

# Wider Countryside Butterfly Survey 2010 – year 2 sightings

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## A SECOND YEAR OF SUCCESS!

Welcome to the annual newsletter for the **Wider Countryside Butterfly Survey** (WCBS), describing results from the second year of the survey made in 2010. The scheme ran on minimal resources again, but thankfully there was an excellent response by volunteers to continue the survey at relatively short notice. In total, **558 recorders** made **1,438 visits** to **686 squares** walking 3,000 km of trackline and counting 82,224 butterflies of 46 species. A solid achievement, although a 10% drop in effort from 2009, which likely reflected the lack of resources available to encourage and recruit new recorders in the light of natural turnover.

The WCBS continues to contribute to our knowledge of the distribution of British butterflies from as far afield as Lands End and the Orkney Islands, with 50 new 10-km square records generated for 30 species and overall 10,114 records added to the Butterflies for the New Millennium (BNM) database.

## SURVEY BACKGROUND

The WCBS runs as a partnership between Butterfly Conservation (BC), the British Trust for Ornithology (BTO) and the Centre for Ecology & Hydrology (CEH). The scheme represents the first UK-wide survey of butterfly abundance to use a random sampling framework and is important both in assessing the changing status of widespread butterfly species and in providing an indicator of the health of the wider countryside.

## PARTICIPATION

Participants included recorders from the BTO/JNCC/RSPB Breeding Bird Survey (BBS) and BC's volunteer network. BC recorders were co-ordinated at the local level within BC branches through a network of WCBS Champions. National co-ordination was undertaken by Katie Cruickshanks for BC with support for BBS recorders provided by Kate Risely at BTO HQ.

Survey coverage comprised 330 BBS squares sampled by BTO recorders and a further 356 squares by BC recorders. The split was almost the same as in 2009, with 47% coverage by BTO recorders (up 1%) and 53% by BC (down 1%). The best BC branch coverage was achieved in Norfolk with 28 squares, followed by Dorset with 27, and both Somerset & Bristol and Gloucestershire with 19 each. BTO coverage was strongest in Sussex (19 squares), Kent (19) Devon (16) and Hampshire (14).



It was an excellent year for the Common Blue in 2010 – Tim Melling

The biggest improvement in coverage was in Northern Ireland where a small team of volunteers covered 16 squares, compared with 6 in 2009. At the country-level, the main coverage gap was in Scotland, which covers approximately 32% of the UK land surface yet accounted for less than 10% of squares sampled.

A time series of repeat sampled squares is now beginning to develop, with 506 squares sampled in both 2009 and 2010 and 89 squares surveyed in each year between 2007 and 2010 including the pilot studies. Of the 506 squares surveyed in both 2009 and 2010, 46% were walked by BTO recorders and 54% by BC. A total of 153 new squares were sampled in 2010, with 35% established by BTO recorders and 65% by BC. During the core July to August survey period, 1264 surveys were completed with 81% of squares (557 in total) receiving the required two visits. Additional visits to squares included 148 in spring and 110 in the core period. Optional spring visits again proved valuable, enabling a sufficient sample size for Orange-tip annual abundance across the UK to be measured.



Map 1 Location of the WCBS squares covered by BC (green circles) and BTO (blue) recorders in 2010

**TABLE 1: OCCURRENCE AND ABUNDANCE DATA FOR BUTTERFLIES RECORDED DURING REPEAT SUMMER VISITS, WITH DATA FOR 2009 IN BRACKETS**

Species	Occupancy			Abundance		
	No. Squares	2010 % (2009)	2010 Rank (2009)	2010 total counted	2010 % of all counted (2009)	2010 Rank (2009)
Meadow Brown	456	81.3 (87.3)	1 (2)	11,698	17.0 (16.2)	1 (1)
Small White	452	80.6 (86.8)	2 (3)	11,112	16.2 (14.3)	2 (3)
Large White	447	79.6 (89.4)	3 (1)	6,424	9.4 (15.7)	5 (2)
Gatekeeper	403	71.9 (75.4)	4 (5)	9,451	13.8 (11.2)	3 (4)
Green-veined White	390	69.6 (71.9)	5 (7)	6,196	9.0 (9.0)	6 (5)
Speckled Wood	354	63.1 (73.9)	6 (6)	2,536	3.7 (5.2)	8 (8)
Small Tortoiseshell	319	56.8 (60.0)	7 (9)	2,085	3.0 (2.8)	9 (9)
Common Blue	314	56.0 (39.0)	8 (13)	3,545	5.2 (1.7)	7 (11)
Ringlet	301	53.7 (46.6)	9 (12)	6,466	9.4 (5.8)	4 (7)
Peacock	301	53.6 (68.3)	10 (8)	1,486	2.2 (2.8)	10 (10)
Red Admiral	259	46.1 (50.8)	11 (11)	835	1.2 (1.0)	11 (14)
Comma	256	45.7 (53.4)	12 (10)	713	1.0 (1.1)	13 (12)
Small Copper	189	33.7 (26.1)	13 (14)	593	0.9 (0.4)	14 (20)
Holly Blue	159	28.4 (10.7)	14 (21)	439	0.6 (0.1)	18 (27)
Small Skipper	121	21.6 (23.3)	15 (15)	825	1.2 (1.0)	12 (15)
Large Skipper	108	19.2 (17.8)	16 (17)	458	0.7 (0.4)	17 (19)
Brimstone	93	16.5 (18.9)	17 (16)	212	0.3 (0.3)	24 (22)
Small Heath	85	15.1 (13.6)	18 (19)	526	0.8 (0.5)	15 (17)
Brown Argus	75	13.4 (9.7)	19 (23)	424	0.6 (0.2)	19 (24)
Small/Essex Skipper	71	12.6 (16.4)	20 (18)	520	0.8 (1.0)	16 (13)
Marbled White	64	11.4 (8.5)	21 (24)	406	0.6 (0.5)	20 (16)
Painted Lady	59	10.5 (82.6)	22 (4)	102	0.1 (7.2)	27 (6)
Wall Brown	50	9.0 (11.1)	23 (20)	259	0.4 (0.4)	23 (18)
Silver-washed Fritillary	45	8.0 (6.9)	24 (25)	348	0.5 (0.2)	21 (26)
Essex Skipper	41	7.3 (10.4)	25 (22)	131	0.2 (0.3)	26 (23)
Purple Hairstreak	21	3.7 (3.2)	26 (27)	60	0.1 (0.1)	30 (29)
Dark Green Fritillary	13	2.4 (1.5)	27 (30)	48	0.1 (0.02)	33 (33)
White Admiral	12	2.2 (1.7)	28 (29)	68	0.1 (0.1)	29 (30)
Grayling	11	2.0 (1.5)	29 (30)	149	0.2 (0.2)	25 (25)
Clouded Yellow	8	1.5 (5.2)	30 (26)	86	0.1 (0.1)	28 (28)
Scotch Argus	8	1.4 (1.5)	31 (30)	300	0.4 (0.4)	22 (20)
Small Pearl-bordered Fritillary	5	0.9 (0.5)	32 (34)	36	0.1 (0.02)	34 (34)
Brown Hairstreak	4	0.7 (0.3)	33 (37)	6	0.01 (<0.01)	37 (38)
Chalkhill Blue	4	0.7 (1.2)	33 (33)	53	0.1 (0.02)	32 (32)
Orange-tip	4	0.7 (1.8)	33 (28)	19	0.02 (0.01)	35 (35)
White-letter Hairstreak	4	0.7 (0.5)	33 (34)	4	0.01 (<0.01)	38 (38)
Large Heath	2	0.3 (0.2)	37 (41)	3	<0.01 (0.01)	39 (36)
Adonis Blue	1	0.2 (0.3)	38 (37)	57	0.08 (0.03)	31 (31)
Lulworth Skipper	1	0.2 (0.2)	38 (41)	13	0.02 (<0.01)	36 (38)
Wood White	1	0.2 (0.2)	38 (41)	3	<0.01 (<0.01)	39 (44)
Small Blue	1	0.2 (0.5)	38 (34)	2	<0.01 (<0.01)	41 (36)
Dingy Skipper	1	0.2 (0.2)	38 (41)	1	<0.01 (<0.01)	42 (42)
Green Hairstreak	0	- (0.3)	- (37)	0	- (<0.01)	- (38)
Pearl-bordered Fritillary	0	- (0.2)	- (41)	0	- (<0.01)	- (44)
Purple Emperor	0	- (0.2)	- (41)	0	- (<0.01)	- (44)
Silver-studded Blue	0	- (0.3)	- (37)	0	- (<0.01)	- (42)

The majority of recorders (82%) sampled single squares, though the maximum was an impressive thirteen by Rita Cid in Northern Ireland. The most visits to a single square was six by David Warren in Radnorshire, Wales. The busiest survey day was Sunday 15th August, when 79 visits were made (5.4% of the year total), followed by Sunday 8th August, with 58 visits. The latter date was coincidentally the second busiest survey day in 2009, when 60 visits were made. The most surveyed week day was Tuesday 31st August, which might be due to a last minute rush to get a second visit in before the end-of-the-month deadline!

Recording standards and data quality were thought to be very high, as less than 0.2% of records were obvious misidentifications based on known species distributions and flight times – a figure comparable with 2009. There were welcome improvements in the efficiency of data collation, with 80% of data being entered online, compared to 70% in 2009.

## BUTTERFLY SIGHTINGS

More than three-quarters of the UK's regularly occurring butterfly species were recorded, with the tally of 46 being one less than in 2009. Marsh Fritillary and Real's Wood White were recorded for the first time in the survey, whilst absences included Pearl-bordered Fritillary, Wood White and Silver-studded Blue. Twenty-five species were recorded in a sufficient number of squares (30 or more) to enable national indices to be calculated, whilst 18 of these species had large sample sizes (present in >100 squares).

The most widespread and abundant species over the core July and August period was the Meadow Brown, occurring in over 80% of squares with 11,698 individuals counted. Meadow Brown, Small White, Large White, Gatekeeper and Green-veined White accounted for more than two-thirds of butterflies observed (Table 1).

The majority of wider countryside species were 'non-movers', having a similar distribution and abundance ranking as in 2009. However, it was a better year for the Holly Blue, up nine places in abundance. Other species which had improved fortunes in 2010 included Brown Argus and Common Blue, the latter moving into the top ten of most widespread and abundant species. Rather unsurprisingly, it was a poor year for the Painted Lady, down 18 places in distribution and 21 places in abundance. Similar trends for Common Blue, Holly Blue and Painted Lady were detected in Butterfly Conservation's Garden Butterfly Survey, based on returns from 1,100 back gardens across the UK in 2010.

As in 2009, the Silver-washed Fritillary was the most frequently seen habitat specialist species, ranking just outside the top 20 and being almost as widespread as the Wall Brown and more so than five other wider countryside species. On average, recorders counted approximately 60 butterflies of 7 species per survey made over July and August. These figures were comparable to the pilot survey results of 2008, but represent a reduction in numbers of 30% and one less species compared with 2009.

The most species-rich square was in Somerset with 23 species recorded over four visits whilst the most butterflies counted over a two visit summer survey was in Lincolnshire with the tally of 941 being chiefly comprised of whites. The highest species day count was of 359 Small Whites near Boston, Lincolnshire on the 22nd August. Maximum counts for other species at individual squares included 301 Ringlets on 10th July near Holt, Norfolk, 276 Scotch Argus on 14th August on the edge of the Sound of Mull, Western Highlands and 262 Small Whites on 19th August near Stanford-le-Hope, Essex.

There were 20 single visits where no butterflies were seen. Two squares failed to produce butterflies over the required two summer visits, including an upland square on Dartmoor and a heavily urbanised square in Surrey.

Meadow Brown – Tim Melling



## MOTH AND DRAGONFLIES

Moth records were collected across 196 squares, with 1,570 individuals counted of 44 species. The results indicated it was a much better year for moths, with a four-fold increase in numbers over 2009. A migrant, the Silver-Y was the most widespread and abundant species for the second year running, with 547 counted in 115 squares – a three-fold increase in abundance over 2009. It was also a good year for the Six-spot Burnet, with an eight-fold increase in numbers.

TABLE 2 – TOP TEN MOST WIDESPREAD AND ABUNDANT DAY-FLYING MOTHS AND DRAGONFLIES

Species	Number of squares	Total counted
Silver Y	115	547
Six-spot Burnet	23	396
Cinnabar	20	47
Yellow Shell	16	35
Five-spot Burnet	12	24
Silver-ground Carpet	12	24
Hummingbird Hawk-moth	11	13
Chimney Sweeper	10	94
Shaded Broad-bar	9	29
Dusky Sallow	8	25

Common Darter	68	338
Southern Hawker	60	107
Brown Hawker	59	206
Common Blue Damselfly	48	589
Golden-ringed Dragonfly	29	49
Banded Demoiselle	26	519
Emperor Dragonfly	24	66
Migrant Hawker	22	54
Blue-tailed Damselfly	20	74
Common Hawker	15	65

There were 28 species of dragonfly recorded, with 3,239 counted across 243 squares (139 BTO, 104 BC). The latter figures show that proportionately more BBS recorders sampled dragonflies reflecting the popularity of this wildlife group amongst birders. Common Darter was the most widespread species for the second year running (detected in 25% of squares with dragonfly records), closely followed by Southern Hawker (21%). The most abundant species was the Common Blue Damselfly accounting for 18% of all individuals seen.



### WHAT'S HAPPENING NEXT?

Your hard efforts have paid off – the results have proved of sufficient interest to secure support from the government and statutory agencies, so the scheme will continue for at least the next three years. The overall co-ordination of the project on the Butterfly Conservation side will be undertaken by Zoë Randle, who will take over from Katie. Zoë will be the first point of contact for new recorders and BC WCBS champions using the contact details below. Kate Risely (BTO BBS National Organiser) will remain the first point of contact for BBS recorders. For further news and results, please keep an eye on the website [www.ukbms.org/wcbs.htm](http://www.ukbms.org/wcbs.htm) or contact us.

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