

Introduction

2007 was an unusual year and certainly very different from 2006. The weather started warm, but soon deteriorated for the rest of the year. The Met Office described April as being exceptionally warm. This was a good 5°C above the past 40 year average. However, May and June quickly dipped down in temperature to below average. Scotland did not experience the extreme wetness of further South though. In July the temperatures were again down and sunshine limited in Eastern, but not Western areas. August also was cooler, but September brought some brighter weather. 2007 therefore was quite a cool damp year despite the very promising start. This is shown in the data by some of the figures for early and later emergers and also by the lack of migrant butterflies.

The focus of this year's newsletter is data; summarising the numbers of transects, their localities and some comparisons from 2007 to the whole data set.

The following transects were new for 2007:

- ↳ Aberlady Bay
- ↳ Balblair Wood, Bonar Bridge
- ↳ Ben Lomond - Ptarmigan Path
- ↳ Bowhill Country Park
- ↳ Polymailly
- ↳ Sandford Moor

We welcome their input and hope to see returns for forthcoming years. We very much appreciate the efforts people have put in to the transect walking and let us hope that 2008 proves to a successful year, with more settled weather.

Transect training May 17 & 18 * *

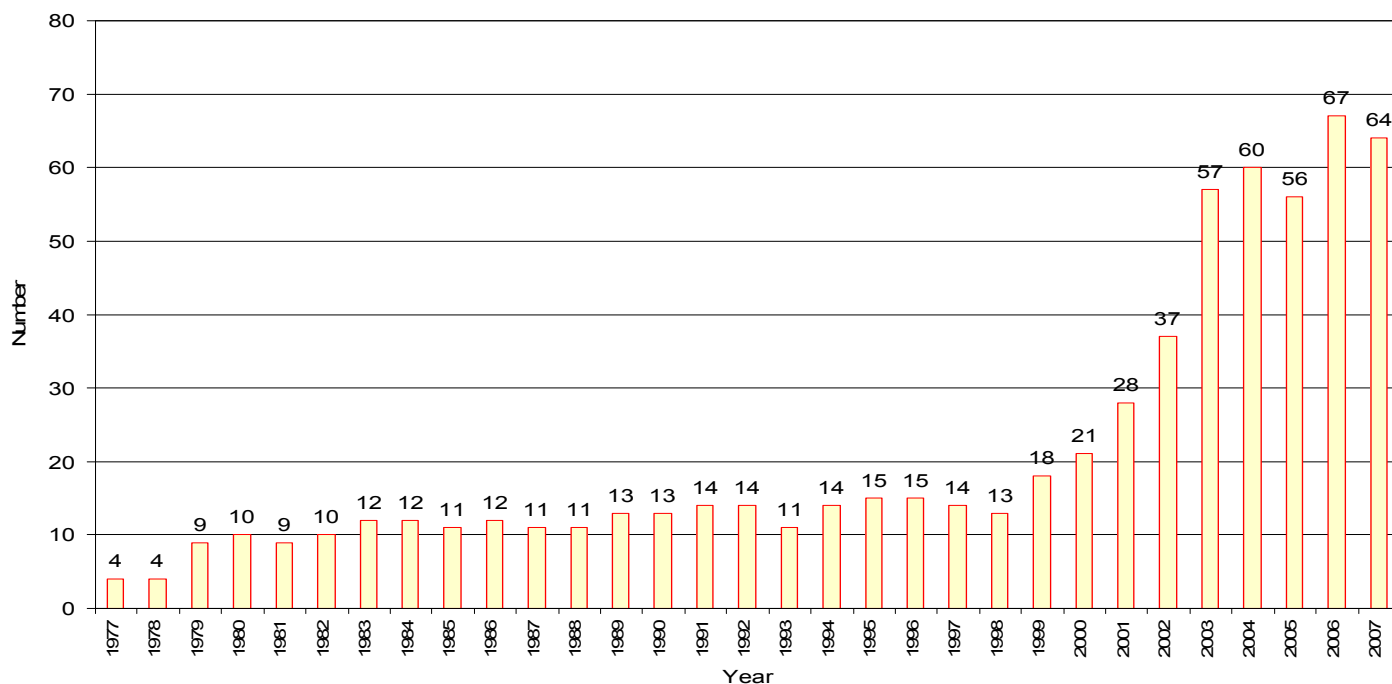
Free places for beginners (17th) and those with more experience (18th). Led by Ian Middlebrook from Dorset HQ. Venue Callandar Wood, Falkirk and SWT's Jupiter Urban Wildlife Centre, Grangemouth. Will include setting up a transect and use of transect walker software. Supported by Falkirk Environment Trust and BTCV. Contact Paul Kirkland pkirkland@butterfly-conservation.org to book/for more info. Limited places.

Summary of Data

The Scottish dataset comprises 351 years worth of full transect data currently available to us, with a further 307 years of data within the BMS dataset which is awaiting transfer to the Transect Walker software. Once we have over 600 years worth of data, then Scottish analysis can be achieved in more detail and for more species. The data summarised below (whether received on paper or by electronic means) has all been entered into the Transect Walker software, which eases error checking and facilitates analysis. Data is then put into the Regional Co-ordinator package for species analysis. Excel is used for some data management and MapMate® used for plotting the distribution maps.

The number of transects returned per year is shown on the chart below. Some data for 2007 is still to be received from recorders. In general the number of transects continues to grow and 100 transects should be an achievable target for Scotland.

Number of Transect Returns

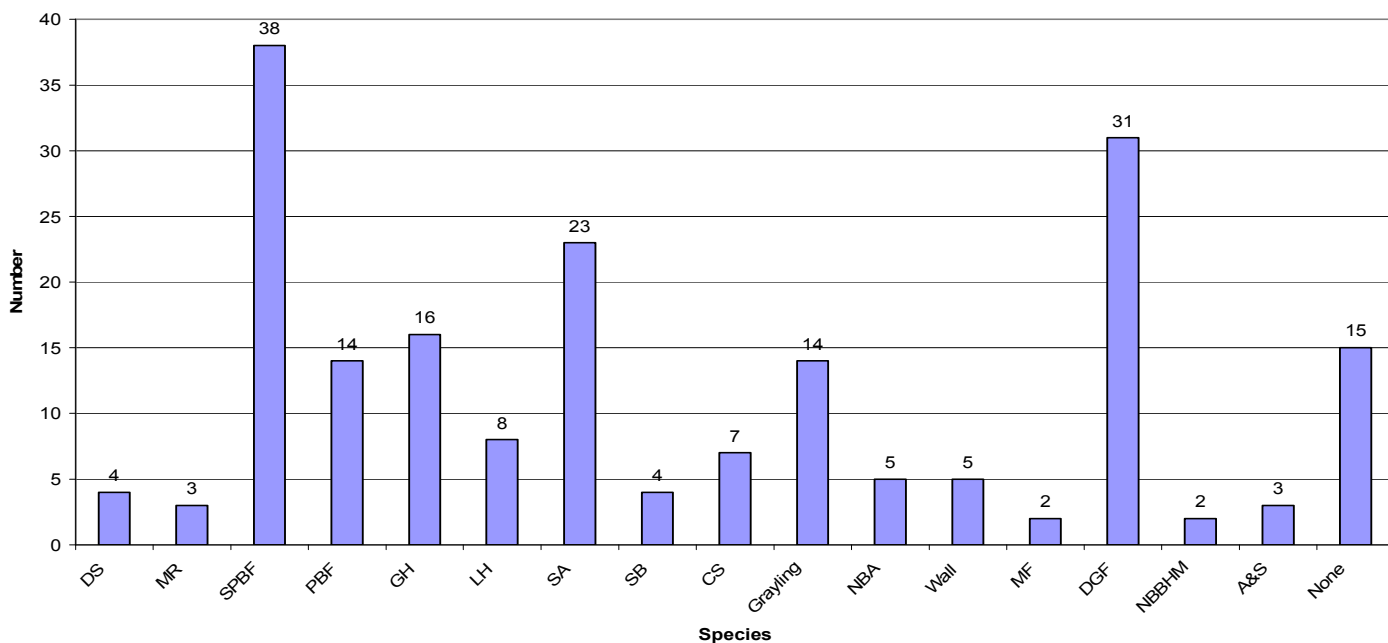


Data is collated by various means: by paper and 2 versions of the Transect Walker software (Versions 1.3 and 2.5). Version 1.3 data is upgraded to 2.5 for the analysis and forwarding to Butterfly Conservation HQ. A summary of how records are sent to me is shown here.

Software Version	Total
1.3	18
2.5	16
Paper	24

A note is taken of the more special species recorded on a Transect, as shown in the chart below. "None" indicates that none of the special species are recorded (15 transects). Two points of interest are that Small Pearl-bordered Fritillary is recorded on over half of the transects, but species like Wall and Marsh Fritillary are recorded in very few transects.

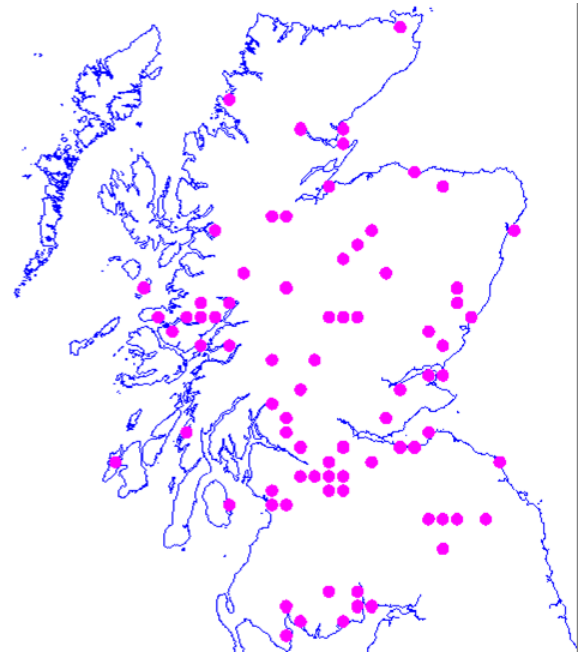
Transects with Special Species



Recently more recorders have noted down moths of the transects. Shown here are the transects with definitive yes or no moth recording. It is day flying moths that are included here, such as Argent and Sable and Speckled Yellow.

Moths	Total
No	41
Yes	15

This map has been produced using MapMate® to show the location of the transects. Each dot represents a 10km square showing where at least one transect has been walked. Some 10km squares have more than one transect. The distribution is wide and there are some obvious gaps, such as Mull, Skye and the Outer Hebrides. Perhaps recorders in these areas may know someone who would be interested in setting up a new transect.



Population Changes

The Regional Co-ordinator software is able to analyse data cumulatively from all the transects. One of the useful summaries that can be produced is the table below which shows a summary of changes of recorded numbers for each species. Included in this is the number of sites where a species has been previously recorded, but not seen in 2007; this is termed “extinctions” here, but it only indicates that the species was not recorded along the transect sample, on the dates when the transect was walked. It does not mean that the species is no longer found on the whole site.

As to be expected most sites showed no change in 2007. Of note though was the increase in Chequered Skipper and Small Pearl-bordered Fritillary, and the reduction in Small Copper numbers and migrants (e.g. Red Admiral and Painted Lady).

Species	Total Sites	Sites > 50% Increase	Sites 20-49% Increase	Sites No Change	Sites 20-49% Decrease	Sites > 50% Decrease	Number of “extinctions”
Chequered Skipper	1		1				
Large Skipper	2	1		1			
Dingy Skipper	1				1		
Large White	10	1	1	6	1	1	
Small White	11			4	3	4	1
Green-veined White	16	1		10	2	3	
Orange-tip	11	1		9		1	1
Green Hairstreak	4			3	1		
Purple Hairstreak	1			1			
Small Copper	10			7	1	2	1
Small Blue	2			2			
Northern Brown Argus	2			2			
Common Blue	15	1	2	7	1	4	
Holly Blue	1			1			
Red Admiral	25	1		10	3	11	
Painted Lady	26	2		12	1	11	
Small Tortoiseshell	25	6	2	13	1	3	
Peacock	21	2		15	3	1	
Comma	3			3			
Small Pearl-bordered Fritillary	14	1	3	9		1	
Pearl-bordered Fritillary	3			2	1		
Dark Green Fritillary	6			3	3		
Marsh Fritillary	2			2			
Speckled Wood	6	2	1	2		1	
Wall	1	1					

Mountain Ringlet						
Scotch Argus	5			4		1
Grayling	6			4		2
Meadow Brown	21	3		12	2	4
Ringlet	14	3		6	3	2
Small Heath	20	4	1	11	2	2
Large Heath	1			1		
Six-spot Burnet	4			4		
Chimney Sweeper	1			1		
Latticed Heath	1			1		
Common Heath	2			2		
The Cinnabar	1					1
Silver Y	1			1		
Narrow-bordered Bee Hawk-moth	1			1		
Wood Tiger	1			1		

Regional Collated Indices

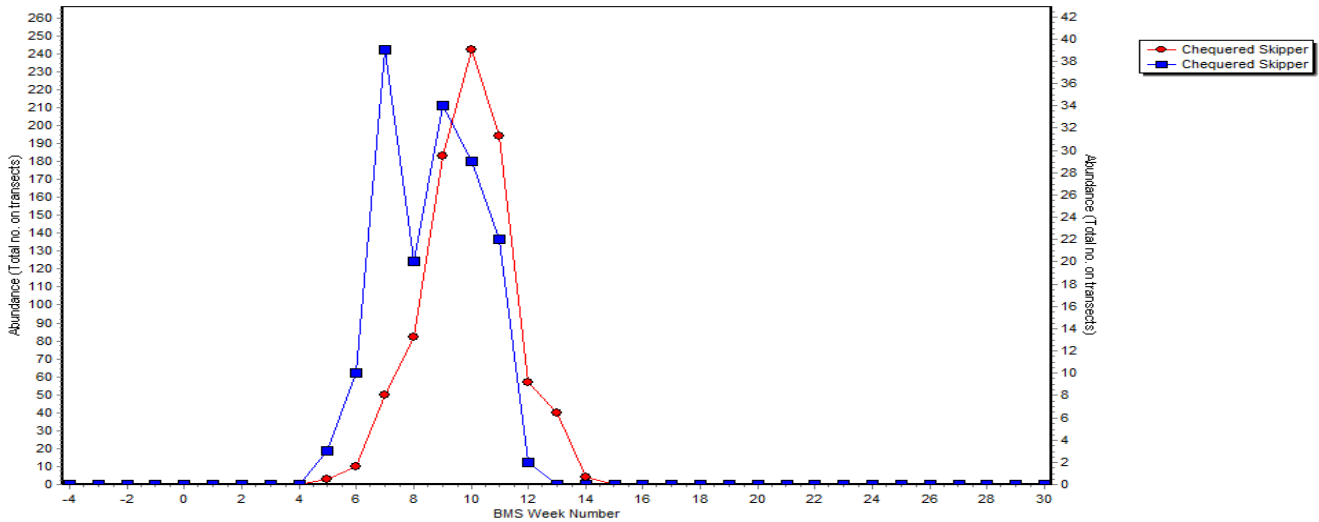
A significant reason for using transects as a standardised method of recording butterflies is that data can be compared from year to year and from site to site by use of Collated Indices (this is described in detail in the literature Pollard & Yates 1993; www.ukbms.org). Using the data in the Regional Co-ordinator software from all years, each species can be analysed to produce a species trend. Currently there is a lot of recent data in the Scottish dataset, but much of the historical data lies with the UKBMS recording scheme. In due course this data will be released for regional analysis. On this basis, limited data is available for us to analyse. What is available though is given in the table below. Note that the figure is a log figure and trends relate to the first figure, ie 2. Once more data is available further long term analysis can be undertaken. These figures again show the recent decline of the Small Copper, albeit from a very short run of data, and the paucity of migrants (Painted Lady, Red Admiral) last year.

Species	2004	2005	2006	2007
Large White		2	2.17	
Small White			2	1.58
Green-veined White	2	1.88		1.7
Small Copper		2	1.81	1.65
Common Blue		2	2.23	2.08
Red Admiral		2	2.47	1.95
Painted Lady			2	1.55
Small Tortoiseshell	2	2.07	2.11	2.2
Peacock		2	1.95	1.91
Small Pearl-bordered Fritillary	2	2		2.12
Meadow Brown		2	2.09	2.02
Ringlet		2	2.16	2.23
Small Heath	2	2.07	2.01	2.02

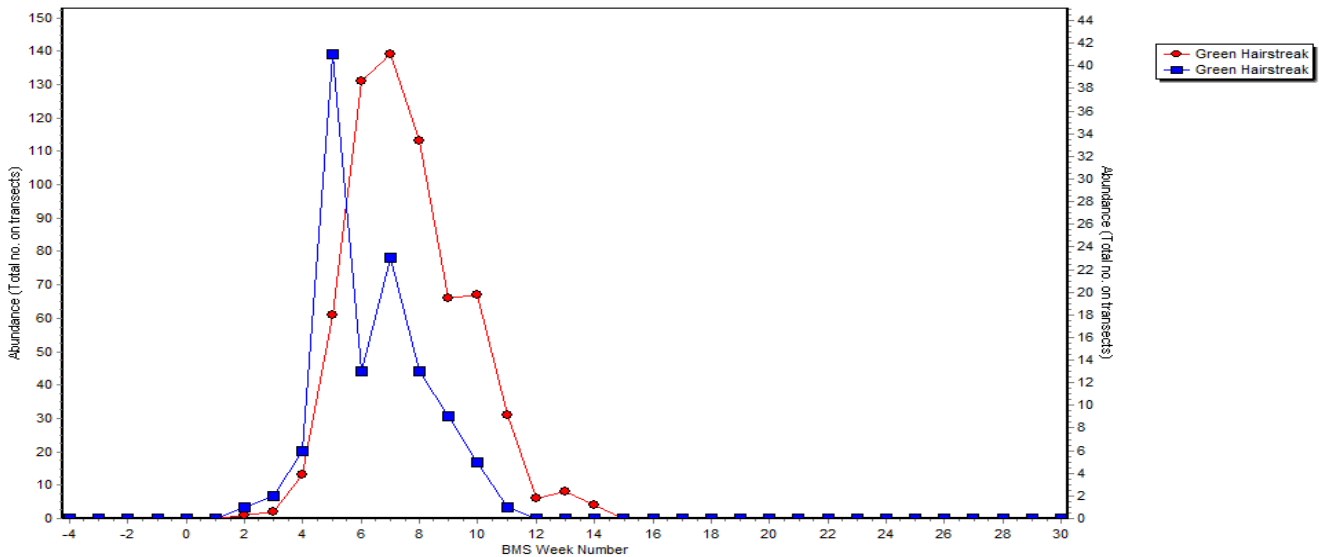
Flight Times of note in 2007

Below are several species that have shown notable flight times for 2007. Each chart shows the accumulated historical data averaged over time (red with dots) compared to the 2007 data (blue with squares). The week numbers are the standard BMS weeks, with April 1st being the start of week 1. Note that the left and right scales vary, and have been shown with the maximum values for the 2007 to be the same height as the yearly averaged data.

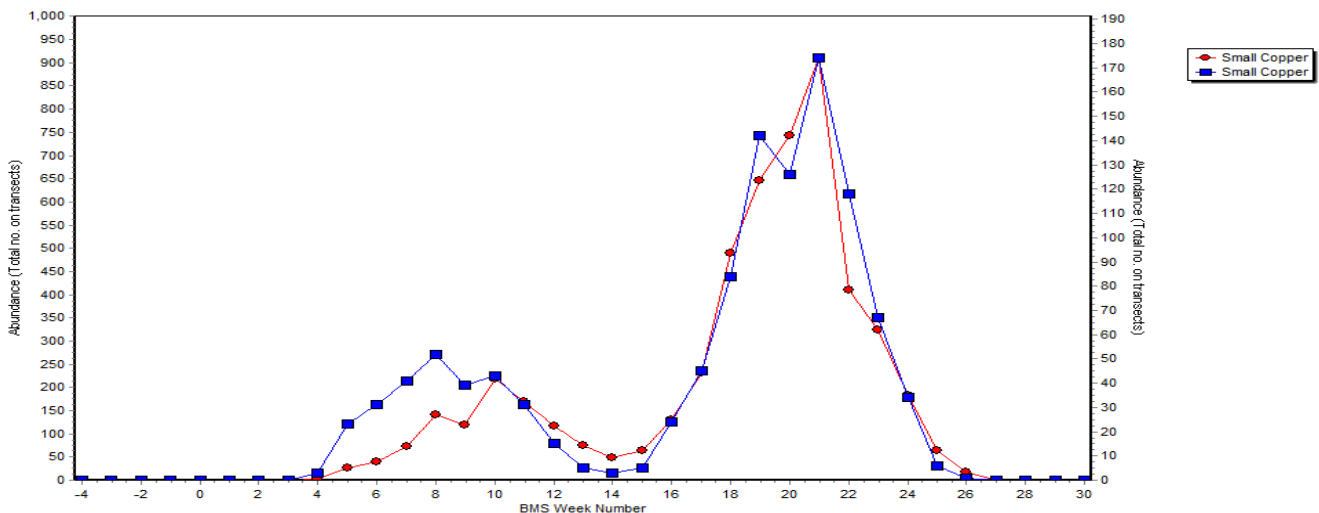
Chequered Skipper - 2007 showed an early flight time with a peak about 2 weeks before the average maximum, probably due to the warm spring.



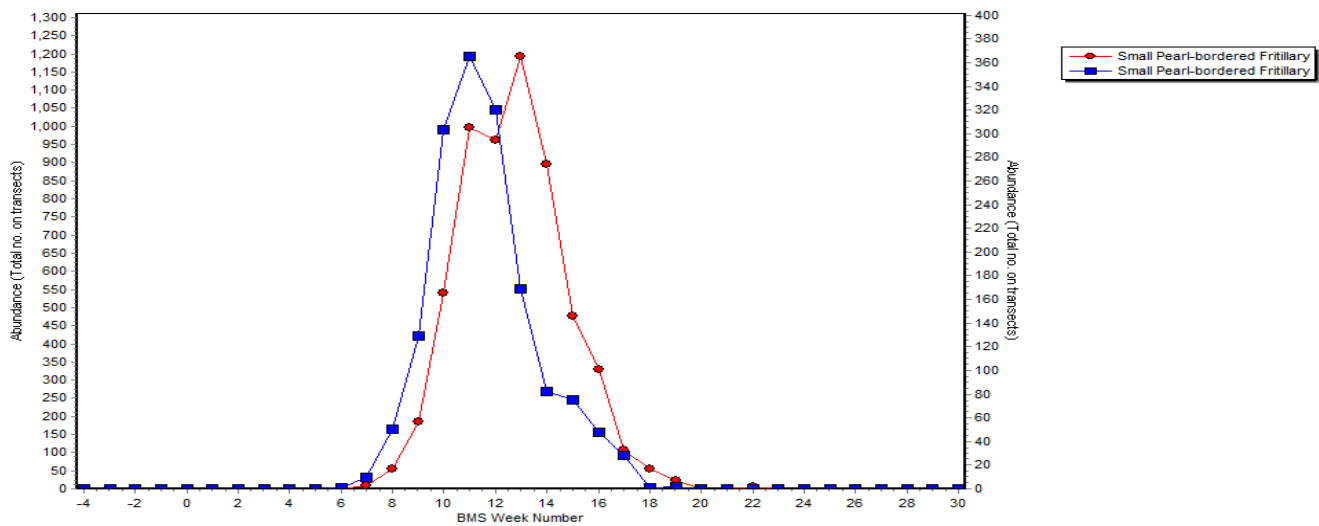
Green Hairstreak also showed an earlier peak to the numbers, but numbers rapidly fell and the last ones were recorded several weeks before the average.



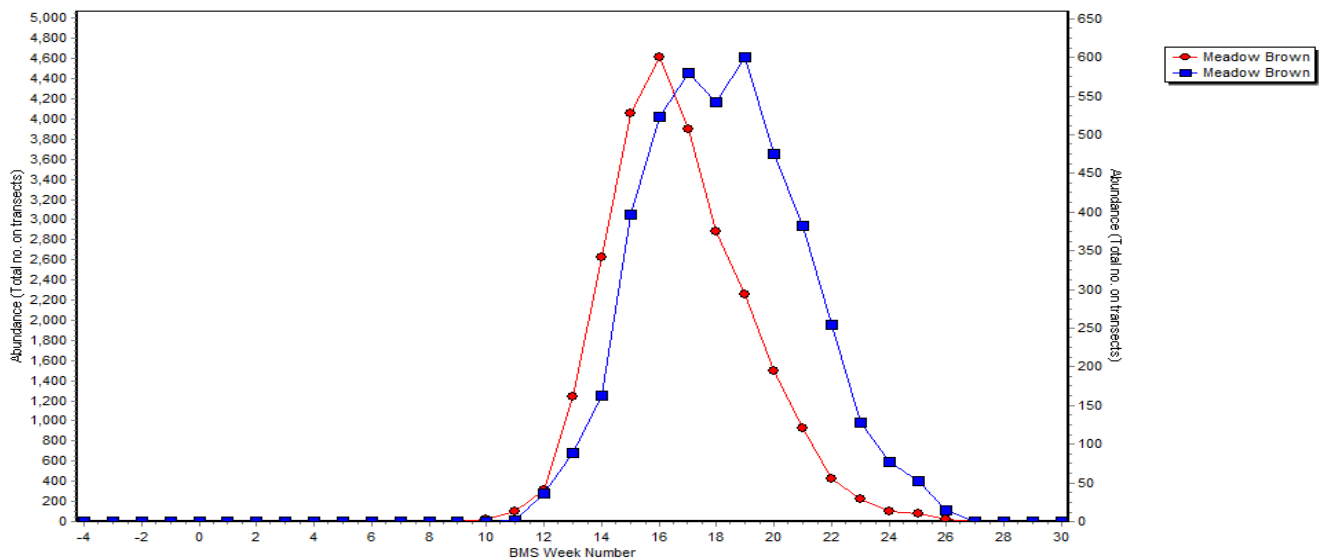
Small Copper showed a promising start with good numbers and despite the poorer summer weather, showed the same increase for the second generation.



Small Pearl-bordered Fritillary also showed an early start.



Meadow Brown showed a later flight time than average, possibly due to the poorer summer weather. Despite this it had a longer flight time than usual.



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