

Wider Countryside Butterfly Survey 2013 - year 5 sightings

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Small Tortoiseshell –
Henk Bosma



YEAR FIVE – GAINING MOMENTUM

This newsletter describes the key findings from the 2013 Wider Countryside Butterfly Survey (WCBS). This fifth year of the WCBS was the best yet in terms of coverage, with 857 squares sampled representing 11% more than in 2012. For the first time, more than 700 recorders took part in the scheme, walking over 3,500km of survey line on 1,815 visits and counting 142,217 butterflies of 45 species. This is the highest count of butterflies for the WCBS over the five years of the scheme, with twice as many butterflies counted per square compared with 2012. Coverage stretched the length and breadth of the UK and 15 new 10km square records were generated for 13 species, including the exciting discovery of a Large Heath colony near Glen Dye in Aberdeenshire. The WCBS team wish to thank everyone who took part and contributed to these landmark achievements, especially in exceeding the target of covering 800 squares.

SURVEY BACKGROUND

The WCBS is the most comprehensive UK-wide survey of insect abundance to use a robust random sampling framework and is important in assessing the changing status of butterflies in the wider countryside and in providing an indicator of the health of nature. The scheme is run as a partnership between Butterfly Conservation (BC), the British Trust for Ornithology (BTO) and the Centre for Ecology & Hydrology (CEH), co-funded by a multi-agency consortium led by the Joint Nature Conservation Committee. In 2013 the scheme ran at similar staffing levels to 2012, enabling scheme promotion and training events in under-recorded parts of Wales and Scotland.

PARTICIPATION

Participants included recorders from the BTO/JNCC/RSPB Breeding Bird Survey (BBS) and BC's volunteer network. National coordination was undertaken by Zoë Randle for BC with support for BBS recorders provided by Kate Risely at BTO HQ.

BBS volunteers covered 374 squares (44% of the total) whilst BC volunteers covered the remaining 483 squares (56%), representing respective increases in coverage of 12% and 11% over 2012. Coverage was boosted by increased promotion by the BTO, BC training events and the first decent summer in seven years, with 2012 being the warmest and sunniest since 2006 and the driest since 2003.

Dorset and Sussex were the most well sampled counties (51 squares in each), followed by Norfolk (43 squares) and Gloucestershire (39 squares). BBS square coverage was highest in Yorkshire (31 squares), Sussex (28 squares) and South Wales (27 squares). BC Square coverage was highest in Dorset (46 squares), Norfolk (33 squares) and East Scotland (32 squares). The greatest overall increase in square coverage occurred in Northern Ireland, with 15 more squares than in

2012 (14 BC, 1 BBS). Coverage was also boosted across Wales; including 12 more squares in North Wales than in 2012 (3 BBS and 9 BC) and 11 more in South Wales (all BBS). The increase in South Wales represents the largest regional gain of BBS squares in 2013. There were 125 new squares in 2013 including 11 in the West Midlands and 10 in North Wales.

As in previous years, coverage at the country level remains lowest in Scotland, this is not surprising as much of the country is mountainous, human population density is low and many of the sites are remote. However, the discovery of new colonies, such as the Large Heath mentioned earlier, is an exciting possibility for adventurous recorders venturing off the beaten track.

The time series includes 320 squares sampled in each of the five years of the WCBS. It is especially valuable if as many as possible of these 'long-running' squares are walked again in 2014 and beyond. We will be using the data to compare trends in the wider countryside with those from UKBMS transect sites. A summary of these results will be made available in the 2014 UKBMS Report.



Location of WCBS squares covered by BC (pink circles) and BTO BBS (blue) recorders in 2013

TABLE 1: OCCURRENCE AND ABUNDANCE DATA FOR BUTTERFLIES RECORDED DURING REPEAT SUMMER VISITS. DATA FOR 2012 IN BRACKETS.

Species	Occupancy					Abundance				
	No. squares	2013 % (2012)		2013 Rank (2012)		2013 total counted	2013 % of all counted (2012)		2013 Rank (2012)	
Meadow Brown	655	90.5	(89.1)	1	(1)	26935	21.8	(35)	1	(1)
Small White	641	88.5	(70.9)	2	(3)	22274	18.0	(6.9)	2	(5)
Large White	617	85.2	(68.4)	3	(4)	13755	11.1	(5.4)	3	(6)
Small Tortoiseshell	582	80.4	(40.8)	4	(10)	6833	5.5	(1.8)	7	(10)
Green-veined White	517	71.4	(61.9)	5	(6)	9455	7.6	(7.1)	5	(4)
Gatekeeper	504	69.6	(74.9)	6	(2)	8829	7.1	(11.8)	6	(3)
Ringlet	503	69.5	(65.2)	7	(5)	13654	11.0	(14.2)	4	(2)
Peacock	497	68.6	(44.8)	8	(9)	5145	4.2	(1.9)	8	(8)
Speckled Wood	450	62.2	(52.2)	9	(7)	3060	2.5	(2.3)	9	(7)
Comma	327	45.2	(31.8)	10	(11)	826	0.7	(0.7)	15	(16)
Red Admiral	256	35.4	(48.3)	11	(8)	742	0.6	(1.6)	17	(11)
Common Blue	237	32.7	(16.6)	12	(17)	1657	1.3	(0.5)	11	(18)
Large Skipper	205	28.3	(23.2)	13	(13)	974	0.8	(1)	14	(15)
Small Skipper	199	27.5	(23.6)	14	(12)	1821	1.5	(1.9)	10	(8)
Small Copper	187	25.8	(15.6)	15	(18)	561	0.5	(0.4)	18	(20)
Small Heath	137	18.9	(17.1)	16	(16)	1603	1.3	(1.3)	11	(13)
Brimstone	128	17.7	(11.7)	17	(20)	382	0.3	(0.3)	19	(23)
Small/Essex Skipper	126	17.4	(17.2)	18	(15)	912	0.7	(1.1)	15	(14)
Marbled White	121	16.7	(15.2)	19	(19)	1356	1.1	(1.6)	13	(11)
Painted Lady	102	14.1	(3)	20	(24)	184	0.1	(0.04)	25	(31)
Holly Blue	89	12.3	(20.7)	21	(14)	174	0.1	(0.4)	25	(20)
Clouded Yellow	74	10.2	(0.8)	22	(32)	145	0.1	(0.02)	25	(35)
Essex Skipper	62	8.6	(7.2)	23	(22)	398	0.3	(0.4)	19	(20)
Wall Brown	57	7.9	(4.3)	24	(23)	318	0.3	(0.2)	19	(26)
Silver-washed Fritillary	49	6.8	(7.4)	25	(21)	291	0.2	(0.3)	22	(23)
Brown Argus	37	5.1	(2)	26	(27)	132	0.1	(0.03)	25	(34)
Dark Green Fritillary	25	3.5	(2.8)	27	(25)	79	0.06	(0.1)	31	(27)
Purple Hairstreak	23	3.2	(1.7)	28	(30)	61	0.05	(0.05)	32	(30)
Grayling	16	2.2	(2.5)	29	(26)	300	0.2	(0.5)	22	(18)
White Admiral	12	1.7	(1.8)	30	(29)	52	0.04	(0.04)	35	(31)
Small Pearl-bordered Fritillary	10	1.4	(1)	31	(31)	56	0.05	(0.04)	32	(31)
Scotch Argus	8	1.1	(2)	32	(27)	131	0.1	(0.7)	25	(16)
Orange-tip	7	1.0	(0.2)	33	(38)	27	0.02	(<0.01)	37	(37)
Chalkhill Blue	6	0.8	(0.8)	34	(32)	174	0.1	(0.3)	25	(23)
Large Heath	5	0.7	(0.2)	35	(38)	60	0.05	(<0.01)	32	(37)
Silver-studded Blue	3	0.4	(0.2)	36	(38)	259	0.2	(0.1)	22	(27)
Adonis Blue	3	0.4	(0.3)	36	(34)	20	0.02	(0.01)	37	(36)
Wood White	3	0.4	(-)	36	(-)	12	0.01	(-)	40	(-)
White-letter Hairstreak	3	0.4	(0.3)	36	(34)	4	<0.01	(<0.01)	41	(37)
Brown Hairstreak	3	0.4	(-)	36	(-)	3	<0.01	(-)	41	(-)
Small Blue	3	0.4	(0.2)	36	(38)	3	<0.01	(<0.01)	41	(37)
Lulworth Skipper	2	0.3	(0.3)	42	(34)	31	0.03	(0.1)	36	(27)
Northern Brown Argus	2	0.3	(0.2)	42	(38)	29	0.02	(<0.01)	37	(37)
Dingy Skipper	1	0.1	(-)	44	(-)	2	<0.01	(-)	41	(-)
Green Hairstreak	1	0.1	(0.2)	44	(38)	1	<0.01	(<0.01)	41	(37)
Pearl-bordered Fritillary*	0		(-)	-	(-)	0	-	(-)	-	(-)
Purple Emperor*	0		(0.3)	-	(34)	0	-	(<0.01)	-	(37)
Silver-spotted Skipper*	0		(0.2)	-	(38)	0	-	(0.01)	-	(36)

* recorded in previous years

As in each year from 2009–2012, around 83% of recorders surveyed single squares. The highest number of visits to a single square was seven by Catherine McEwan in Berkshire, followed by John Randall who covered six squares in Devon. The busiest survey day was 8th August with 59 visits and 32 butterfly species logged. There were 724 squares (84% of the total) receiving the required two visits in July and August. Spring surveys provided a further 158 visits, with Orange-tip detected in 52 squares. A further 72 visits were undertaken during the core period, and 15 after 31st August.

As in previous years, data quality was high. Less than 0.1% of the records were confirmed misidentifications based on comparisons with known distributions and flight times. Data collation efficiency was slightly up, with 87% of data being entered online (rather than by submitted paper copy), compared with 83% in 2012.

BUTTERFLY SIGHTINGS

During the 2013 survey season 45 species of butterfly were recorded, one fewer than in 2012. Brown Hairstreak and Wood White were recorded in 2013, but not in 2012, whilst the reverse was true for Purple Emperor, Silver-spotted Skipper and Grizzled Skipper. Twenty-four species were recorded in the target of 30 or more squares considered sufficient for robust national indices to be calculated, with 19 of these species being recorded in more than 100 squares. Meadow Brown, Small White and Large White totalled more than half of butterflies counted (Table 1).

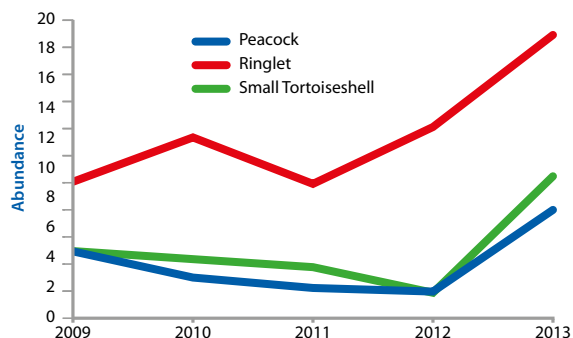
A simple analysis of yearly totals indicates that the vast majority of butterflies fared better than in 2012, whilst 23 of 25 wider countryside species were seen in more squares than last year. Eight species; Small Skipper, Large Skipper, Clouded Yellow, Small White, Small Tortoiseshell, Marbled White, Ringlet and Small Heath were more widespread than in any other year of the survey. Of the resident species, only Holly Blue had a noticeably worse year, being seen in just 12% of squares compared with 20% in 2012.

For the fifth consecutive year Meadow Brown was the most widespread and abundant species over the core July and August period. The butterfly was recorded in more than 90% of squares with 26,935 individuals counted and a maximum day count of 696, near Clothall, Hertfordshire on 22nd July. Of the other Brown species, it was another excellent year for Ringlet, which was found in 70% of squares, compared with less than 50% in the 2009 base year, whilst Speckled Wood and Gatekeeper also had reasonable years. Even the troubled Wall Brown had a better year, being seen in twice as many squares as 2012 (8% of squares versus 4%).



Clouded Yellow – Keith Warmington

Chart 1: Abundance (average number of butterflies counted per two visit summer survey) on WCBS squares 2009–2013



Small Tortoiseshell made a great comeback being found in more than twice the number of squares as 2012 (80% of squares versus 40%), with an average of nine counted per square compared with four in the previous best year of 2009 (Chart 1). Another garden favourite, the Peacock, was present in over two-thirds of squares compared to less than half in 2012; this species experienced its best year in the WCBS since the pilot year of 2007. Of less appeal to gardeners, 'Cabbage' Whites were far more abundant than in 2012, with more than twice the number of Large Whites counted per square and five times the number of Small Whites!

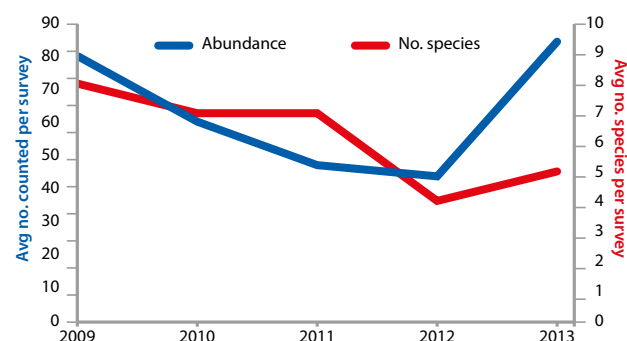
Clouded Yellow had its best year in the series turning up in 74 squares (10% of the total), compared to just five squares (<1%) in 2012. Of the other regular migrants, Painted Lady had a better year (present in 14% of squares, compared with 3% in 2012), but for the third successive year Red Admiral was less widespread, being seen in little more than a third of squares compared with two-thirds in 2011.

There was a welcome increase in Common Blue numbers following an appalling year in 2012, with an average five-fold increase in abundance per square.

Given individual species recovery, it is not surprising that on average recorders counted more than twice the number of butterflies per survey than in 2012, though rather surprisingly and disappointingly saw only one more species per survey (Chart 2). The most diverse square was near Church Westcote, Gloucestershire with 17 species seen and 1,680 butterflies counted over two summer visits.

Despite widespread butterfly recovery, there were 31 visits to 25 squares where no butterflies were seen. Three squares failed to produce butterflies over the two summer visits: one near Tormore in the Highlands, another near to Brough on the Shetland Islands and one near Croydon in Surrey. As with any monitoring scheme, nil returns are important results when assessing change.

Chart 2: Changes in butterfly numbers and species richness on WCBS squares 2009–2013





MOTHS AND DRAGONFLIES

Moth records were generated in 304 squares (163 BC, 141 BBS) an increase of 37% compared to 2012, the increase mainly attributable to greater recording effort. A total of 2,380 moths of 39 species were seen. Although the number of species seen was the same as last year, the number of individuals counted was up by 151%. On average recorders saw six moths per square – two more than last year. For the fifth year in a row Silver Y was the most widespread and abundant moth being recorded in 185 squares (60% of those with moth records) (Table 2). It was a better year for this migrant, with 1,455 counted compared to 280 in 2012. Cinnabar was the second most widespread species occurring in 43 squares (two-thirds more than 2012), whilst Six-spot

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

Species	Number of squares	Total counted
Silver Y	185	1455
Cinnabar	43	111
Six-spot Burnet	40	169
Yellow Shell	23	26
Silver-ground Carpet	20	69
Common Carpet	20	31
Shaded Broad-bar	15	28
Chimney Sweeper	15	92
Narrow-bordered Five-spot Burnet	14	67
Five-spot Burnet	10	47
Common Darter	96	462
Common Blue Damselfly	82	2759
Brown Hawker	82	244
Southern Hawker	66	131
Banded Demoiselle	37	387
Golden-ringed Dragonfly	37	67
Emperor Dragonfly	34	62
Migrant Hawker	31	78
Blue-tailed Damselfly	30	168
Common Hawker	28	83

Burnet was the second most abundant moth with 169 individuals seen (almost twice as many as in 2012).

Dragonflies were recorded in 25% more squares than in 2012 (136 BC squares, 187 BBS), with 5,406 individuals of 29 species (one more than last year) counted. On average 10 species of dragonfly were seen per visit, one fewer than last year. For the second consecutive year Common Blue Damselfly was the most abundant species, the 2,759 counted representing a threefold increase on last year. Common Darter was the most widespread species for the fifth consecutive year, occurring in 96 squares (five fewer than in 2012).

The moth records generated by WCBS recorders are forwarded to the relevant County Moth Recorders for verification and incorporation into local datasets which are subsequently sent to the National Moth Recording Scheme. Dragonfly records from the WCBS are submitted to the British Dragonfly Society annually.

WHAT'S HAPPENING NEXT?

The WCBS will operate in a similar fashion in 2014. However, future UK butterfly trends will combine both UKBMS and WCBS data which may impact how we report on the scheme in 2015. We will continue to develop the scheme through promotional and training activities. Having exceeded our target of 800 squares, we are now aiming for 900! This should be achievable in 2014 if the number of new squares taken up continues at a level similar to that of previous years and if we have a favourable summer.

HOW CAN YOU CONTRIBUTE?

One of the great advantages of the WCBS is that it does not require a huge time commitment. Once your survey route is established you only need to visit your square twice per year, with each survey taking an hour or so depending upon the terrain.

The first point of contact for new recorders and BC volunteers will continue to be Zoë Randle. New and existing BBS volunteers will again be coordinated by Kate Risely (BBS National Organiser at BTO). To keep up to date with the project visit the website www.ukbms.org/wcbs.aspx or contact us.

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