

# Sid Valley Biodiversity Group report on the **Big Butterfly Count Survey 17-7-2020 to 9-8-2020**

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Marbled White, by Charles Sinclair

## Introduction

The butterfly survey in the Sid Valley took place from the 17th of July 2020 to the 9th of August 2020 to run concurrently with Butterfly Conservation's Big Butterfly Count (BBC). Each survey is formatted to run for 15 minutes and uses the Big Butterfly Count reporting method via its App. The Big Butterfly Count did not allow for recording uncommon or rare species, this information was processed through direct email to the author. The total number of butterflies in the Big Butterfly Count are continually updated through to the end of August. I have taken the totals as of the 9th of August as the basis for this survey; (the totals as reported in the Sidmouth Herald are slightly larger as they took a slightly later end date). This survey will act as a base from which further monitoring and support for butterflies can be established in the Sid Valley.

In order to put this information into a wider context I have extracted these comments from 'Silent Summer', Chapter 24 Butterflies by J A Thomas. Worldwide butterflies are the most studied insect group by a large margin and the availability of material means they can be used effectively to determine the health of ecological systems. In total there are 59 UK species of butterfly out of a worldwide number of 20,000 species. The average rate of decline of butterfly species in the British Isles has been high in recent decades, exceeding that of breeding birds or native vascular plants. There has been a northward spread of some species due to climate change but this is only half the expected number of species; more factors have to be taken into account. On the whole the major factor affecting populations is the availability of the caterpillar food plant, so where habitat loss of the food plant is evident it is likely to be the source of population decline. Many food plants require poor soil fertility so where land has been upgraded butterfly species can struggle. Those that are succeeding tend to have more generalist food plants for the caterpillar stage, with two or more abundant larval food plants that enjoy fertile soil. Woodland species generally require a carpet of woodland flowers this is available only when the canopy is not too dense. In general coppicing is a sympathetic woodland management system for butterflies. Due to limited mobility the larval stage of butterflies is much more susceptible to disruption and degradation of habitat. The adults are capable of dispersal but are often very insular, making the fragmentation of suitable habitat a significant restriction on population sustainability.



Grayling on Mutters Moor, by Charles Sinclair



Brimstone, by Charles Sinclair



Common Blue, by Jan Metcalf

### **Overall Results**

20 species of butterfly have been recorded in the survey, four of which do not appear on the BBC list. I have disregarded the two moth species in the BBC list for this report. Nearby Aylesbeare Common regularly records 30 species annually and has a total count of 38 butterfly species; this is the highest number of species for all the RSPB Reserves. East Devon with its wide range of habitats is a rich environment for butterflies. Aylesbeare Common can act as an aspirational example for heathland habitats within the Sid Valley such as Mutters Moor and Fire Beacon Hill.

Latin Name	Common Name	SV Total	SV Position	National Position	Devon Position	Caterpillar food plant	Population change since 1970	Priority Status, Low unless stated
Pyronia tithonus	<b>Gate Keeper</b>	361	1	3	3	Grasses, Fescues, Poa	15%	
Maniola jurtina	<b>Meadow Brown</b>	274	2	5	4	Grasses, Fesuces, Bents, Poa	-3%	
Pieris brassicae	<b>Large White</b>	175	3	1	1	Crucifers	-3%	
Pieris rapae	<b>Small White</b>	131	4	2	2	Crucifers	-8%	
Polyommatus icarus	<b>Common Blue</b>	81	5			Birds-foot-trefoil	-17%	
Celastrina argiolus	<b>Holly Blue</b>	38	6			Holly, Ivy	39%	
Pieris napi	<b>Green Veined White</b>	33	7			Crucifers	5%	
Pararge aegeria	<b>Speckled Wood</b>	31	8			Grasses, False Brome, Cocks Foot, Yorkshire Fog		
Vanessa atalanta	<b>Red Admiral</b>	25	9		5	Nettle, Hop	25%	
Aglais io	<b>Peacock</b>	23	10	4		Nettle, Hop	16%	
<i>Zygaena filipendulae</i>	<b>Six Spot Burnet</b>	23				<i>Birds-foot-trefoil</i>		
Lycaena phlaeas	<b>Small Copper</b>	15	11			Sorrel	-16%	
Melanargia galathea	<b>Marbled White</b>	13	12			Grasses, Red Fescue	29%	
Gonepteryx rhamni	<b>Brimstone</b>	11	13			Buckthorn, Alder Buckthorn	20%	
Aphantopus hyperantus	<b>Ringlet</b>	10	14			Grasses, Cocks Foot, False Brome	63%	
Polygonia c-album	<b>Comma</b>	8	15			Nettle	57%	
Aglais urticae	<b>Small Tortoiseshell</b>	7	16			Nettle	-15%	
<i>Autographa gamma</i>	<b>Silver Y</b>	3				<i>Bedstraw, Clover, Nettle</i>		
Vanessa cardui	<b>Painted Lady</b>	0	17			Thistle, Mallus, Nettle	14%	
<b>Other Species recorded, but not in BBC list</b>								
Hipparchia semele	<b>Grayling</b>	14	18			Grasses, Fescues, Bent	-62%	High
Argynnis paphia	<b>Silver Washed Fritillary</b>	3	19			Dog Violet	56%	
Lasiommata megera	<b>Wall</b>	1	20			Grasses, Tor Grass, False Brome, Cocks Foot	-77%	High
<b>Species observed on the Hooken, Branscombe</b>								
Leptidea sinapsis	<b>Wood White</b>	2				Legumes inc. Birds-foot-trefoil	-89%	High
Erynnis tages	<b>Dingy Skipper</b>	1				Birds-foot-trefoil, Horseshoe vetch	-61%	High
<b>Other species recorded in different seasons, but not appearing in this survey</b>								
Anthocharis cardamines	<b>Orange Tip</b>					Cucckoo Flower, Garlic Mustard	8%	
Ochlodes sylvanus	<b>Large Skipper</b>					Grasses, Cocks Foot, Purple Moor Grass	-12%	

### A comparison of the Sid Valley to national and Devon counts

The BBC only feedback information on the top five butterfly species in any geographical area so I will confine my comments to these both nationally and in Devon. The Large White and a Small White came out on top while within the Sid Valley the Gate Keeper and Meadow Brown was significantly more abundant than either of the two white species. Two factors are likely at play here, firstly the rural environment within the valley is relatively rich and varied accounting for the success of the meadow species, secondly the count throughout the BBC tend to be more dense in urban areas, with concentrations around areas of habitation. In a citizen science project such as this people will tend to collect information from in and around their gardens hence the emphasis on the Large and Small White butterflies.

What is less impressive about the Sid Valley is the relatively low occurrence of the Peacock and Red Admiral butterfly. Nationally the Peacock is roughly in line with the Gate Keeper or Meadow Brown, however in the Sid Valley this frequency is about 10% of the meadow species; likewise with the Red Admiral there is about 30% of the occurrence in the Sid Valley compared to the rest of Devon. As a migrant species, as with the Painted Lady, much will rely on yearly fluctuations, though in the rest of Devon where it is the fifth most abundant species there is the likelihood of a Sid Valley characteristic unfavourable to the Red Admiral. Going back through previous year's count might validate this theory.

### Zones

In order to generate further detail to the data I have divided the Sid Valley into Zones:

<b>Zone</b>	<b>Extent of Zone</b>	<b>Habitats/Areas Covered</b>
East Coast	West of Fortescue Road, South of A3052, East of Weston Combe	Lincombe, Soldiers Hill, Salcombe Regis, Alma Meadow
North East	North of A3052, East of A375, South of Hare and Hounds, West of Broad Down	Snod Brook, Roncombe Goyle, Knapp Copse
North West	West of A375, North of A3052, South of Hare and Hounds, East of East Hill Strips	East Hill Strips, Core Copse, Fire Beacon Hill
Byes	South of A3052, East of A375, West of Fortescue Road	River Sid, The Byes
West Town	South of A3052, West of A375, East of B3176	Woolbrook, Cemetery, Blackmore
West Coast	West of B3176, East of Mutters Moor, South of A3052	Peak Hill, Mutters Moor, Bulverton Hill, Bickwell Valley
Urban	Byes and West Town Combined	
Rural	East Coast, West Coast, North East, North West combined	

## Zone Results

Common Name	Latin Name	East Coast	North, East and West	Byes	West Town	West Coast	Total No.
Large White	<i>Pieris brassicae</i>	35	42	53	16	29	175
Small White	<i>Pieris rapae</i>	17	27	46	27	14	131
Green Veined White	<i>Pieris napi</i>	1	24	0	5	3	33
Brimstone	<i>Gonepteryx rhamni</i>	0	10	0	1	0	11
Marbled White	<i>Melanargia galathea</i>	13	0	0	0	0	13
Small Copper	<i>Lycaena phlaeas</i>	5	3	3	3	1	15
Speckled Wood	<i>Pararge aegeria</i>	8	9	9	1	4	31
Meadow Brown	<i>Maniola jurtina</i>	116	66	56	5	31	274
Ringlet	<i>Aphantopus hyperantus</i>	2	4	1	0	3	10
Gate Keeper	<i>Pyronia tithonus</i>	147	83	43	14	54	361
Comma	<i>Polygonia c-album</i>	1	1	2	2	2	8
Painted Lady	<i>Vanessa cardui</i>	0	0	0	0	0	0
Peacock	<i>Aglais io</i>	4	10	4	1	4	23
Red Admiral	<i>Vanessa atalanta</i>	9	4	3	6	3	25
Small Tortoiseshell	<i>Aglais urticae</i>	4	0	2	0	1	7
Common Blue	<i>Polyommatus icarus</i>	44	15	11	6	5	81
Holly Blue	<i>Celastrina argiolus</i>	3	9	8	10	8	38
Silver Y	<i>Autographa gamma</i>	1	1	0	0	1	3
Six Spot Burnet	<i>Zygaena filipendulae</i>	15	0	3	5	0	23
<b>Total for each Zone</b>		<b>425</b>	<b>308</b>	<b>244</b>	<b>102</b>	<b>163</b>	<b>1262</b>
<b>No of counts per zone</b>		21	29	25	34	18	127
<b>Average No of Butterflies observed in each survey</b>		<b>20</b>	<b>11</b>	<b>10</b>	<b>3</b>	<b>9</b>	<b>10</b>

### **Comments on Specific Butterfly Species.**

The quality of meadows in the Sid Valley led to the high Gate Keeper and Meadow Brown numbers. Also to benefit from the meadows is the Marble White, the field slopping down from the frog stone proved a good place to see these before the meadow was cut at the end of July.

Particularly heartening is the abundance of Common Blue and Holly Blue. The increase in the amount of Birds-foot-trefoil in the valley is likely to have played its part in the significant population of Common Blue. This was particularly noticeable in Alma Meadows where the Birds-foot-trefoil is thriving. The Holly Blue requires holly in the early part of the season and ivy later on in the season for its caterpillar food plant. Looking at the zone breakdowns in the valley it suggests the Holy Blue is more abundant in the urban areas while it is the Common Blue that is more abundant in rural areas.

Looking at a comparison of the national and Devon figures it is surprising that we did not record more Red Admirals and Peacock butterflies. In Devon the Red Admiral came in fifth most abundant while the Sid Valley put it in ninth place. Nationally the Peacock butterfly took fourth place while the Sid Valley it came in tenth. Perhaps the most concerning result was the lack of Small Tortoiseshell, once a numerous species, only seven were recorded. They have suffered under the dry weather in recent summers and there are indications of concern nationally. These three iconic species are often observed in gardens and have the most impact of the public's perception of the state of butterflies.

I was surprised to see a good number of Brimstone being recorded. My understanding was that they were an early season butterfly along with the Orange Tip. This is because the Brimstone over winters as an adult, so emerges with the first of the warm weather. They were in good numbers at Knapp Copse in early August, as elsewhere in the county.

The species not on the BBC list that were recorded in the Sid Valley were Grayling, Silver Washed Fritillary and Wall. Two other rare species were recorded just outside our area on the Hooken at Branscombe; they were Dingy Skipper and Wood White.

### **The Average Numbers of Butterflies**

By dividing the total number of counts into the total number of butterflies sees some interesting trends emerge. Notably the East Coast that includes some of the best meadows in the area of the Sid Valley performs very well, roughly twice the number seen compared to other zones. Gate Keepers, Meadow Browns, and Common Blues all benefit from this habitat. It must be noted that the RSPB results for Fire Beacon Hill have not yet come in and may alter these findings. The particularly low average count for the West Town was in part due to an impressive 20 surveys (one a day?) being submitted from one garden. This significantly increased the count while not adding many observations.

Amalgamating the West Town zone with the Byes includes most of the urban area of Sidmouth. The average number of butterflies per count here was 7.5 (74 counts of 561 butterflies). In the rest of the region, the rural zones, the average number was 17 (53 counts of 890 butterflies). So you are more than twice as likely to record butterflies in the rural zones than in the urban. Also interesting is the number of counts in each, 74 in the urban which occupies a much smaller area compared to 53 in the rural locations. This follows the national trend for the BBC to emphasise urban butterflies over rural, giving larger figures for the Large and Small Whites.



Wood White, by Isobel Francis



## Habitats

The zone system of recording results for different areas is a blunt instrument and in some zones there were very large areas with no count at all, while in other parts the counts were dense. In rural areas these clusters of counts usually marked out a particular interesting habitat. The interesting habitats thrown up by the survey were Mutters Moor, Knapp Copse, Alma Meadows, Soldiers Hill, Lincombe and I will include Western Cliff Meadow though is just out of catchment.

**Mutters Moor:** Pebblebed Heath, particularly good for Grayling, all observations of this species were here

**Knapp Copse:** especially the Mire where Brimstone, Silver Washed Fritillary, Red Admiral, Peacock and Green Veined White all had good numbers, the Green Veined White benefiting from the damp conditions

**Alma Meadow:** Flower Rich Meadow, at the time of the count the Birds-foot-trefoil was abundant favouring the Common Blue

**Soldiers Hill:** Meadow, very good counts of Marbled White amongst the other meadow butterflies

**Lincombe:** Cliff Meadow, Six Spot Burnett and Common Blue were good here, the richness of the flora indicated this as a particularly good spot to study in more depth

**Fire Beacon Hill:** Pebblebed Heath, when the RSPB submit their findings I'm sure this will be a rich area

**Western Cliff Meadow:** as one of the most established meadows in the area it should give a good target to reach for some of the Sid Valley meadows, another aspirational habitat.

## Recommendations

- Make more butterfly counts to cover other seasons of the year, April to October
- Clarify habitat type through demarcation, character and expectation of the species in these areas, assess paucity and abundance of butterflies
- Learn about meadow management in the Sid Valley and the impact on butterflies
- Compare our data with RSPB data in Fire Beacon Hill and Aylesbeare Common
- Bring in experts to advise us on the future management of butterflies in the Sid Valley
- Link up with the Hedgerow Survey by the Arboretum Group to understand how butterflies best benefit from hedgerows
- Link up with the Arboretum Group to encourage the planting of butterfly friendly trees such as Privet and Alder Buckthorn.
- Learn how to best provide for high-priority species
- Improve the recording of species not on the BBC lists, how might record butterflies app help
- Ensure the continuation of counting and research into butterflies in the Sid Valley