

Markstakes Common Butterfly Transect Survey 2019: Summary Report



Photo: Painted Lady, Markstakes Common, 26th June 2019 © Ian Seccombe

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Introduction and summary

This is the eighth consecutive year of recording butterflies at Markstakes using the United Kingdom Butterfly Monitoring Scheme (UKBMS) transect method. This year the transect was walked on all 26 of the weeks specified by the UKBMS between the beginning of April and the end of September 2019. The recorders were Ian Seccombe and Ian Woolsey. This the last year that Ian Woolsey is recording butterflies at Markstakes and I am grateful to him for all his observations over the past eight years.

Sightings of butterflies occurred on 22 of the transect walks and 652 butterflies of 23 species were recorded. The number of butterflies has bounced back from 2018's low, increasing by 38% (180). However, 2018 was an atypical year with a long cold spring (the "beast from the East") and the hottest summer on record. A better idea of the long term trend is probably given by comparing 2019 with 2017. This shows a five per cent decline in the overall number of butterflies. In 2019 there were no sightings of Small Tortoiseshell for the third consecutive year and no sightings of Purple Emperor for a second consecutive year. Small Copper (1), Large Skipper (2), Green-veined White (2), Orange Tip (3), Holly Blue (3), Common Blue (4) and White Admiral (4) were all recorded in very low numbers.

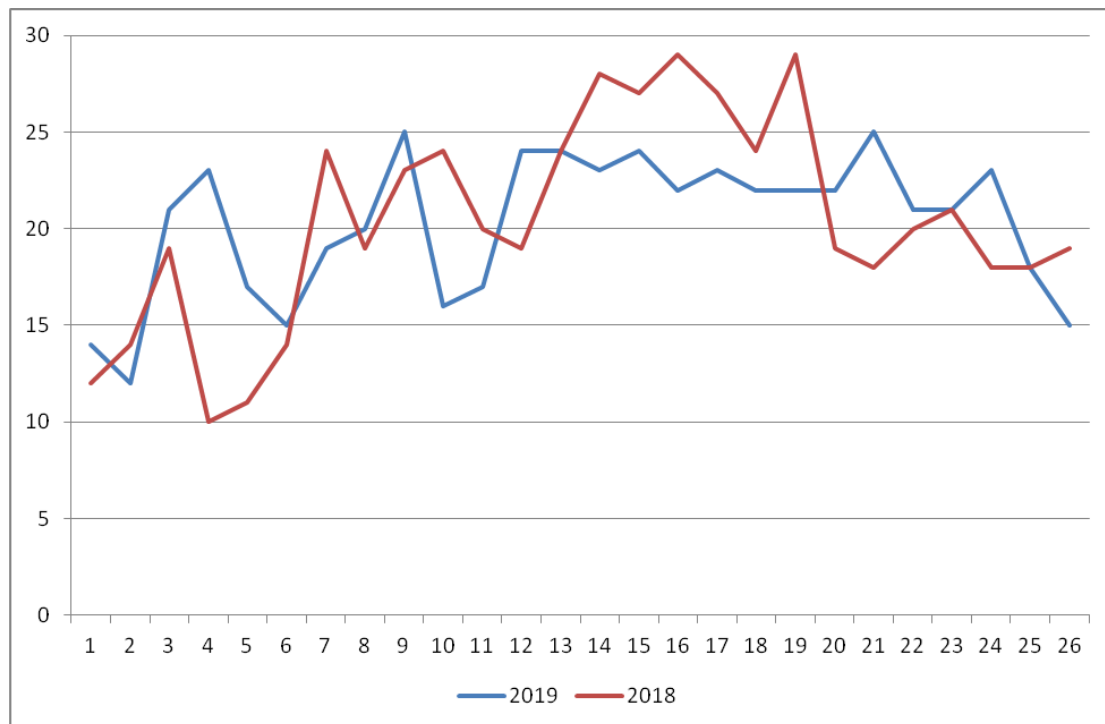
The broad trends set out in previous reports have continued in 2019:

- **many species are found in very small numbers, these numbers fluctuate year to year but are generally falling:** in 2019 half the species had fewer than 10 sightings
- **year on year we are seeing fewer spring butterflies:** in 2019 only 30 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 Small Skipper:** in 2019 these three species accounted for two-thirds of all sightings compared with less than half in 2013
- **the distribution of butterflies is becoming concentrated in fewer areas:** in 2019 two of the 12 transect sections accounted for over half (53%) of all records compared with 46% in 2013.

Weather conditions

At the start of each walk some simple weather observations (temperature, wind speed, wind direction and cloud cover) are made. Chart 1 compares the temperature record for Markstakes in 2018 and 2019. The spring was warmer while the summer was cooler. The average percent sunshine on the days when the transect was walked was 61% in 2019 compared with 73% in 2018.

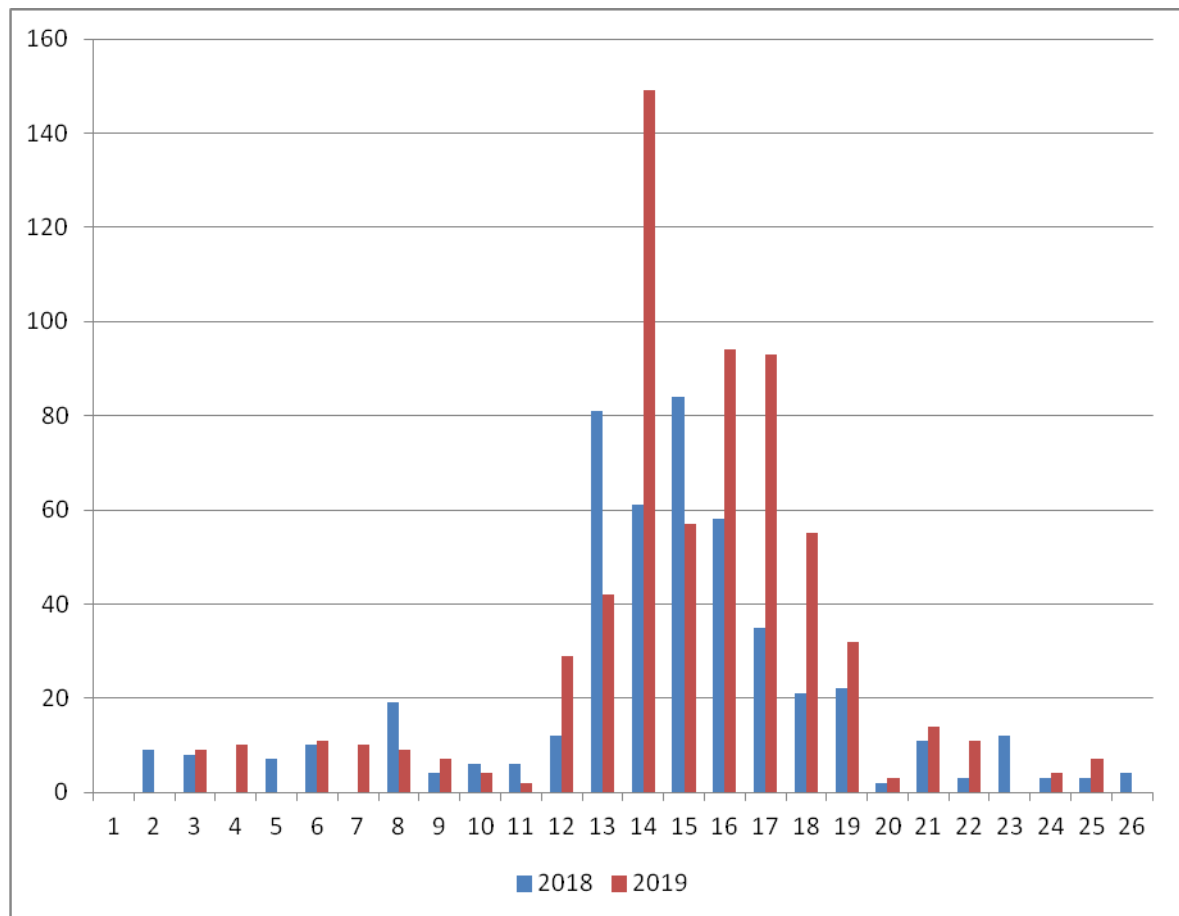
Chart 1 Temperature profile for Markstakes, 2018 and 2019



Abundance

Chart 2 below compares the number of butterflies recorded each week in 2018 and 2019. It shows that the numbers recorded were higher in almost every week of 2019 compared with 2018. However, 2018 was an atypical year and we note that butterfly numbers were lower in 13 of the 26 weeks of 2019 when compared with 2017.

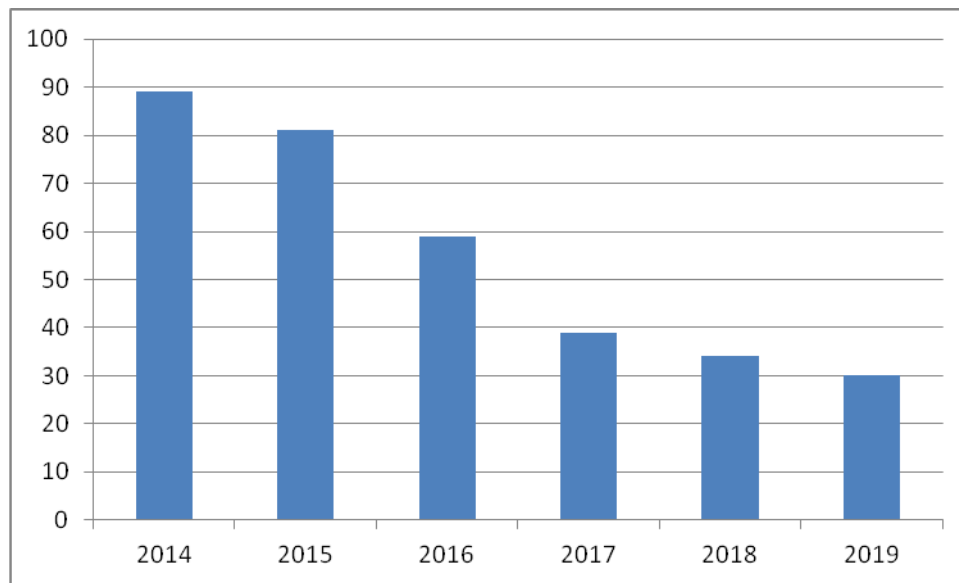
Chart 2 Markstakes: Number of butterflies by week, 2018 and 2019



The early season was again very poor, continuing the trend of declining springtime butterflies (see chart 3 below). No butterflies were recorded on the first two walks in 2019. The first observations were made on 18th April.

In 2019 butterfly numbers peaked at week 14 (6th July), almost the same date as in 2018 but earlier than previous years when the peak has typically been in weeks 16 to 18. The peak number in 2019 was 149, significantly more than the peak of 84 in 2018. Half of the butterflies recorded at the peak were Meadow Browns and Gatekeepers, with Small Skippers making up another 21%. Butterfly numbers fell very rapidly after this peak: only 17 were recorded in the last five weeks compared with 45 in the corresponding weeks of 2017.

Chart 3 Markstakes: decline of Springtime* butterflies, 2014 to 2019



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

Despite the overall increase in butterfly numbers this year, compared with 2018, half the species either declined in number or were unchanged. The overall increase is due almost entirely to the recovery of Gatekeeper (up 113), Meadow Brown (+58), Small Skipper (+22) and Small Heath (+20).

In 2019 Meadow Brown were first recorded at Markstakes on 8th June (week 10) a couple of weeks later than the first sighting in Sussex (28th May), peaking (at 67) four weeks later. The last sighting was in week 19 (8th August). Although numbers of Meadow Brown recovered well compared with 2018, they were still down on 2017.

In 2019 165 Gatekeeper were recorded at Markstakes, the largest number of this species reported over the course of these surveys. First appearing on 6th July, three weeks later than the first sighting in Sussex (17th June), Gatekeepers were seen over seven weeks (until 17th August), compared with only five weeks in 2018.

Having been in marked decline for several years, Small Skipper did surprisingly well at Markstakes in 2018 and that increase continued in 2019 with numbers doubling to 44. Small Heath were also recorded in increased numbers, rising from 11 in 2018 to 31 in 2019, the largest number recorded for this species.

In 2017 we recorded the first Purple Hairstreak on the transect. More were recorded in 2018 and again in 2019. Sightings were also made in more sub-sections of the transect, confirming our suspicion that Purple Hairstreak are probably present in reasonable numbers at Markstakes (it is well known that the UKBMS methodology probably leads to under-recording of this species).

In 2019 we recorded 22 Purple Hairstreak (compared with 14 in 2018), making them the sixth most frequently recorded species.

Alongside these increases are some worrying reductions. As in 2018, half the species recorded had fewer than ten sightings. Numbers of Common Blue have collapsed, dropping from 31 in 2018 to just four. Speckled Wood dropped to just 21, their lowest total ever. There were no sightings of Purple Emperor for a second consecutive year or Small Tortoiseshell for a third year. Only one Small Copper and two Green-veined White were recorded. The iconic White Admiral dropped from nine to four while Silver-washed fritillary (15), Peacock (15) and Brimstone (17) each had their second worst year. As for the Painted Lady 'invasion' experienced by much of the UK, Markstakes recorded just five individuals.

For the full list of species recorded, and their abundance, since 2013, see Annex.

Distribution

Table 1 presents the number of species and butterflies in each sub-section of the transect in 2017, 2018 and 2019. This shows the concentration of butterflies in section G (the Mire) and the adjoining section H. In 2019 these accounted for 53% of all butterflies recorded. In contrast sections A, C, I and J combined had fewer than four percent of the records.

Table 1 Change in number of butterflies by transect sub-section, 2017, 2018 and 2019

Sub-section	2017			2018			2019		
	No. of species	No. of butterflies	% total	No. of species	No. of butterflies	% total	No. of species	No. of butterflies	% total
A	1	4	0.6	1	1	0.2	7	8	1.2
B	12	47	6.9	15	62	13.2	14	62	9.5
C	2	5	0.7	2	3	0.6	3	3	0.5
D	12	86	12.5	16	65	13.8	10	59	9.0
E	19	106	15.5	13	62	13.2	15	59	9.0
F	10	61	8.9	11	44	9.4	13	30	4.6
G	18	194	28.3	18	102	21.7	19	230	35.3
H	15	113	16.5	17	78	16.6	12	115	17.6
I	5	10	1.5	2	7	1.5	3	9	1.4
J	6	12	1.7	2	2	0.4	4	5	0.8
K	8	24	3.5	5	13	2.8	7	22	3.4
L	8	24	3.5	8	31	6.6	10	50	7.7
		686	100		470	100		652	100

Table 2 shows the change in butterfly numbers by transect sub-section for 2018-19 and 2017-19. Comparing 2019 with 2018 we see that five sections experienced no change or a decline in butterfly numbers, with sections G and H accounting for almost all (91%) of the increase. Comparing the 2019 results

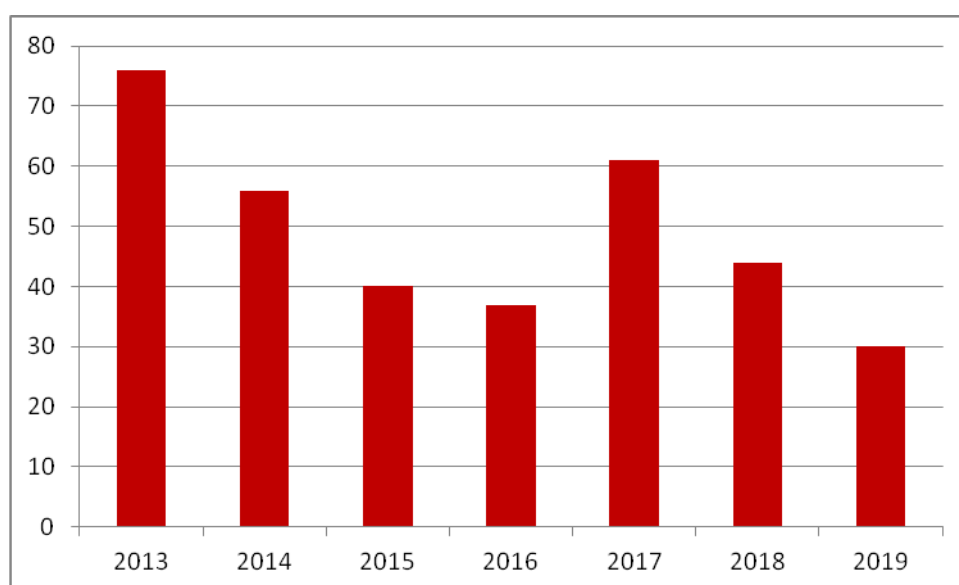
with 2017, the most recent 'good' year, we find that seven sections have declined, with sub-sections, D, E and F showing the largest falls.

Table 2 Change in number of butterflies by transect sub-section, 2017, 2018 and 2019

	No. of butterflies recorded			% Change	
	2017	2018	2019	2018-19	2017-19
A	4	1	8	700.0	100.0
B	47	62	62	0.0	31.9
C	5	3	3	0.0	-40.0
D	86	65	59	-9.2	-31.4
E	106	62	59	-4.8	-44.3
F	61	44	30	-31.8	-50.8
G	194	102	230	125.5	18.6
H	113	78	115	47.4	1.8
I	10	7	9	28.6	-10.0
J	12	2	5	150.0	-58.3
K	24	13	22	69.2	-8.3
L	24	31	50	61.3	108.3
	686	470	652	38.7	-5.0

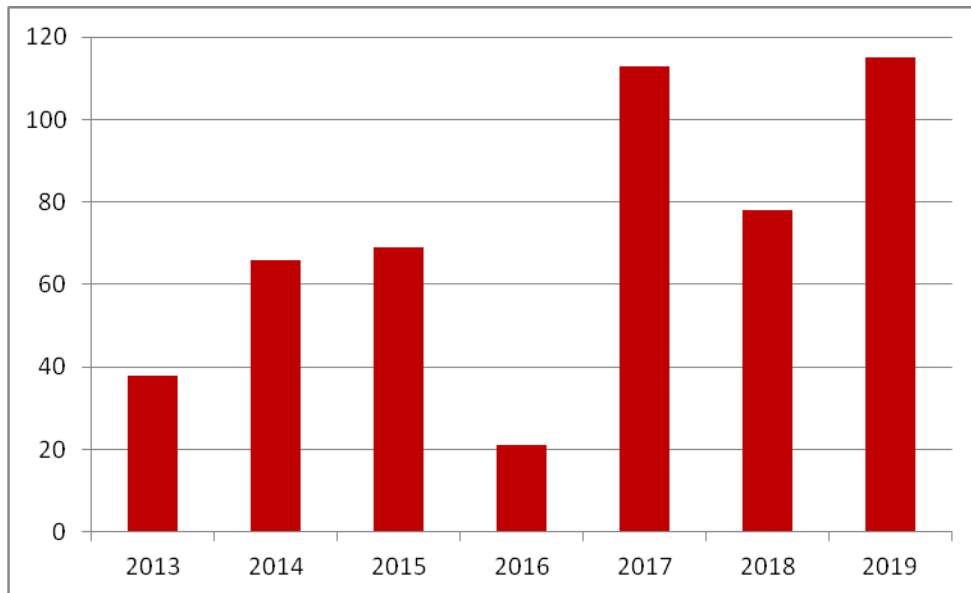
Looking back over the series of surveys we can see that some sections, notably section A, C, I and J have always had comparatively few butterflies. This is not surprising as these are the most densely wooded areas. Other sections have experienced a long term loss of butterflies. For example, Chart 4 shows the decline in butterfly numbers in section F, which is one of the longest sections of the transect. In 2013 this section had the second highest number of butterflies with nearly 15% of the total. By 2019 it had fallen to seventh with fewer than five percent. Interestingly, the number of species recorded has remained fairly consistent, 14 in 2013 and 13 in 2019.

Chart 4 Markstakes Sub-section F 2013 to 2019: in decline?



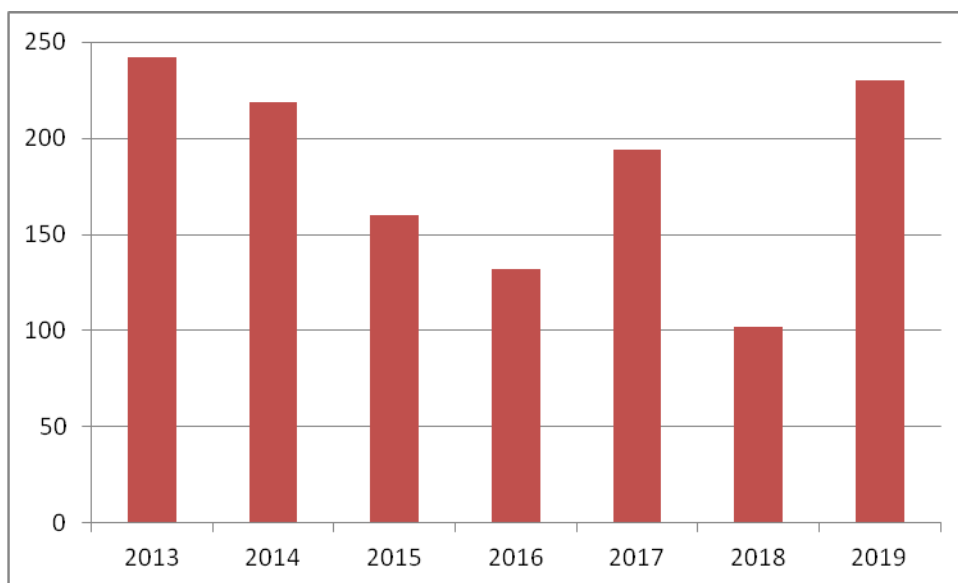
There are some isolated areas of success, notably section H (the Friend's Glade) which has shown an improvement. Accounting for only 6% of the total in 2013, it had a disastrous year in 2016 but its share had risen to nearly 18% by 2019. Again, the number of species has been consistent with 11 in 2013 and 12 in 2014.

Chart 5 Markstakes Sub-Section H 2013 to 2019: signs of improvement?



Section G (the Mire) has consistently accounted for more butterflies and species (19), than any other sub-section. Numbers here mirror the overall trend. In the first four years of recording butterfly numbers were declining sharply but recovered somewhat in 2017 before crashing in 2018 and recovering again in 2019.

Chart 6 Markstakes Sub-Section G 2013-19: a rollercoaster ride



Meadow Brown were the only species recorded in all 12 sections of the transect, demonstrating their dominance and adaptability. Speckled Wood (9) and Gatekeeper (9), were also widely distributed.

Annex

Markstakes: number of butterflies recorded by species and year, 2013-2019

	2013	2014	2015	2016	2017	2018	2019
Small Skipper	6	57	34	11	7	22	44
Large Skipper	4	5	5	1	4	8	2
Brimstone	29	32	41	23	15	21	17
Large White	73	33	24	23	30	43	28
Small White	4	12	2	0	2	9	7
Green veined white	16	2	3	0	6	1	2
Orange Tip	5	5	12	3	1	0	3
Clouded Yellow	2	1	0	0	0	0	0
Small Copper	8	4	2	5	7	2	1
Holly Blue	1	3	2	4	4	4	3
Common Blue	15	33	14	0	25	31	4
White Admiral	10	6	2	4	5	9	4
Red Admiral	3	13	4	5	12	2	6
Peacock	20	51	42	48	25	12	15
Comma	10	6	10	7	8	4	9
Silver Washed Fritillary	35	28	15	12	27	15	15
Small Tortoiseshell	3	11	3	1	0	0	0
Painted Lady	1	0	1	1	0	1	5
Marbled White	6	7	14	16	14	7	21
Purple Emperor	0	1	1	1	2	0	0
Purple Hairstreak	0	0	0	0	1	14	22
Speckled Wood	55	29	21	32	43	40	21
Gatekeeper	44	63	77	45	112	52	165
Meadow brown	225	197	178	102	317	157	215
Small Heath	12	3	12	1	2	11	31
Ringlet	3	0	11	1	16	7	12