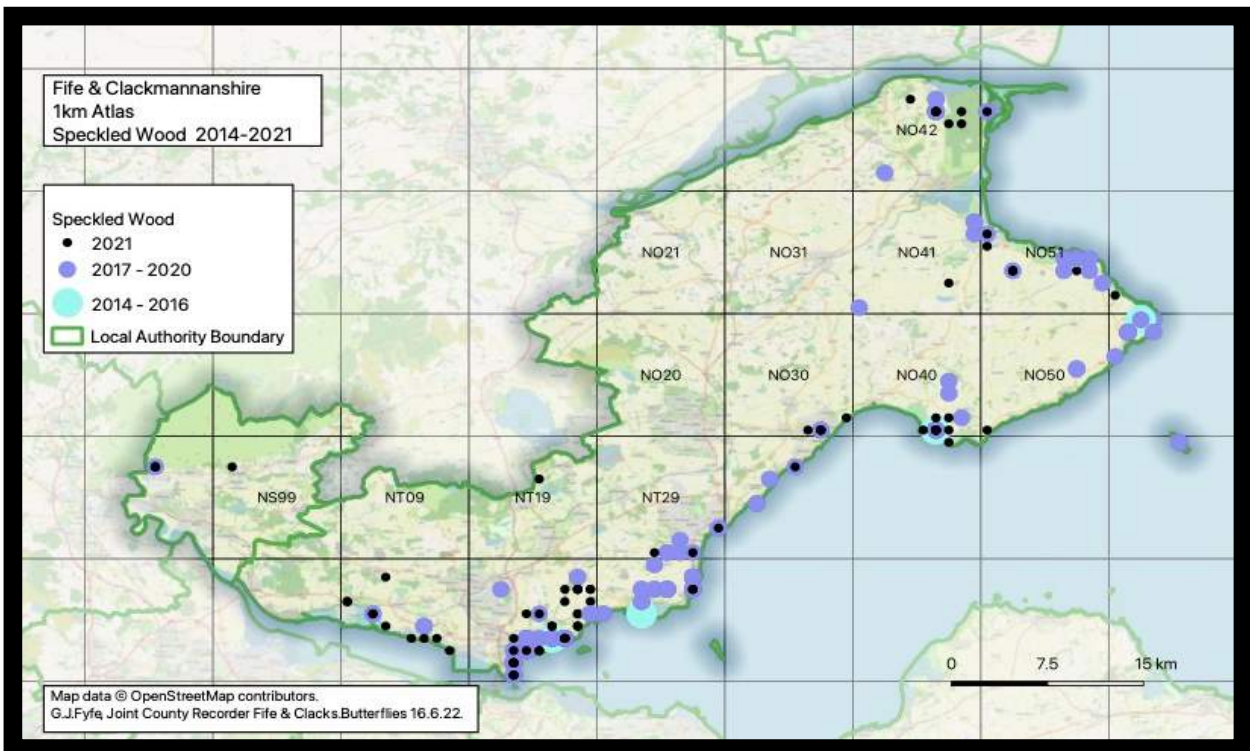
### Speckled Wood consolidates

The Speckled Wood has continued its expansion along the coast of Fife over the last few years. The first record was at Shell Bay near Elie in August 2014. By 2019, a total of 50 Speckled Wood were recorded, largely along the south coast of Fife. In 2020 we received over 160 records, with a jump to 196 verified in 2021. A cluster of records around Tentsmuir, indicates it is now established in the north-east corner of Fife. At the other end of the county records along the coast near Inverkeithing and a cluster around Dalgety Bay have filled in new 1km grid squares.

In October 2020 the first Speckled Wood was recorded in Clackmannanshire near Menstrie. This individual probably arrived from the population in Stirlingshire. In September 2021 their presence in Clacks was confirmed by Glyn Edwards at Tillicoultry and by transect walkers Graeme and Rhoda Abel on the Menstrie transect.

The Speckled Wood has been the subject of much research. Uniquely it can survive the winter as either a caterpillar or a chrysalis. In Scotland there can be two broods a year; further south there may be three. The males are either 'perchers' or 'patrollers' with their markings and body shapes well suited to these two life styles. Their recent expansion has been linked to climate change aided by the Speckled Wood's ability to move long distances to find suitable habitat in new areas.

### Map 3: Speckled Wood



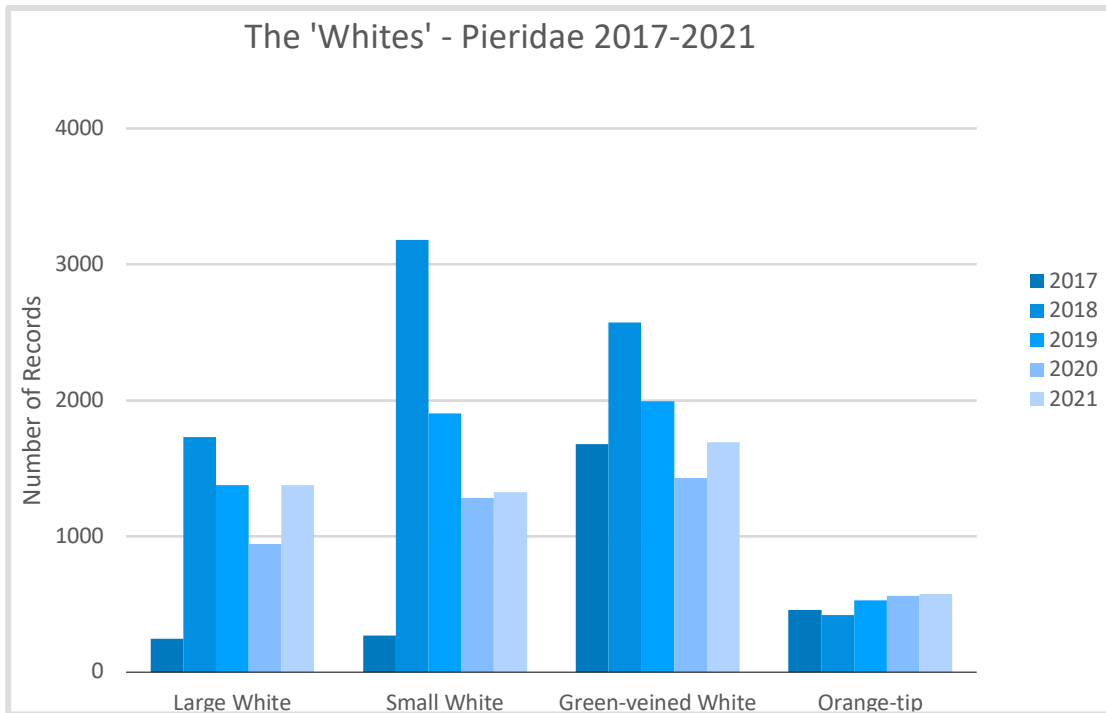
### Species Round-up

#### The Whites – Pieridae

**Large White** numbers have stayed at roughly the same level over the last four years with 1,374 records in 2021 (see Graph 1). **Small White** has not featured in the top five species list since 2018. In 2021 there were 1324 records. Both Large White and Small White have seen higher numbers in the last four years after a poor year in 2017. **Green-veined White** was fourth in the species list in 20121 with almost 1,700 records.

In contrast to the other Whites **Orange-tip** has had a steady number of records over the last five years. Orange-tips have a relatively short flight period and only one brood a year. They had a slightly better year in 2021 with 577 records submitted.

**Graph 1:** Number of records from 2017 to 2021 for the Whites



### The Hairstreaks, Coppers and Blues - Lycaenidae

**Green Hairstreak** had 112 verified records in 2021, just one down on 2020. This habitat specialist flies early with strongholds at Tentsmuir, the Lomond Hills and the Ochil Hills. Other colonies were recorded at Benarty Hill, Lochore Meadows, Norman's Law and Lochmill Loch. Annual numbers can fluctuate considerable with 60 records in 2018, then 218 in 2019.



Photo: Gillian Fyfe

The **Small Copper** has not fared well over the last couple of years with just 612 records in 2020 followed by a slight increase in 2021 with 717 records (see Graph 2). This was about half the number of records for 2018 and 2019 at 1703 and 1432 respectively.



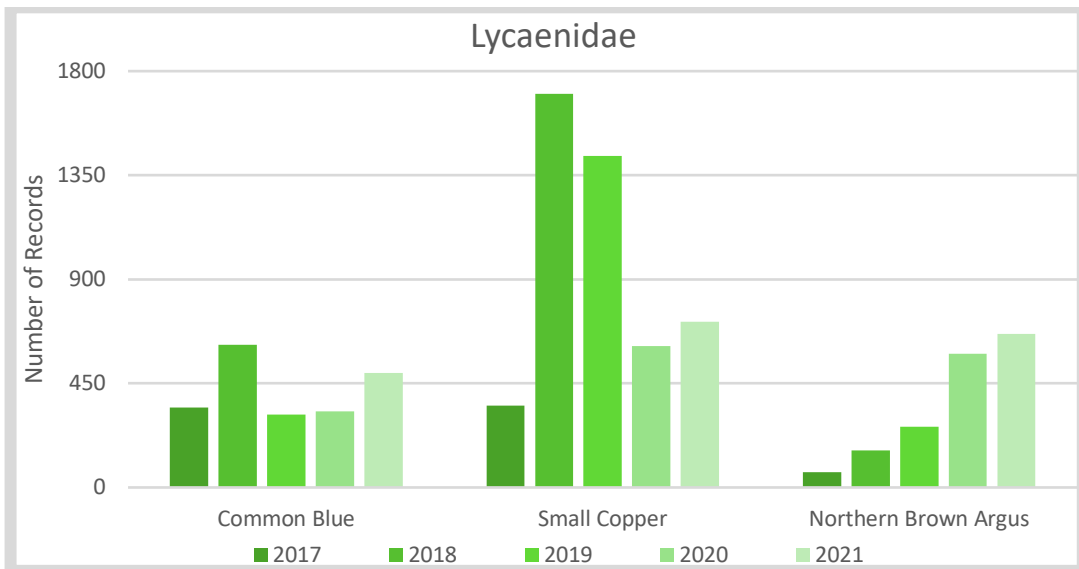
Photo: Jim Black

The **Northern Brown Argus** is tied to areas where Common Rockrose grows in sufficient profusion along the southern coast of Fife and at inland sites in other areas. Kincaig Point near Earlsferry is without doubt the best location to see this butterfly in Fife. 2021 was an excellent year with 665 records, well up on 2020 with 577. Other colonies are located at Charles Hill, Pettycur and Alva Glen in Clackmannanshire.

**Common Blue** had 493 verified records in 2021 which was well up on the numbers for 2020 and 2019.



**Graph 2:** Number of records from 2017 to 2021 for Common Blue, Small Copper and Northern Brown Argus



### The Vanessids - Nymphalidae

Numbers of records for Vanessids often show big variations from year to year. The most obvious examples of this are **Painted Lady** and **Red Admiral** which are migrants in Fife & Clacks. Relatively low numbers of Painted Lady and Red Admiral were recorded in 2021 especially in comparison to the high numbers in 2019 when there was a huge influx of migrants. Only 44 **Comma** were recorded in 2021 – the lowest number over the last 4 years. **Peacock** numbers were also recorded in low numbers in comparison to the last 4 years. **Small Tortoiseshell** has seen relatively high numbers over the last three years in comparison to 2018.

**Table 2: Vanessids: total numbers 2018-2021**

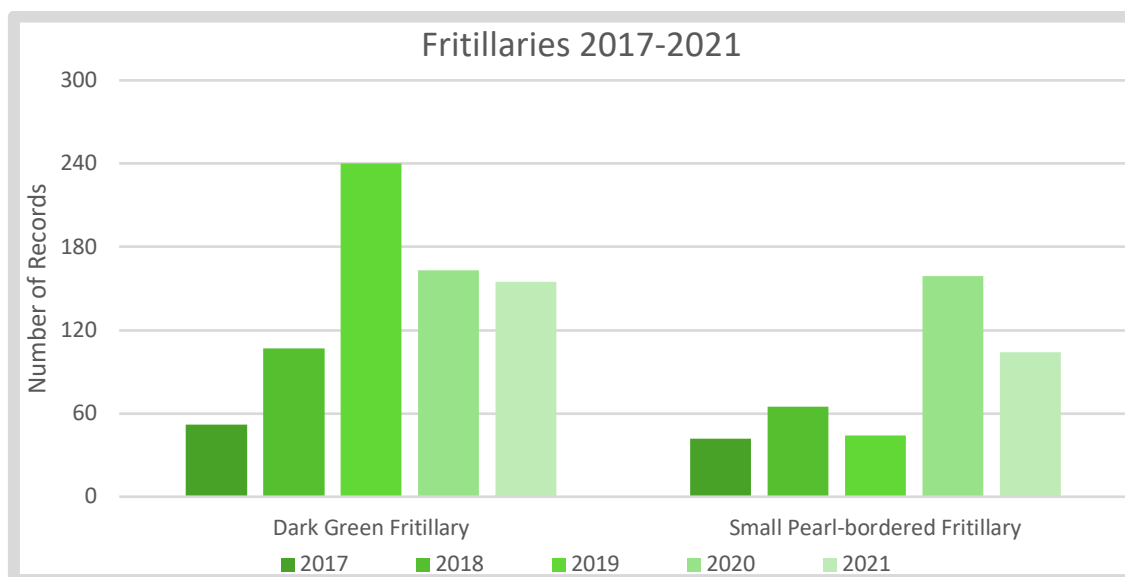
Species	2018	2019	2020	2021
Comma	105	85	55	44
Painted Lady	351	50396	101	181
Peacock	2769	4027	2469	1682
Red Admiral	880	16972	1813	828
Small Tortoiseshell	620	2651	2364	1882

## The Fritillaries - Nymphalidae

The **Small Pearl-bordered Fritillary** appears to have had an average year in 2021 with 104 records received. This is fewer than were seen in 2020 with 159 records. This contrasts with good numbers seen at a Scottish level in 2021. This habitat specialist favours marshy grassland with colonies scattered across Fife and into Clackmannanshire.

The **Dark Green Fritillary** was recorded in around the same numbers as in 2020 with 155 records. This was down from a high of 240 records submitted in 2019. This Fritillary is more widespread than the previous species.

**Graph 3:** Number of records from 2017 to 2021 for Dark Green Fritillary and Small Pearl-bordered Fritillary



## The Browns - Nymphalidae

### Grayling

In 2021 Grayling numbers (199) were slightly higher than in 2020. 2019 produced more records (349), possibly largely due to targeted recording in the Tentsmuir/Kinshaldy coastal area. The Fife stronghold for Grayling runs from Tentsmuir Point, south along the coastal dunes to Kinshaldy, and beyond to Reres Wood on the northern shore of the Eden Estuary. Numbers continue to decline on the UKBMS Transects on the National Nature Reserve (NNR) raising concern for the long-term viability of this species here.

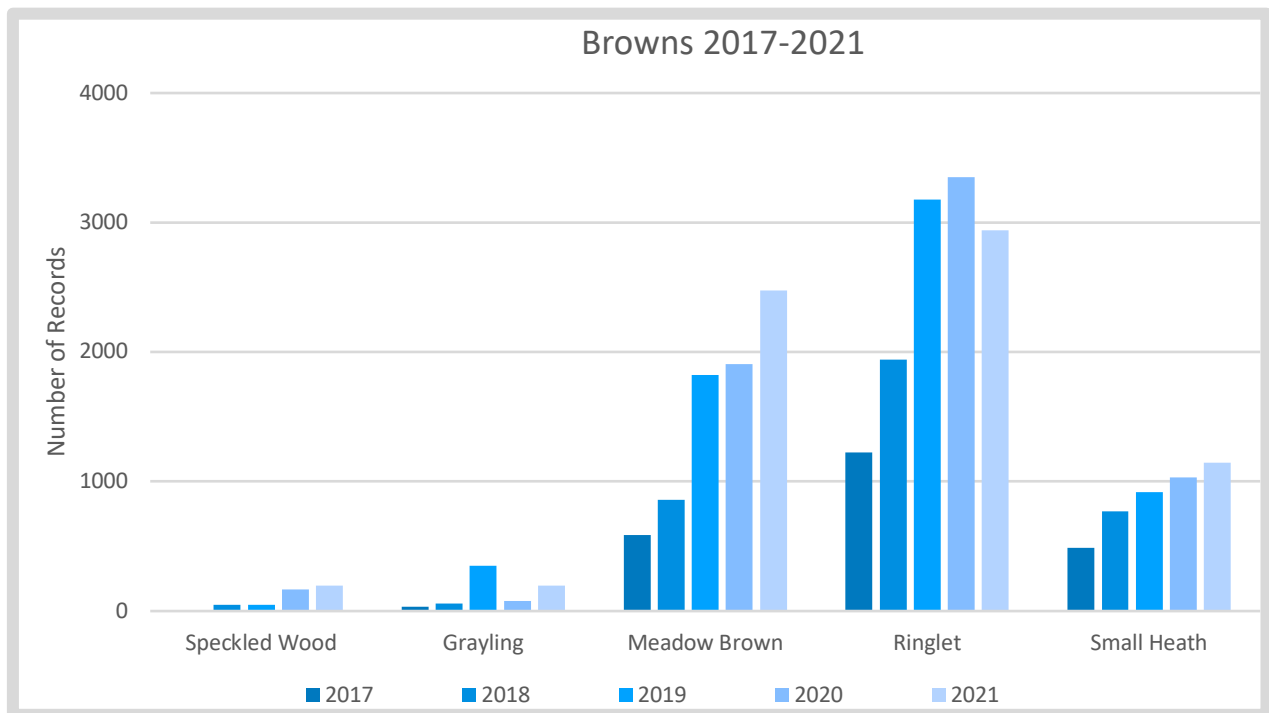
An inland site near Wormit supports an important colony and has been closely monitored over the last couple of years. This is the only other site where this species occurs in the two counties out-with the Tentsmuir area. Here Buddleia is an important nectar source for the butterflies, whereas on the coastal sites Thyme is favoured.



Photo: Wendy Irons

**Meadow Brown, Ringlet and Small Heath** all appear to be on an upward trajectory over the last five years. Meadow Brown had another good year with almost 2,500 records received. Likewise, Ringlet, with almost 3,000 records. These two species were the top two in 2021 for number of records. Small Heath records increased in 2021 with over 1,000 records (see Graph 4).

**Graph 4:** Number of records from 2017 to 2021 for the Browns



### Future colonist?

Could the **Holly Blue** be the next species to colonise Fife following in the footsteps of the Speckled Wood in the last decade, and the Wall in the last couple of years? Two records came in from the Dalgety Bay coastline in 2021. Previous records for this species are extremely sparse with sightings from Kirkcaldy in 2010, and Anstruther in 2007 and 1998.

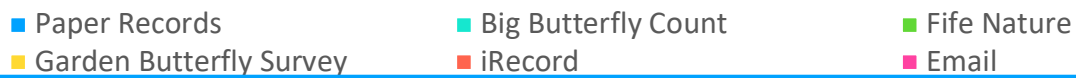
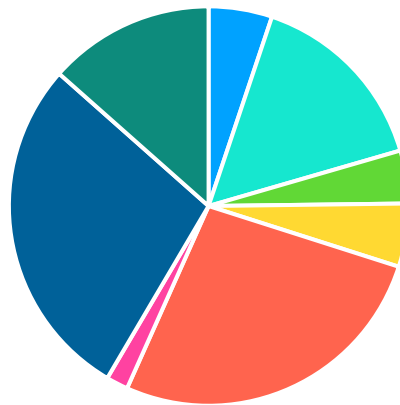
### Recording

This is our chance to thank all recorders who have spent time looking for butterflies and most importantly, sending their records in to be verified. Your contribution is greatly appreciated. Thank you!

Below is a breakdown of how records were submitted in 2021. iRecord and excel spreadsheet were favoured by recorders and work well for us as County Recorders. Records received by email or on paper take us longer to verify. We can provide help on how to use iRecord or the excel spreadsheet, so please ask. The UKBMS transects provide a large proportion of our data, and the Big Butterfly Count and Garden Butterfly Survey are also important.



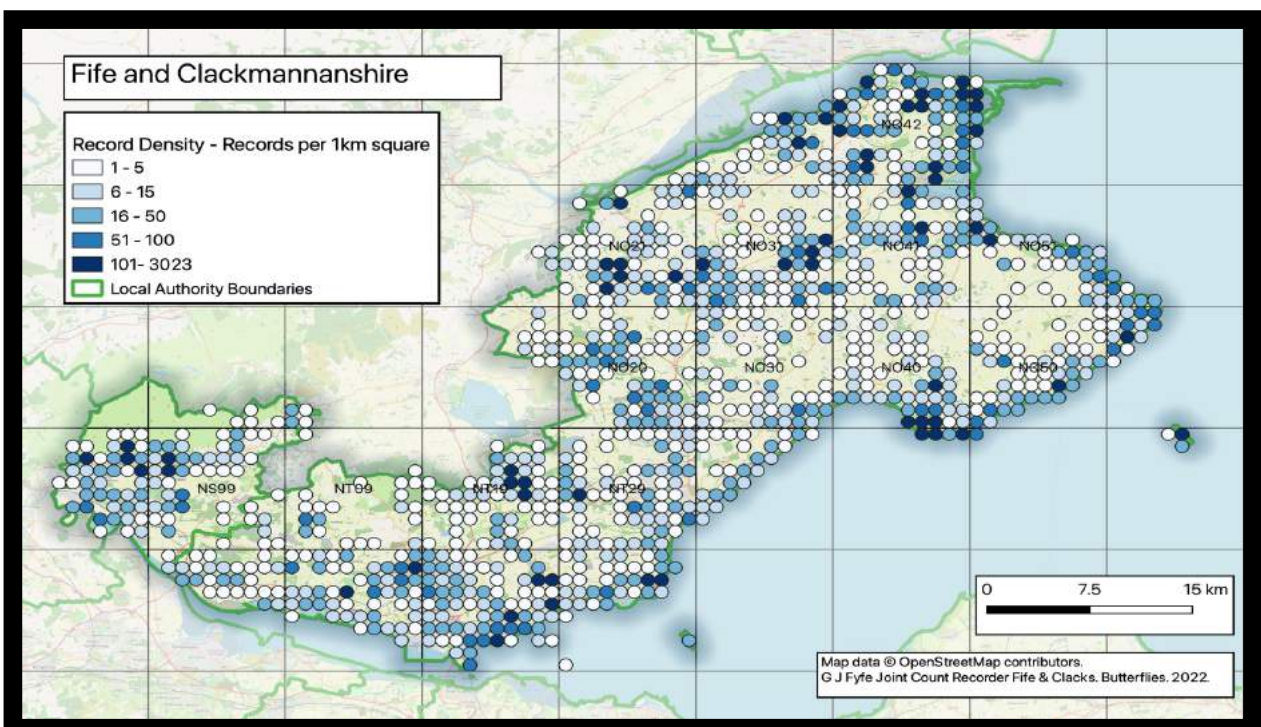
## Butterfly Data Sources 2021



### Gaps on the Map

By mapping all butterfly records from 2010 to 2021 across Fife and Clackmannanshire we can see where there have been no records at all (no circles) and where there has been low recording (1-5 records) (Map 4). If you live near any of the blanks or squares with a white circle why not try some targeted recording? We are always keen to find out what is going on in under recorded squares.

### Map 4: Record Density



**How to send in records:**

1. Via email at [fifebutterflies@outlook.com](mailto:fifebutterflies@outlook.com). Please include the date, number seen, location and grid reference or postcode. Also include the name of the nearest village or town.
  2. Use our dedicated spreadsheet; available from us via email or download from the website of the East of Scotland Branch of Butterfly Conservation. (<https://butterfly-conservation.org/in-your-area/east-scotland-branch/recording-butterflies-and-moths>)
  3. Via iRecord – either through the iRecord website or the iRecord Butterflies App. Include the nearest village or town in the “location” box - ‘in my garden’ is not sufficient!
  4. By submitting to another recording scheme for example Fife Nature (<https://beautiful.fife.scot/fife-nature-records-centre>) or The Wildlife Information Centre (TWIC) – <https://www.wildlifeinformation.co.uk>.)
- Please ensure you do not duplicate records by sending them to more than one recording scheme. We share our records with iRecord, FifeNature and TWIC and vice versa.

**Contact us by email at [fifebutterflies@outlook.com](mailto:fifebutterflies@outlook.com)**