

Butterfly Transect at Markstakes Common: 2018 Summary



Photo: Purple Hairstreak, Markstakes Common, 22nd June 2018 © Ian Seccombe

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Introduction and summary

This is the seventh consecutive year of recording butterflies at Markstakes using the United Kingdom Butterfly Monitoring Scheme (UKBMS) transect method. The Markstakes transect was walked on 23 of the 26 weeks specified by the UKBMS between the beginning of April and the end of September 2018. The recorders were Rupert Hall, Ian Seccombe and Ian Woolsey.

Sightings of butterflies occurred on 22 of the transect walks and 472 butterflies of 22 species were recorded. The number of butterflies was down by 31% on 2017, making 2018 the second worst year since these surveys began. In 2018 there were no sightings of Orange Tip, Small Tortoiseshell or Purple Emperor. Small Copper (2), Red Admiral (2), Green-veined White (1), Holly Blue (4) and Comma (4) were all reduced to very low numbers. By comparison the 2018 survey at Lane End Common (the nearest UKBMS transect site) recorded 37% more butterflies than Markstakes, despite being a much shorter transect, and a 32% increase in the number of butterflies compared with 2017.

The four broad trends set out in last year's report were reinforced in 2018:

- many species are found in very small numbers, these numbers fluctuate year to year but are generally falling: in 2018 half the species had fewer than 10 sightings
- year on year we are seeing fewer spring butterflies at Markstakes: in 2018 only 34 butterflies were recorded in the first six weeks of the season compared with 104 in the same weeks of 2014
- sightings are increasingly dominated by a few species notably Meadow Brown, Gatekeeper and Large White: in 2018 these three species account for more than half (53%) the records
- the distribution of butterflies is becoming concentrated in fewer areas: in 2018 four of the 12 transect sections had a combined total of only 13 butterflies over the entire season.

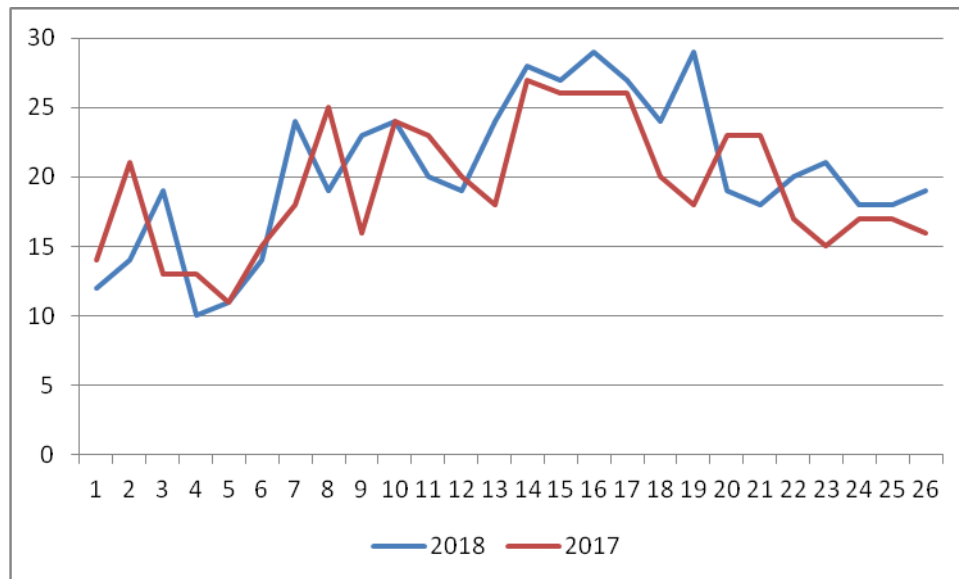
In addition there is a very marked decline in the number of butterflies recorded in the Mire. When these surveys started this area recorded the largest share - around 40% - of all butterflies. In 2018 it had dropped to 22%.

Weather conditions

Chart 1 compares the temperature record for Markstakes in 2017 and 2018 and shows that the spring was colder while the summer was hotter and longer. The average temperature on the days when the transect was walked in 2018 was 21.2 degrees compared with 19 degrees in 2017. In 2018 nine of the walks were completed on days when the temperature was 24 degrees or higher compared with only five in 2017. As well as being warmer it was also sunnier. The average % sunshine on the days when the transect was walked was 73% in 2018 compared with 54% in 2017.

Chart 1 Temperature profile for Markstakes, 2017 and 2018*

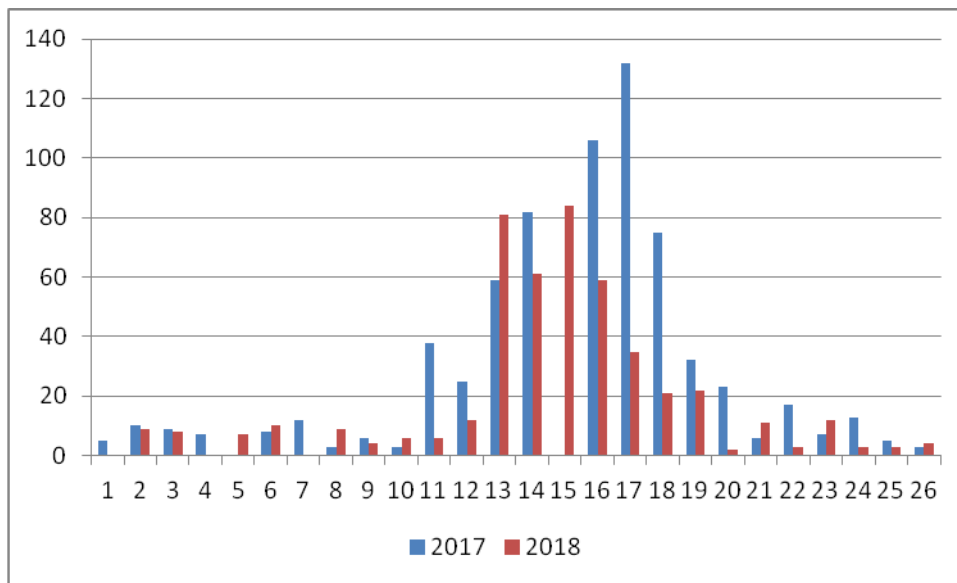
* Values for missing weeks are interpolated



Trends

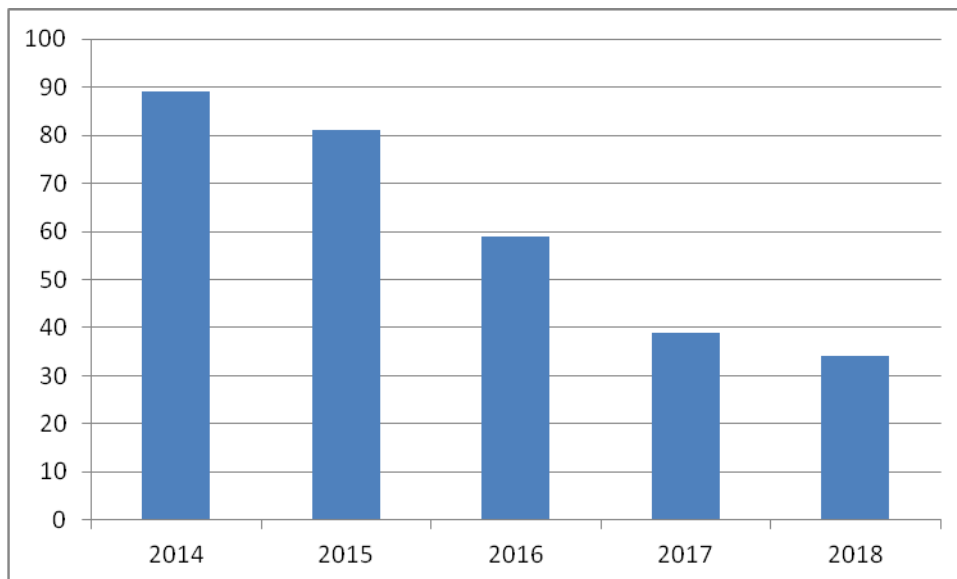
Chart 2 below compares the number of butterflies recorded each week in 2017 and 2018. It shows that the numbers recorded were lower in almost every week of 2018. Butterfly numbers peaked two weeks earlier in 2018 compared with 2017. This peak was in week 15 (July 8th) when 84 butterflies were recorded. Sixty percent of the butterflies recorded at the peak were Meadow Browns and Gatekeepers. Butterfly numbers fell very rapidly after this peak: only 25 were recorded in the last five weeks compared with 45 in the corresponding weeks of 2017.

Chart 2 Markstakes: Number of butterflies by week, 2017 and 2018



The early season was again very poor, continuing the trend of declining springtime butterflies (see chart 3).

Chart 3 Markstakes: decline of Springtime* butterflies, 2014 to 2018



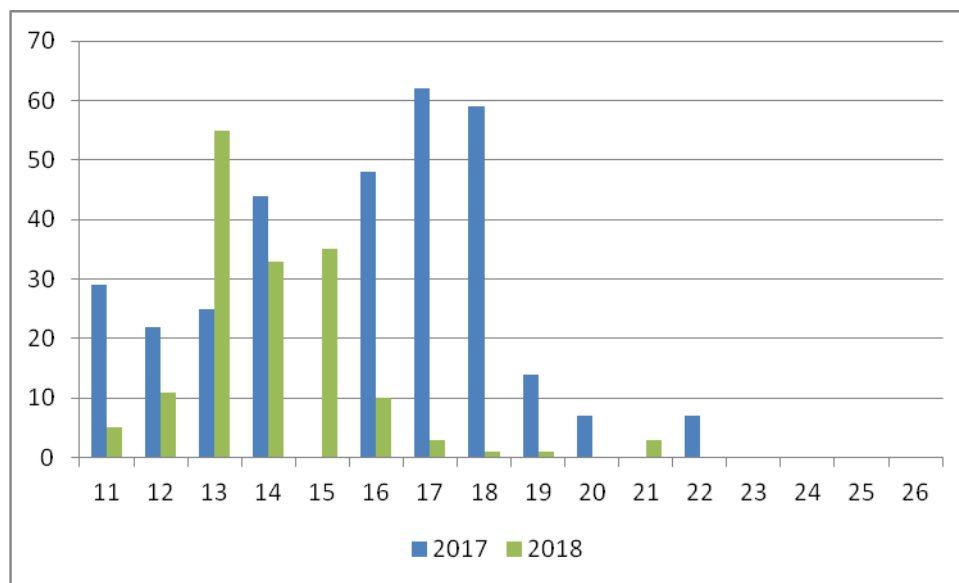
* For the purposes of this report Springtime is defined as the first six weeks of the recording season

Half of the 22 species recorded experienced a decline in 2018, particularly some of the grassland species that had been dominant in previous years. Meadow Brown, Gatekeeper and Ringlet numbers were each down by more than fifty percent. Overall, half the species recorded had fewer than ten sightings. Numerically the largest declines were amongst Meadow Browns (-

160), Gatekeepers (-60), Peacock (-13), Silver washed fritillary (-12) and Ringlet (-9).

In 2018 Meadow Brown (157) were first recorded at Markstakes on 10th June (week 11) a couple of weeks later than the first sighting in Sussex (28th May), peaking (at 55) two weeks later and dropping off rapidly from the third week of July. This is a very different pattern to 2017 when they also first appeared in week 11 but did not peak until the end of July (week 17) and continued on until the end of August. Despite its decline in numbers Meadow Brown continues to be the most abundant butterfly in Markstakes, accounting for a third of all records

Chart 4 Markstakes: abundance of Meadow Brown, 2017 and 2018



Gatekeeper's (52) also had a shorter flight period in 2018. Appearing from 8th July, significantly later than the first sighting in Sussex (17th June), Gatekeeper's were only recorded for five weeks in 2018 compared with seven weeks in 2017. These changes in flight period may reflect the weather conditions and their impact on sources of nectar.

Despite the overall decline several species recorded an increase. Numbers of Small Skipper, Large Skipper, Brimstone, Large White, Small White, Common Blue and Small Heath were all up on the previous year.

Having been in marked decline for several years, Small Skipper did particularly well at Markstakes in 2018 with 22 sightings compared with only seven in 2017. Common Blue also seem to have recovered somewhat with 31 sightings in 2018. No Common Blue were recorded in 2016.

Nine White Admiral were recorded in 2018. This is better than recent years and back to the levels found when these surveys started. However, the number is still much lower than we might expect. For example I recorded 12 White

Admiral on a single 45 minute walk in Knowlands Wood less than half a mile from Markstakes.

In 2017 we recorded the first Purple Hairstreak on the transect. Purple Hairstreak may be present in reasonable numbers at Markstakes but tends to be under-recorded using the UKBMS method (the transect is walked between 11am and 3pm when Purple Hairstreak tend to remain in the tree tops). Nevertheless, in 2018 the number of Purple Hairstreaks recorded increased to 14 with sightings across a wide area. Purple Hairstreaks were recorded in sub-sections D, E, F and G in 2018. The increase may well be due to the recorders being more aware that Purple Hairstreaks might be present and therefore paying more attention to the Oak trees where they are most likely to be seen.

For the full list of species recorded, and their abundance, over the seven years see Annex.

Distribution

With the exception of sub-section B all sub-sections of the transect recorded fewer butterflies in 2018 than in 2017. The biggest declines were in sub-sections G (the Mire), E (the Butterfly Glades) and F (the Friends' Glade). The records continue to show a very uneven distribution of butterflies across Markstakes. Despite its decline, sub-section G (the Mire) had 18 of the 22 species present in 2018 and 21% (102) of all recordings. This is significantly lower than in 2017 when it accounted for 28% (194) of the total. Sub-section E (which includes the butterfly glades) had 13 species (compared with 19 in 2017) and 13% of recordings. In contrast sub-sections A, C, I and J had only 13 records and two species between them. Table 1 shows the number of species and butterflies in each sub-section of the transect in 2017 and 2018.

Table 1 Number of species and butterflies by transect sub-section, 2017 and 2018

	2017			2018		
	No. of species	No. of butterflies	% total	No. of species	No. of butterflies	% total
A	1	4	0.6	1	1	0.2
B	12	47	6.9	15	62	12.9
C	2	5	0.7	2	3	0.6
D	12	86	12.5	16	65	13.5
E	19	106	15.5	13	63	13.3
F	10	61	8.9	11	45	9.4
G	18	194	28.3	18	102	21.3
H	15	113	16.5	17	78	16.3
I	5	10	1.5	2	7	1.5
J	6	12	1.7	2	2	0.4
K	8	24	3.5	5	13	2.7

L	8	24	3.5	8	31	6.5
		686	100.0		472	100.0

No species were recorded in all the sub-sections but Speckled Wood (10 sections), Meadow Brown (9), Large White (8), Brimstone (8) and Gatekeeper (8) were widely distributed.

Table 2 shows the changing percentage distribution of butterflies by section over time. The main trends are the declining share of sub-section G (the mire) which has fallen from 41% in 2013 to 22% in 2018. Sub-section L (which runs along the northern edge of the bracken field) has also seen a decline. It consistently accounted for about 10% of records but since 2015 its share has dropped to between 4 and 6%. The main gains have been in sub-sections B, D and H. The latter having increased from 6% in 2013 to 17% in 2018.

Table 2 Distribution (%) of butterflies by transect sub-section, 2013-18

Section	2013	2014	2015	2016	2017	2018
A	3.6	2.0	1.3	2.3	0.6	0.2
B	5.1	7.6	3.8	3.8	6.9	13.2
C	0.7	1.0	0.2	1.2	0.7	0.6
D	5.2	5.6	9.4	9.0	12.5	13.8
E	10.7	11.5	17.9	14.8	15.5	13.2
F	12.9	9.3	7.5	10.8	8.9	9.4
G	40.9	36.4	30.2	38.4	28.3	21.7
H	6.4	11.0	13.0	6.1	16.5	16.6
I	1.5	1.8	2.8	0.6	1.5	1.5
J	1.4	0.7	0.2	0.9	1.7	0.4
K	2.0	2.7	3.2	7.8	3.5	2.8
L	9.6	10.5	10.4	4.4	3.5	6.6

Brown Hairstreak update

The 2017 report highlighted the discovery of Brown Hairstreak eggs in Markstakes Lane, not far from the start of the transect and one of the most easterly recordings of Brown hairstreak eggs for Sussex. We had hoped that Brown Hairstreak might be added to our list of species in 2018 but none were seen. The hedge on Markstakes Lane was flailed severely in winter 2017/18 and it is unlikely that any of the eggs survived. However, during autumn 2018 Brown Hairstreak eggs have been reported at Markstakes farm, Tutts Farm and a female Brown hairstreak was observed egg laying at Knowlands farm.

Annex

Markstakes: number of butterflies recorded by species, 2013-2018

	2013	2014	2015	2016	2017	2018
Small Skipper	6	57	34	11	7	22
Large Skipper	4	5	5	1	4	8
Brimstone	29	32	41	23	15	21
Large White	73	33	24	23	30	43
Small White	4	12	2		2	9
Green veined white	16	2	3		6	1
Orange Tip	5	5	12	3	1	0
Clouded Yellow	2	1				
Small Copper	8	4	2	5	7	2
Holly Blue	1	3	2	4	4	4
Common Blue	15	33	14		25	31
White Admiral	10	6	2	4	5	9
Red Admiral	3	13	4	5	12	2
Peacock	20	51	42	48	25	12
Comma	10	6	10	7	8	4
Silver Washed						
Fritillary	35	28	15	12	27	15
Small Tortoiseshell	3	11	3	1		
Painted Lady	1		1	1		1
Marbled White	6	7	14	16	14	7
Purple Emperor		1	1	1	2	
Purple Hairstreak					1	14
Speckled Wood	55	29	21	32	43	40
Gatekeeper	44	63	77	45	112	52
Meadow brown	225	197	178	102	317	157
Small Heath	12	3	12	1	2	11
Ringlet	3		11	1	16	7