

**SEAFORD NATURAL HISTORY
SOCIETY**

**2019 BUTTERFLY SURVEYS ON FRISTON
GALLOPS**

**This is an abbreviated version of a report that was sent to Forestry
England in October 2019. For more details of the project please use
the contact details on the SNHS website.**

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Section 1 Introduction

The rough pasture and rabbit grazed grassland known as Friston Gallops is widely recognised as an important area for butterflies - especially Chalkhill Blues. As management of this land has recently reverted to Forestry England (FE) the East Sussex Beat Forester approached Seaford Natural History Society (SNHS) for help collecting baseline and routine monitoring data on the butterflies. SNHS currently runs two United Kingdom Butterfly Monitoring Service (UKBMS) registered surveys on Seaford Head and was happy to explore the possibility of surveying on the Gallops.

There were several phases to the work in 2019:

- **(Early April)** Early site visits and the design of a survey route (transect) - completed by the end of May.
- **(April/May)** Requests by members of the SNHS to the Sussex Biodiversity Centre and other holders of historic natural history data for downloads of any records of butterflies on the Gallops. A report on these data was circulated at the end of May and is still available. The downloads and the species sightings they contained are briefly discussed in section 4 of this report.
- **(May)** Liaison with members of the SNHS and FE volunteers to devise a provisional rota for the survey.
- **(June)** The first survey was carried out on June 3rd.

- **(Mid July)** By mid July the grass and other vegetation had thickened and long sections across rough grass were becoming increasingly arduous. The route was modified for week 7. The basic coverage was retained, but more use was made of paths and the thinner grass on their edges.
- **(Mid September)** Surveys on this revised route were continued until September 19th (week 16) when they were stopped due to declining numbers of sightings and the lack of days with suitable weather.
- **(Mid October)** A full report on the work was sent to Forestry England.

Section 2 Design issues, routes and numbers of sightings

Route design

A preliminary visit in April led us to identify what we thought were distinct types of grassland within the Gallops and the survey transect was designed to cover the majority of these. A substantial part of the route went across rough grassland and by mid July several sections were proving very arduous. The route was modified for week 7. The habitat coverage was retained, but there was more use of paths. The revised route is shown in Figure 1. It is approximately 2760 metres long, divided into 9 sections. Each section is intended to represent a distinct habitat, but as vegetation has grown, some sections have proved to be less than homogeneous.

Survey procedures and numbers of sightings

The survey was broadly based on UK Butterfly Monitoring Service (UKBMS) protocols for a "Pollard Walk". It was carried out once a week, usually by two people. The day was not fixed but depended

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on the availability of surveyors and suitability of the weather. Volunteers from both SNHS and FE were involved.

There were 116 sightings in the first week. Thereafter, the numbers increased steadily until week 9 and then decreased to only 17 in week 16. (See Table 1 and Figure 2). One survey (week 11) was abandoned due to bad weather. The lower than expected numbers of sightings in weeks 2 and 7 can be explained by the lack of sun - only 10% in week 2 and completely overcast skies in week 7. All other weeks had 70% or more sun (excepting week 15 with 50%).

The total number of sightings over the 15 weeks was 5896.

Table 1 - Numbers of Sightings per Week

Date	3/6	13/6	19/6	28/6	4/7	11/7	19/7	22/7	Week	1	2	3	4	5	6	7	8	Sightings	116	72	169
	413	345	499	273	976																

Date	29/7	8/8	* 23/8	29/8	4/9	13/9	20/9	Week	9	10	11	12	13	14	15	16	Sightings	1356			
	840	0	383	193	156	88	17														

* Survey in week beginning August 12th was abandoned due to high winds

Figure 1 Route used from week 7 onwards

Figure 2 Numbers of sightings per week

1500

1000

500

Week

0

Sightings

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

Section 3 The species seen during the 2019 survey

Twenty six species were recorded during the 15 surveys. The numbers of sightings are shown in Figures 3a and 3b. Two of the rows, labelled "White sp." and "Small/Essex Skippers", refer to combinations of butterflies that can be difficult to distinguish in the field. They were used when we were unable to confidently assign these butterflies to a single species.

Figure 3a Species with more than 100 sightings

Chalkhill Blue

159

No. of sightings

More details are given in Table 2 which shows when the sightings occurred. The following notes summarise our sightings of the butterflies seen most often.

Chalkhill Blue (2696)

This butterfly, for which the Gallops are best known, was recorded as a single-brood from early July to mid-August - with a few in early September. Numbers peaked at just over a thousand on July 29th. Nearly half the sightings were in section 4 of the route where there is a concentration of Horseshoe Vetch (the larval food plant). Most of the others were recorded in the two adjoining sections. Delicate habitat management is important for this species as the caterpillars overwinter within their eggshells on or around the larval food plants and Horseshoe Vetch can be easily overwhelmed by long grass. Rabbit grazing can be an important factor in maintaining a suitable habitat.

2696 Meadow Brown

1164

Small Heath

561

Marbled White

355

Gatekeeper

345

Small/Essex Skipper

176 Common Blue

0 500 1000 1500 2000 2500 3000

4

Figure 3b Species with less than 100 sightings

Small White

98 Adonis Blue 96 Painted Lady

77 Dark Green Fritillary

47 White sp.

22 Small Skipper

22 Large White 16 Small Copper

10 Ringlet 10 Essex Skipper 8 Large Skipper 7 Brown Argus 6 Red Admiral 5 Holly Blue 4 Speckled Wood

3 Dingy Skipper 3 Peacock 2 Small Blue 1 Silver-spotted Skipper 1 Green Hairstreak 1 Brimstone

10 20 40 60 80 100 120

No. of sightings

Meadow Brown (1164)

This is a single brood butterfly that we saw from June to September, although there was a slight dip in the numbers in mid-July. The long rough grassland with fringes and patches of Brambly scrub make the Gallops a good location for this species. One hundred or more of these were recorded in each of weeks 4,5,6,10,12 and 13. Of all the species seen during the surveys, this is the one that is the most widely distributed across the Gallops.

Small Heath (561)

The two-brood pattern of the Small Heath was clear from the survey results. Many of the first brood had already emerged by the start of the survey (65 were seen on June 3rd) and with an earlier start we would expect to see good numbers in May. The second brood adults peaked in late July/early August and if the weather had been better in late September we might have seen a third brood. As for location, this species tended to be concentrated on the perimeter paths with short worn grass. Just over 40% of the Small Heath sightings were recorded on section 8 and a further 16% on section 9. Both of these are relatively sheltered short grass paths, well walked and rabbit-grazed.

Marbled White (355)

Typically, this is a butterfly of thick tussocky grassland, though it is now found in a wide variety of habitats. It is single brooded with a short flight period - and we observed this pattern with almost all

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the sightings coming in weeks 4,5,and 6. Sections 6 and 9 accounted for just over 40% of the sightings, but the remainder were distributed relatively evenly along the transect.

Gatekeeper (345)

Consistent with its short single brood pattern, all but 4 of the 345 sightings of the Gatekeeper were either during July or the first week of August. Its alternative name, Hedge Brown, suggests this is not a species of open grassland and during the survey it was most often seen in areas that were adjacent to Brambly margins or scrub patches.

Small/Essex Skippers (176 combined+22 Small+ 8 Essex)

Although 5 species of Skippers were seen during the surveys: Dinghy(3), Silver-spotted (1),

Large (7), Small (22) and Essex (8), the vast majority of sightings had to be classified as either Small or Essex Skippers as it is often hard to see the main distinguishing feature: the colour of the underside of the antennae tip. It is surprising we did not record any Grizzled Skippers as, judging from the Seaford Head surveys, these were present in good numbers in 2019, but these may have been missed by the late start. On the Gallops, the Skippers were mainly seen in 5 sections of the transect: 1,2,3,5 and 9. Long grass with Knapweed is a favoured habitat and had we retained the first version of the route numbers may have been higher.

Common Blue (159)

The numbers of the first brood of this species were already beginning to decline when the survey started in early June. The second brood was seen in August. More than 50% of the records were in sections 3 and 4, with a further 35% across sections 1,8 and 9.

Small White (98)

The survey started too late to detect the first brood of this species - as it will have peaked in May and seems to have finished by early June. Adults of the second brood were observed in August. Small Whites were almost all seen around the edges of the Gallops - in sections 1,4,5,8 and 9, but hardly ever in the open grassland.

Adonis Blue (96)

The distinctive two brood pattern of the Adonis was observed during the survey. At the beginning of the survey we saw the end of the flight period for the first brood. From week 4 to week 10 there were no sightings. Then the second brood appeared from weeks 12 to 15. Almost all (90%) of this species were seen in 3 sections: 3,4 and 8 - where it was most likely to find what Lewington (2009) *Pocket Guide to the Butterflies of Great Britain and Ireland* describes as its preferred habitat "*short herb-rich turf on sunny south facing slopes*".

Table 2 Number of each Species seen per Week

June July August September No.

Weeks: 1 2 3 4 5 6 7 8 9 10 12 13 14 15 16 sightings Adonis Blue 4 6 8 0 0 0 0 0 0 25 31 11 11 0 96
 Brimstone 0 0 0 0 0 0 0 0 0 0 1 0 0 1
 Brown Argus 0 0 0 0 0 1 0 0 0 1 0 3 0 1 0 6
 Chalkhill Blue 0 0 0 0 0 106 155 715 1002
 Common Blue 34 4 9 6 0 8 4 9 15 5 34 14 7 6 4 159
 Dark Green Fritillary 0 0 1 16 13 16 0 0 1

0 0 0 0 0 47 Dingy Skipper 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0 3 Essex Skipper 0 0 0 2 0 0 0 4 1 1 0 0 0 0 0 8 Gatekeeper
0 0 0 1 6 83 46 114 70 22 3 0 0 0 0 345 Green Hairstreak 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 1 Holly Blue 0 0 0 0 2 0 0 0 0 0
0 2 0 0 0 4 Large Skipper 0 0 0 6 0 1 0 0 0 0 0 0 0 0 0 7 Large White 0 0 0 0 3 0 0 2 0 2 1 4 4 0 0 16 Marbled White 0
0 4 94 123 108 12 9 5 0 0 0 0 0 0 355 Meadow Brown 8 23 79 145 100 118 51 58 185 150 101 59 56 28 3 1164
Painted Lady 0 0 0 3 0 3 0 0 0 32 24 10 4 1 0 77 Peacock 0 0 0 0 0 1 1 0 0 0 0 0 0 0 2 Red Admiral 0 0 2 0 0 0 0 0
1 0 1 0 0 1 0 5 Ringlet 1 0 0 4 4 0 1 0 0 0 0 0 0 0 10 Silver-spotted Skipper 0 0 0 0 0 0 0 0 0 1 0 0 0 0 1 Small
Blue 1 0 0 0 0 0 0 0 0 1 Small Copper 0 0 0 1 2 0 0 0 3 0 0 0 1 0 3 10 Small Heath 65 39 66 118 38 19 2 7 30 52 35
34 27 23 6 561 Small Skipper 0 0 0 17 0 0 0 1 4 0 0 0 0 0 0 22 Small White 0 0 0 0 0 0 0 4 0 2 49 21 5 16 1 98
Small/Essex Skipper 0 0 0 0 54 35 0 53 33 0 1 0 0 0 0 176 Speckled Wood 0 0 0 0 0 0 0 0 0 3 0 0 0 0 0 3 White sp. 0
0 0 0 0 0 0 0 6 0 11 5 0 0 0 22 Weekly totals 116 72 169 413 345 499 273 976 1356 840 383 193 156 88 17 5896

KEY

1 to 10 11 to 50 51 to 100 101 and over

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Painted Lady (77)

Aside from 6 sightings in late June/early July, all our Painted Lady records are from August and early September. More than 80% of the sightings were in sections 4 and 5 with a further 8% in section 6. The main larval food plants - various types of thistles - are quite widespread in these areas.

Dark Green Fritillary (47)

Our sightings of the Dark Green Fritillary were almost all confined to the end of June and early July - shorter than the expected flight season, suggesting that these strong flying butterflies may have moved to other areas of the forest. They were mostly seen on the thistles and Knapweed in sections 3 and 4.

Sixteen other species were seen too infrequently to be able to generalise on flight patterns and locations

Section 4 Comparison with other data sources

Available downloads

At the start of the project, we requested extracts from local and national databases likely to hold butterfly records for the Gallops. We received three downloads.

1. 1433 records covering 1995 to 2018 from the **Sussex Biodiversity Record Centre**. This

extract was based on records with grid refs. within the approximate area of the Gallops. It consists of 954 records from a survey carried out in 2010 and 2011 and 479 records of

opportunistic sightings. Six of the latter were excluded for having grid references outside the Gallops. 2. 135 records for 2017, provided by the **Branch Recording Officer for UKBC**. Only 48 of these

had grid references within the Gallops. 3. A second extract from UKBC containing 6895 records relating to 19,116 sightings on the "Friston Forest Project" between 2009 and 2016. All have grid references that are in the Forest to the north of the Gallops. These records are not relevant to the present exercise.

Comparison of the results from these different sources

Table 3 lists the species covered by the opportunistic records from 1995-2018 and the surveys of 2010/11 and 2019. The numbers (and rankings) of sightings are reported for the surveys, but only the number of records are shown for the 1995-2018 opportunistic data where the number of individual sightings were not consistently recorded. Table 5 compares the rankings across the three surveys for the 10 most reported species.

Table 3 **Records Sightings Sightings Sightings Rank Rank Rank**

1995 to 2018 2010 2011 2019 2010 2011 2019

Adonis Blue 16 125 125 96 7 5 9

Brimstone 10 3 3 1 24 17e 23e

Brown Argus 7 28 6 11 17

Chalk Hill Blue 27 2961 1635 2696 1 1 1

Clouded Yellow 11 2 25e

Comma 14 4 2 22e 20e

Common Blue 36 342 141 159 4 4 7

Dark Green Fritillary 14 26 31 47 12 9e 11

Dingy Skipper 11 67 54 3 9 6 20e

Essex Skipper 8 8 15

Green Hairstreak 2 1
Green-veined White 2 5 20e
Grizzled Skipper 9 7 10 18 12
Hedge Brown 26 62 25 345 10 11 5
Holly Blue 3 4 19
Large Skipper 9 157 36 7 6 7e 16
Large White 11 20 9 16 14 13 12
Long-tailed Blue 1
Marbled White 23 247 36 355 5 7e 4
Meadow Brown 42 1234 481 1164 3 3 2
Orange-tip 4
Painted Lady 20 2 4 77 25e 16 10
Peacock 9 4 7 2 22e 15 22
Red Admiral 31 6 8 5 19 14 18
Ringlet 4 10 13e
Silver-spotted Skipper 5 1 23e
Silver-washed Fritillary 3
Small Blue 9 22 3 1 13 17e 23e
Small Copper 38 87 31 10 8 9e 13e
Small Heath 44 1610 767 561 2 2 3
Small Skipper 21 18 22 16 6
Small Tortoiseshell 13 5 2 20e 20e
Small White 15 19 3 98 15 17e 8
Speckled Wood 20 1 3 27 20e
Wall 1 12 17
White Admiral 2
Small/Essex Skipper 176 6
White sp. 22 No. Species 36 27 21 26

As Blencowe and Hulme (2017) *Butterflies of Sussex* note in their section on where to see butterflies: "to the North of the Gallops the population of Chalkhill Blues can erupt in legendary

numbers when conditions allow."

Table 4 Chalkhill Blue survey records

2010 survey	2011 survey	2019 survey	date	n	obs	date	n	obs	date	n
obs	02/07/2010	1	01/07/2011	1	11/07/2019	106	09/07/2010	55		
	30/07/2011	1495	19/07/2019	155	28/07/2010	597	16/08/2011	117		
	22/07/2019	715	01/08/2010	1388	24/08/2011	13	29/07/2019	1002		
	11/08/2010	611	27/08/2011	9	08/08/2019	570	16/08/2010	298	23/08/2019	
	97	31/08/2010	10	29/08/2019	10	07/09/2010	1	04/09/2019	40	
									13/09/2019	1
									Total	2961
1635	2696									

None of the three surveys encountered such a "legendary eruption", as for example in 2012, but the numbers are substantial. In all 3 years more than 50 sightings were reported on all surveys between mid July and mid August and there was one date in each year when more than 1000 were seen on the surveys: 1st August (2010), 30th July (2011) and 29th July (2019).

In the 3 years for which there is survey data, Chalkhill Blues are by far the most reported butterfly. From Table 5 we can see that **Small Heaths** and **Meadow Browns** were the next most recorded butterflies in all three years surveyed. The late start may explain why **Common Blues** were less evident in 2019 than the two earlier surveys. The lower ranking for **Marbled White** in 2011 could be due to the apparent change of route between 2010 and 11 - covering fewer areas with long grass. The numbers of **Gatekeepers** in 2019 is much higher than the other two years, possibly because our transect included more scrub edges and marginal vegetation.

Two other points are worth noting from Table 5. First, that 2019 was a relatively "good" year for **Painted Ladies**. Second, that in 2019 we saw very few **Dinghy** and no **Grizzled Skippers**. The habitat is marginal for the Grizzled Skipper, but the Dinghy Skipper should be present in reasonable numbers in the Gallops in May. We hope to see more Dinghy Skippers if the surveys start earlier in 2020.

Table 5 Rankings of species sightings from 2010, 2011 and 2019 surveys

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Rank 2010 2011 2019

17 weeks 20 weeks 15 weeks 1 Chalkhill Blue(2961) Chalkhill Blue(1635) Chalkhill Blue (2696) 2 Small Heath (1610) Small Heath (767) Meadow Brown (1164) 3 Meadow Brown (1234) Meadow Brown (481) Small Heath (561) 4 Common Blue (342) Common Blue (141) Marbled White (355) 5 Marbled White (247) Adonis Blue (125) Gatekeeper (345) 6 Large Skipper (157) Dinghy Skipper (54) Small/Essex Skipper (206) 7 Adonis Blue (125) Marbled White (36) Large Skipper (36) Common Blue (159) 8 Small Copper (87) Small White (98) 9 Dinghy Skipper (67) Small Copper (31) Dark Green Fritillary (31) Adonis Blue (96) 10 Gatekeeper (62) Painted Lady (77)

Section 5 Summary and conclusions

Following an approach from Forestry England in May 2019, members of SNHS agreed to help design and run a weekly butterfly survey on grassland at Friston Gallops. The design followed UKBMS guidelines. The survey route (transect) was designed to cover the various types of grassland habitats on the Gallops and was to be walked weekly until late September or October. Surveying started on June 3rd.. Volunteers from SHNS and FE completed 15 surveys between June and September 20th - when the work was stopped due to poor weather and declining numbers of sightings.

If the exercise is repeated in subsequent years, surveying will start in early April.

In week 7 of the 2019 surveying, the original transect was modified to make it less arduous. The modified route followed the original quite closely, with similar habitat coverage, but made more use of paths. This route was 2.8km long and was divided into 9 sections.

In the first week of surveying 116 butterflies were sighted. This rose to more than 800 per survey in late July and early August and more than 800 were recorded on three occasions. Numbers dropped in several sections of the route after hay cutting in mid August, but remained at more than 100 until the poor weather in the second half of September. Only 17 butterflies

were seen on the last survey on Sept 20th.

There were 5896 sightings in all, covering 26 species. Those observed most often were: Chalkhill Blue (2696), Meadow Brown (1164), Small Heath (561), Marbled White (355), Gatekeeper (Hedge Brown) (345), Small and Essex Skippers (206), Common Blue (159), Small White (98), Adonis Blue (96), Painted Lady (77) and Dark Green Fritillary (47).

When recommending the Gallops as a place to see butterflies, Blencowe and Hulme (2017) *Butterflies of Sussex* notes: "*Friston Gallops at the eastern edge of the forest consists mostly of tall, rank grass unsuitable for chalk grassland butterflies. But at the southern and northerly ends of the Gallops two relatively small areas of rabbit-grazed turf contain all the excitement.*"

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Our original survey route went across much of this "tall rank grass", which we found to be floristically rich and diverse - supporting Marbled Whites, Meadow Browns, Skippers and many others - several of which can be described as chalk grassland species.

The project team were keen to compare their 2019 results with those from any previous surveying on the Gallops. To this end, we requested any relevant historical records from Sussex Biodiversity and UK Butterfly data bases. Much of what we received was opportunistic and does not provide systematic or reliable data on numbers and distributions. But 954 records related to a 2010-11 survey which might be compared with our 2019 work. There are many caveats, not least: the 2010/11 records only give a rough indication of the route used, but it does differ from ours; and these surveys will have found slightly different species distributions because they started earlier: May in 2010 and April in 2011.

Despite this, the results from the 2010, 2011 and 2019 surveys are not dissimilar. In all three years, Chalkhill Blue numbers predominate, followed by Meadow Browns and Small Heaths. Common Blues and Marbled Whites were also widely seen in all years. There has also been a substantial presence of "the rarest of the downland Blues", the Adonis.

The main differences between the 2010/11 and our 2019 results can mostly be explained by our later start date and that our transect included more scrub edges than the 2010/11 exercise. We also suspect that the Brown Argus and Green-veined Whites may have been underreported in 2019 because they were assigned to commoner confusion species : female Common Blues and Small Whites. We will pay particular attention to this if the survey is repeated in 2020.

To sum up, the similarities between the three sets of survey results suggest we are starting to build good baseline data on the Gallops' butterfly population - and this can only be enhanced by repeating the survey with an earlier start in 2020.

