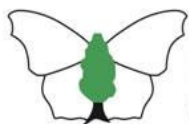




# Ravensgate Hill

## Results of Butterfly Monitoring

### 2013



Saving butterflies, moths and our environment

**Butterfly  
Conservation**

**Gloucestershire Branch**

***Tricia Atkinson  
Glos Branch of Butterfly Conservation  
March 2014***

## **Results of 2013 butterfly monitoring on Ravensgate Hill**

2013 was an excellent year for butterflies on the hill and elsewhere. After a cold and late spring we had a wonderful July and the butterflies responded. The total number of butterflies recorded on the transect throughout the season almost doubled from last year's count to 1834. The number of species recorded also increased to 26.

In addition to recording on the transect, frequent visits were made to the rest of the hill to obtain casual records. This is useful to get a feel on how the butterflies are faring on all of the hill although we cannot compare numbers year on year from these records.

### **Results**

The results are presented as tables and figures as follows:-

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The results of this year's survey are given in Tables 1 - 6 and Figures 1 - 3. A walk was carried out every week in acceptable weather conditions except from weeks 1 and 2 when it was too cold. (For a walk to be acceptable, temperature must be greater than 17C or greater than 13C and sunshine greater than 60%). For weeks 1 and 2, estimated counts are shown in red.

### **Main features of 2013**

- Due to the cold spring and early summer, there were few butterflies flying in April, May and June. In fact only 68 butterflies were recorded in the first three months. This is only 4% of the total butterflies recorded in the total six months.
- The weather in July and August was hot sunny and dry and the number of butterflies rose dramatically. The peak count was just over 400, which is about twice the average peak count.
- The summer butterflies emerged about one week later than average due to the cold spring. However they continued later than average with good numbers in August and even into September.
- It was a good summer for all the white butterflies with very high numbers of Large White and Small White. Small Tortoiseshell, Peacock and Comma also did particularly well. There were also good numbers of the summer meadow butterflies – Meadow Brown and Ringlet.
- Large and Small Skipper, Common Blue, Red Admiral and Marbled White fared better than in 2012 but numbers were still below average.
- Gatekeeper had a poor year although numbers increased slightly from an all-time low in 2012.
- Every species of butterfly increased in number from 2012.

- In addition to transect recording, over 1000 butterflies were recorded on 'casual' visits when butterflies on the whole of the site were recorded.
- Just two Duke of Burgundy were recorded on the transect but several were recorded off-transect – see below for more detail.
- As in previous years, Ringlet was the most numerous species recorded on the transect, accounting for over a quarter of all butterflies recorded. However Marbled White was the most numerous species recorded off-transect. This is probably mainly due to the high numbers of Marbled White on the SW finger of the site (section P).
- On the transect, total count in section A doubled from last year's count. In sections C and D, this year's count was more than double that of last year's. But in Section B, this increase was much smaller suggesting that the habitat for butterflies in this section is deteriorating.

### **Duke of Burgundy**

The main high priority species present on the hill is the Duke of Burgundy. This butterfly is mainly recorded near the foot of the hill (Sections C, J and K on the map), although sometimes a few are recorded near the hollow way at the west end of the site. As most of these areas are not on the transect, we have to make use of records from casual visits to get an idea of how they are faring.



The flight time of the Duke is usually mid May to early June. Because the spring was so cold, the Dukes emerged quite late and the first was recorded on 25<sup>th</sup> May. As June was also cool, their flight period was longer than usual with the last one being recorded on the 19<sup>th</sup> June. The highest number recorded off the transect was 9 on 1<sup>st</sup> June. A total of 21 Dukes were recorded both off and on the transect which is similar to 2012 when there was also a cold spring. As in previous years, most of the sightings were in Section K. (See Figure 4 for map of site.)

There were no sightings of these butterflies in adjacent areas, but quite a few were recorded on nearby Charlton Kings Common on the other side of the A435 road.

This butterfly has quite specific requirements. As well as sheltered, sunny spots for the adult butterflies to feed and mate, it requires Cowslips for the larvae to feed on. In addition, these Cowslips need to stay lush and green throughout the larval feeding stage (June – early August) and not become dry and wilted in the summer sun. This is achieved by providing shade from scrubby bushes and medium to long grass. However, the grass needs to be short enough early on in the season for the Cowslips to be able to grow. As Cowslips are short lived, some bare ground or short, sparse grass is desirable to allow some seed to germinate. It is considered that light cattle grazing only within the period August until the end of March, along with some scrub control provides the best management regime, hence the controlled period of grazing under the present arrangement.

The more open parts of the lower section of the slope at Ravensgate seems to satisfy their requirements.

### **Weather**

In general April, May and June were cold, dull and dry. July was hot, sunny and dry. August was also warmer, sunnier and drier than average but not as hot as in July. September was a mixed month but on the whole cooler, drier and duller than average. Overall the summer was dry but temperatures and sunshine levels were about average. More detail can be seen on the charts in Figure 5.

As the hot weather in July coincided with the flight times of many butterfly species, these fared very well and high numbers were recorded.

### **Comparison with other sites**

At Lineover Wood which is adjacent to Ravensgate, total number increased by a similar amount. It was also a similar picture on The Masts reserve which has a similar grassland habitat.

Nationally, there were 60% more butterflies recorded on transects in 2013 than in 2012, which is considerably less than on Ravensgate where total numbers almost doubled. It was generally considered nationally that it was a very good year for the species which fly in the summer in particular the Peacock, Small Tortoiseshell, Meadow Brown, Ringlet and the Whites. In fact in some areas, it was reported that many species of butterfly were 'very numerous' and 'too many to count'.

Below is a table giving national average increase from 2012 to 2013 for each species. As numbers are relatively small on an individual site like Ravensgate, percentage increases for species on Ravensgate can sometimes be quite exaggerated and misleading so haven't been included in the table.

It is interesting to note that there was virtually no change in Duke of Burgundy numbers since 2012 nationally which agrees with what occurred on Ravensgate. The species that did well nationally also did well on Ravensgate. Red Admiral had a very poor year nationally as on Ravensgate.

Species	Average national increase (%)	Species	Average national increase (%)
Small Skipper	106	Red Admiral	-62
Large Skipper	44	Painted Lady	158
Brimstone	124	Small Tortoiseshell	278
Large White	431	Peacock	218
Small White	465	Comma	66
Green-veined White	208	Dark Green Fritillary	82
Orange-Tip	-15	Silver-washed Fritillary	105
Green Hairstreak	68	Speckled Wood	75
Small Copper	15	Marbled White	38
Common Blue	211	Gatekeeper	35
Holly Blue	-20	Meadow Brown	2
Duke of Burgundy	3	Small Heath	20
		Ringlet	62

### **Management of the hill**

The hill is now being actively managed for wildlife and particularly for butterflies. It is an excellent unimproved limestone grassland site which should be conserved as very few of these sites still remain. Unimproved limestone grassland provides an excellent habitat for a wealth of different plants which in turn produces the correct requirements for a wide range of invertebrates. Also the topography naturally provides a variety of habitats. All this together means that the bio-diversity value is high.

It is ideally suited to the Duke of Burgundy, which likes a north-facing slope with some scrub and long grass as this provides shelter from the wind and some shade for its food plant, the Cowslip. All butterflies require a different habitat and different grass lengths, so a mosaic of different habitats, with different turf heights throughout the site is ideal. This mosaic effect is usually achieved by controlled conservation grazing.

Grazing has taken place this winter (2013/2014) in two ways. Firstly cattle were put on two compartments on the slope in the autumn. The most westerly compartment was well grazed and this was also grazed in the previous autumn. The middle compartment was grazed but not so intensively. It is planned to get the third more easterly compartment grazed next autumn. The aim is to get a succession of regrowth at different stages and hence a variety of different grass lengths. The shorter grass should allow Cowslips to seed and grow well. The longer grass and a little scrub will protect the Cowslips from the summer sun and reduce wilting. This is important as the Duke is in the caterpillar stage of its life cycle in the summer and is feeding on the Cowslip leaves. The longer grass and scrub also provide roosting and perching posts for these butterflies.

Secondly, fourteen cattle were put on the whole site from middle of January and it is planned that they will be taken off at the end of March. If they are left on site later they tend to eat the Cowslip plants! This should reduce the old dead grass which otherwise would choke the flowering plants. This grazing has been very effective and many areas on the top are now well grazed and the grass quite short. This will be good for the wild flowers and the butterflies which need a short turf eg Small Heath. There are still areas on the top where the cattle haven't grazed and there is a lot of long dead grass. Maybe this will need to be cut and removed so that the new young grass can grow.

Some areas on the top were cut in late summer and the grass removed. This may have been used to make hay. It is these areas which have now been grazed well as obviously the cattle prefer fresh grass to old dead grass.

Some scrub at the foot of the slope was removed in 2013 in order to make space for the fencing. Reducing this scrub has also improved the site. While a little bit of scrub is beneficial for birds and the Duke of Burgundy butterfly, it must still be controlled and kept at a low level.

It is of concern that there are many Ash seedlings on the slope which are getting established. Without prompt intervention they could become a real problem and be much more difficult to remove. However if Ash die-back reaches this area, the problem may solve itself.

## **2014**

The butterfly monitoring will continue in 2014 both on and off the transects. It is hoped that we get some better weather in late May during the flight time of the Duke of Burgundy. As the summer butterflies did so well in 2013, they should have had plenty of opportunity to lay their eggs so hopefully we can look forward to a summer full of butterflies this year.

*(Butterfly photos in text and on cover by Tricia Atkinson and Andrew Daw, Glos Branch of Butterfly Conservation)*

*The views expressed are those of the author and not necessarily of Butterfly Conservation.*

Butterfly Conservation main website: [www.butterfly-conservation.org](http://www.butterfly-conservation.org)

Gloucestershire Branch website: [www.gloucestershire-butterflies.org.uk](http://www.gloucestershire-butterflies.org.uk)

Week	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	Total	Index
Mean Temp	10	15	13	15	18	21	17	14	15	17	16	19	18	21	23	26	25	23	20	22	20	20	23	18	18	20		
Mean Sun	93	5	100	100	75	100	5	90	100	100	68	10	65	100	100	100	10	75	93	100	13	10	23	33	58	100		
Small Skipper														4	14	7	7	11	4	4							51	51
Essex Skipper																											0	0
Small/Essex Skipper																											0	0
Large Skipper														1	5	26	9	6	3								50	50
Dingy Skipper											2																2	2
Grizzled Skipper																											0	0
Clouded Yellow																											0	0
Brimstone			1			3								2	2			2	1	4						1	16	16
Large White								1								5	27	21	10	4	4	6	4				82	82
Small White											1					2	3	20	36	31	8		21	4	1		127	127
Green-veined White								6	1	2					1		17	1	12	4	3	8	2				57	57
Orange-tip					1					1																	2	2
Green Hairstreak						1	4	2		1																	8	8
Purple Hairstreak																											0	0
Small Copper																				2	3						5	5
Small Blue																											0	0
Brown Argus																											0	0
Common Blue										2											3	3	2				10	10
Chalkhill Blue																											0	0
Holly Blue																					1		1				2	2
White Admiral																											0	0
Red Admiral										1								1	1			1			1		5	5
Painted Lady																				2		1		1			4	4
Small Tortoiseshell					1									1				2		4	2	3	2	2			17	17
Peacock	1	2	2	2	3	3	1		1								9	46	54	35	15	2	2			1	176	177
Comma				1											1		1	2	4	1	2	1	1		5	1	20	20
Dark Green Fritillary															2												2	2
Silver-washed Fritillary																1	2										3	3
Marsh Fritillary																											0	0
Duke of Burgundy									2																		2	2
Speckled Wood								8	1	1	2		2	3	4	5	1		1	4	2	7	11	5	7	13	77	77
Wall																											0	0
Marbled White															23	73	66	45	17	2	1						227	227
Grayling																											0	0
Gatekeeper																	15	9	11	7	1						43	43
Meadow Brown														15	29	79	52	69	36	34	24	1					339	339
Small Heath										3	2	2	1	2	2	6				4	1	4	1			1	29	29
Ringlet														45	125	199	65	25	19								478	478
Total	0	1	3	3	5	7	5	17	5	11	5	4	3	73	208	403	274	260	209	142	70	37	47	12	14	17	1834	1835

Table 1. Ravensgate 2013. Total butterflies recorded each week

Table 1. Ravensgate 2013. Total butterflies recorded each week

**Table 2. Ravensgate 2013. Total butterflies recorded in each section**

<b>Section</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>Total</b>
Small Skipper	33	11	7		<b>51</b>
Essex Skipper					<b>0</b>
Small/Essex Skipper					<b>0</b>
Large Skipper	23	10	15	2	<b>50</b>
Dingy Skipper			2		<b>2</b>
Grizzled Skipper					<b>0</b>
Clouded Yellow					<b>0</b>
Brimstone	2	4	10		<b>16</b>
Large White	45	24	8	5	<b>82</b>
Small White	66	30	23	8	<b>127</b>
Green-veined White	25	14	11	7	<b>57</b>
Orange-tip	1		1		<b>2</b>
Green Hairstreak			8		<b>8</b>
Purple Hairstreak					<b>0</b>
Small Copper	2	3			<b>5</b>
Small Blue					<b>0</b>
Brown Argus					<b>0</b>
Common Blue	8		2		<b>10</b>
Chalkhill Blue					<b>0</b>
Holly Blue			1	1	<b>2</b>
Duke of Burgundy		2			<b>2</b>
White Admiral					<b>0</b>
Red Admiral	1	1	3		<b>5</b>
Painted Lady	4				<b>4</b>
Small Tortoiseshell	14	2		1	<b>17</b>
Peacock	92	22	49	13	<b>176</b>
Comma	1	4	13	2	<b>20</b>
Dark Green Fritillary	1		1		<b>2</b>
Silver-washed Fritillary			3		<b>3</b>
Marsh Fritillary					<b>0</b>
Speckled Wood	4	11	59	3	<b>77</b>
Wall					<b>0</b>
Marbled White	137	70	13	7	<b>227</b>
Grayling					<b>0</b>
Gatekeeper	8	18	12	5	<b>43</b>
Meadow Brown	103	40	84	112	<b>339</b>
Small Heath	26	2		1	<b>29</b>
Ringlet	206	123	116	33	<b>478</b>
<b>Total</b>	<b>802</b>	<b>391</b>	<b>441</b>	<b>200</b>	<b>1834</b>
Section length(m)	400	200	170	120	<b>890</b>
Butterflies per 100m	201	196	259	167	206
No. of species in section	21	18	21	14	<b>26</b>

**Table 3. Ravensgate. Total Butterfly species count for each year**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	Avg (05-12)
Number of species	24	29	22	20	23	28	24	19	26	24
Small Skipper	114	77	25	52	63	48	40	18	51	55
Essex Skipper	8	1	0	1	0	2	0	0	0	2
Small/Essex Skipper	0	8	4	0	0	0	0	0	0	2
Large Skipper	32	53	44	49	81	138	80	28	50	63
Dingy Skipper	0	0	0	0	0	6	1	3	2	1
Grizzled Skipper	0	0	0	0	0	0	0	0	0	0
Clouded Yellow	0	1	0	0	0	0	0	0	0	0
Brimstone	17	16	16	20	10	9	20	13	16	15
Large White	22	22	10	16	85	69	19	1	82	31
Small White	22	17	9	20	50	30	7	4	127	20
Green-veined White	12	37	18	12	64	53	42	16	57	32
Orange-tip	3	1	0	3	2	2	8	1	2	3
Green Hairstreak	4	3	2	0	7	5	9	4	8	4
Purple Hairstreak	1	0	0	0	0	0	0	0	0	0
Small Copper	0	1	0	0	0	2	1	0	5	1
Small Blue	2	3	0	0	0	0	0	0	0	1
Brown Argus	2	0	0	0	0	2	0	0	0	1
Common Blue	13	32	2	1	9	63	14	0	10	17
Chalkhill Blue	0	0	0	0	0	0	0	0	0	0
Holly Blue	3	5	1	8	0	1	2	2	2	3
Duke of Burgundy	0	2	0	0	3	8	2	0	2	2
White Admiral	0	0	0	0	0	0	0	0	0	0
Red Admiral	13	23	5	8	10	3	6	1	5	9
Painted Lady	0	5	0	0	61	2	0	0	4	9
Small Tortoiseshell	14	2	0	1	14	12	7	0	17	6
Peacock	42	127	48	44	78	60	25	24	176	56
Comma	19	31	6	10	16	16	1	1	20	13
Dark Green Fritillary	0	0	2	0	1	3	0	0	2	1
Silver-washed Fritillary	0	2	1	0	0	2	0	0	3	1
Marsh Fritillary	0	3	1	0	0	0	0	0	0	1
Speckled Wood	49	58	39	51	54	53	62	35	77	50
Wall	0	1	0	0	1	0	1	0	0	0
Marbled White	266	401	351	280	269	119	121	192	227	250
Grayling	0	0	0	0	0	0	0	0	0	0
Gatekeeper	174	191	141	179	103	54	25	19	43	111
Meadow Brown	385	420	184	252	214	159	80	226	339	240
Small Heath	27	50	14	14	27	23	29	14	29	25
Ringlet	195	295	251	576	677	472	260	346	478	384
<b>Totals</b>	<b>1439</b>	<b>1888</b>	<b>1174</b>	<b>1597</b>	<b>1899</b>	<b>1424</b>	<b>862</b>	<b>948</b>	<b>1834</b>	<b>1404</b>

**Table 4. Ravensgate – Presence of butterfly species on whole site  
(both on and off transect)**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	Priority
<i>Number of species</i>	21	26	28	23	26	30	27	22	26	<i>status</i>
Small Skipper	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Essex Skipper	Y	Y	Y	Y	?	Y(T)	?	?	?	
Large Skipper	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Dingy Skipper	?	?	Y	Y	Y	Y	Y	Y	Y	High
Grizzled Skipper										
Clouded Yellow		Y(T)								
Brimstone	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Large White	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y	
Small White	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Green-veined White	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Orange-tip	Y	Y	Y	Y	Y	Y(T)	Y	Y	Y	
Green Hairstreak	Y	Y	Y	Y	Y(T)	Y	Y	Y	Y	Medium
Purple Hairstreak										
White-letter Hairstreak										
Small Copper		Y(T)				Y	Y		Y(T)	
Small Blue	?	?	Y	?	Ova	Y				High
Brown Argus	Y(T)					Y	Y	Y		
Common Blue	Y	Y	Y	Y	Y	Y	Y		Y	
Holly Blue	?	?	Y	Y		Y(T)	Y(T)	Y	Y	
Duke of Burgundy	?	Y	Y	Y	Y	Y	Y	Y	Y	High
White Admiral										
Red Admiral	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y(T)	
Painted Lady	?	Y	Y		Y	Y(T)	Y		Y	
Small Tortoiseshell	Y	?	Y	Y(T)	Y	Y	Y		Y	
Peacock	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Comma	Y	Y	Y	Y	Y	Y	Y	Y(T)	Y	
Dark Green Fritillary			Y		Y(T)	Y	Y	Y	Y(T)	Medium
Silver-washed Fritillary		Y(T)	Y(T)			Y(T)			Y(T)	
Marsh Fritillary	?	Y	Y		Y					High
Speckled Wood	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Wall		Y			Y(T)	Y	Y			High
Marbled White	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Grayling										
Gatekeeper	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Meadow Brown	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Small Heath	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Ringlet	Y	Y	Y	Y	Y	Y	Y	Y	Y	
Y(T): Species recorded only on transect walks										
Ova: no butterfly recorded, but eggs found on food plant										

**Table 5. Ravensgate Casual Records 2013. Butterflies recorded at each visit**

Day	24	5	6	25	1	3	8	14	19	26	30	11	16	19	8	16	23	Total
Month	4	5	5	5	6	6	6	6	6	6	6	7	7	7	8	8	8	
Length of visit (min)	15	15	15	15	15	60	60	15	15	15	15	60	15	60	15	60	25	
Recorder	JC	JH	JC	JC	JC	TA	JH	JC	JC	JC	JC	JH	JC	PA	JC	JH	TA	
Small Skipper												5			2	4	1	12
Essex Skipper																		0
Sm/Essex Skipper																		0
Large Skipper											1	1	8	16	2			28
Dingy Skipper				1	1	2	1			1	1							7
Grizzled Skipper																		0
Clouded Yellow																		0
Brimstone		1	1	2	2	3					1	2			1	6		19
Large White						3								9	2	6	5	25
Small White				2							1			40	2	72	19	136
Green-veined White			1	4			1									6		12
Orange-tip		3		1														4
Green Hairstreak										1								1
Brown Hairstreak																		0
Purple Hairstreak																		0
White-letter Hairstreak																		0
Small Copper																		0
Small Blue																		0
Brown Argus																		0
Common Blue																	6	6
Chalkhill Blue																		0
Adonis Blue																		0
Holly Blue						1												1
Duke of Burgundy				1	9	3	1	4	1									19
White Admiral																		0
Red Admiral																		0
Painted Lady																1	1	2
Small Tortoiseshell																	6	6
Peacock	2			1		3	1								3	13	17	40
Comma																	1	1
Dark Green Fritillary																		0
Silver-washed Fritillary																		0
Marsh Fritillary																		0
Speckled Wood				1		2	1			2	1	3	2			1	4	17
Wall																		0
Marbled White												27	10	178		6		221
Grayling																		0
Gatekeeper																24	1	25
Meadow Brown											8	57	10	92	5	38	9	219
Small Heath						2	5				13	23		7		14	4	68
Ringlet											1	72	30	54	1	1	1	160
<b>Total</b>	<b>2</b>	<b>4</b>	<b>2</b>	<b>13</b>	<b>12</b>	<b>19</b>	<b>10</b>	<b>4</b>	<b>1</b>	<b>4</b>	<b>27</b>	<b>190</b>	<b>60</b>	<b>396</b>	<b>18</b>	<b>192</b>	<b>75</b>	<b>1029</b>

**Table 6. Ravensgate Casual Records 2013. Butterflies recorded in each 'section'**

Section	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Total
Small Skipper		1			2	4			1	2			2		12
Essex Skipper															0
Small/Essex Skipper															0
Large Skipper					1	2	1		5	6		3		10	28
Dingy Skipper			1			2	1			1	2				7
Grizzled Skipper															0
Clouded Yellow															0
Brimstone		1	1		1	1	2	2	3	6	1		1		19
Large White	2	3	3			2	4	2		2	2	1		4	25
Small White	11	4	3	1	16	24	14	4	1	8	25	17	6	2	136
Green-veined White					1	1	1		2	2	2	1	2		12
Orange-tip							1	1	2						4
Green Hairstreak			1												1
Brown Hairstreak															0
Purple Hairstreak															0
White-letter Hairstreak															0
Small Copper															0
Small Blue															0
Brown Argus															0
Common Blue	6														6
Chalkhill Blue															0
Adonis Blue															0
Holly Blue							1								1
Duke of Burgundy		3	1					1	3	11					19
White Admiral															0
Red Admiral															0
Painted Lady	1					1									2
Small Tortoiseshell	4	2													6
Peacock	16	1	1		3	1	3	2	4	3	1		4		39
Comma	1							1							2
Dark Green Fritillary															0
Silver-washed Fritillary															0
Marsh Fritillary															0
Speckled Wood	1	1	6					2	3	2	2				17
Wall															0
Marbled White					14	18	18		2	10	19	54	13	73	221
Grayling															0
Gatekeeper	1						4	3		5	6		6		25
Meadow Brown		1	2	6	16	19	35	2	12	14	43	12	15	42	219
Small Heath	3	1			14	35	1	1			2	1	7	3	68
Ringlet		1			12	12	14	5	25	22	14	11	14	30	160
<b>Total</b>	<b>46</b>	<b>19</b>	<b>19</b>	<b>7</b>	<b>80</b>	<b>122</b>	<b>100</b>	<b>26</b>	<b>63</b>	<b>94</b>	<b>119</b>	<b>100</b>	<b>70</b>	<b>164</b>	<b>1029</b>

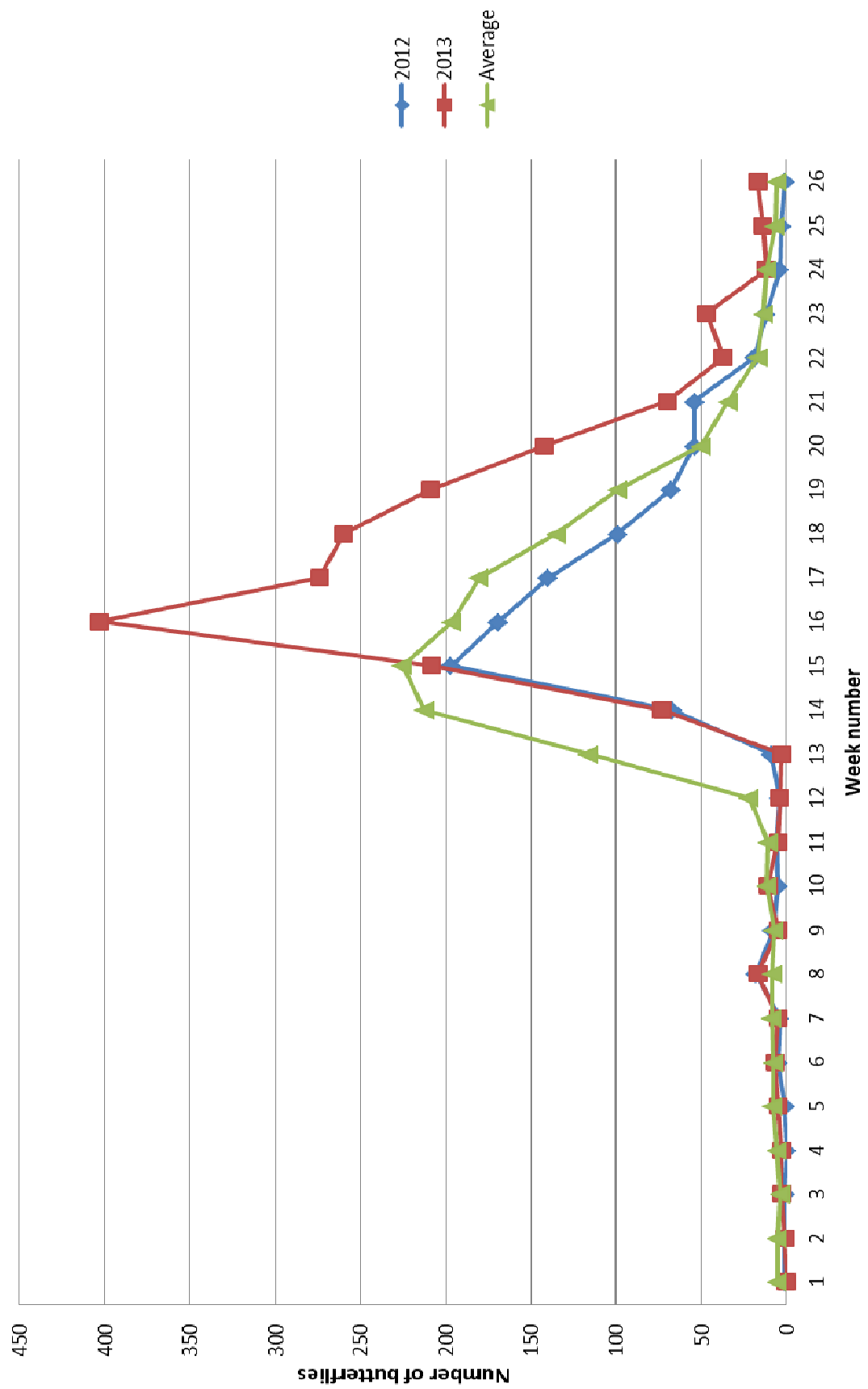
N.B. These are number of observations of butterflies.

An individual butterfly may be recorded on more than one occasion

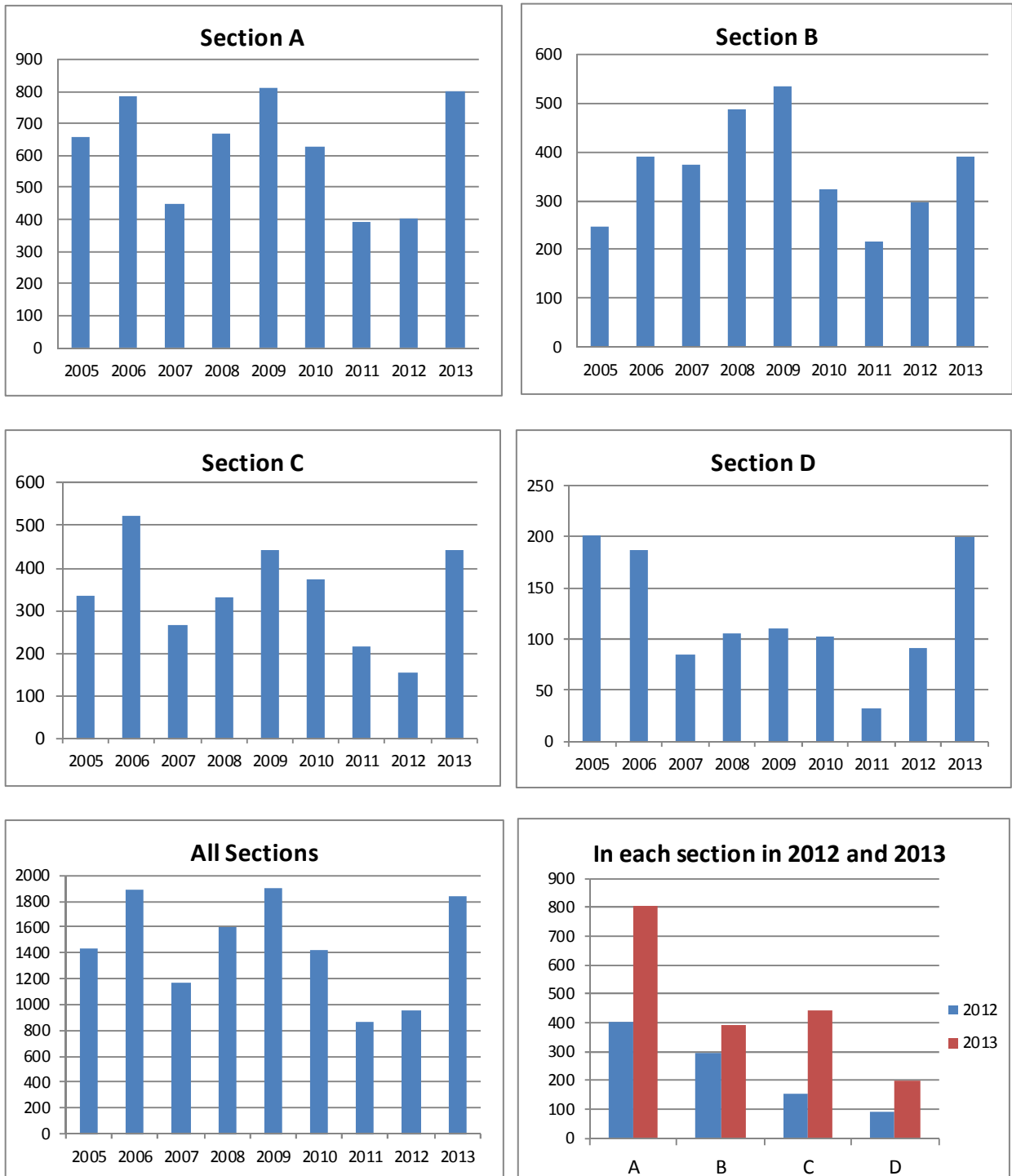
These are casual recordings rather than systematic recordings as on a transect.

Numbers of butterflies recorded in each section depend heavily on recorder activity  
ie how often the sections are recorded

Figure 1. Ravensgate - Number of butterflies recorded each week in 2012 and 2013 and average for 2005 - 2012

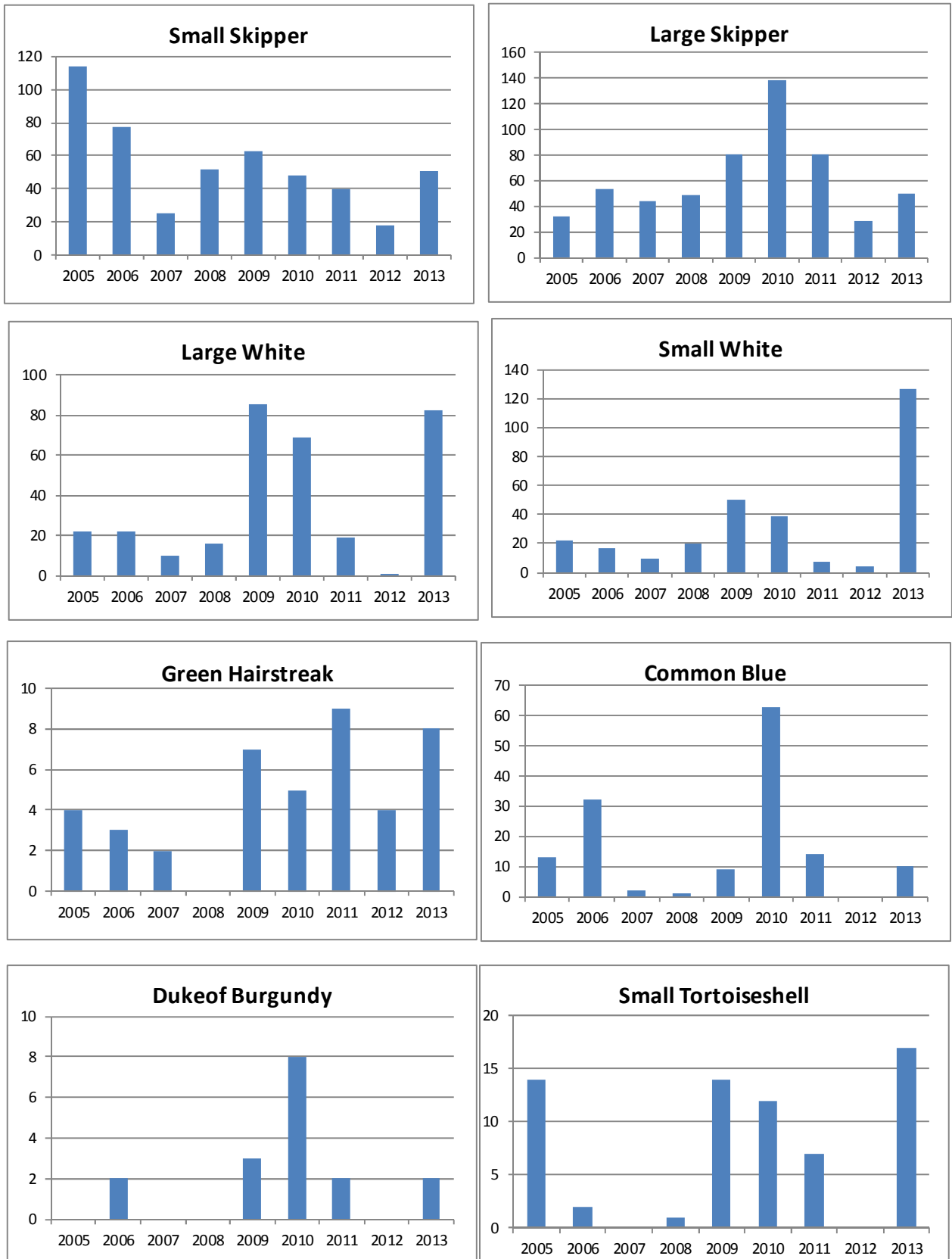


**Figure 2. Number of butterflies in each section 2005 - 2013**



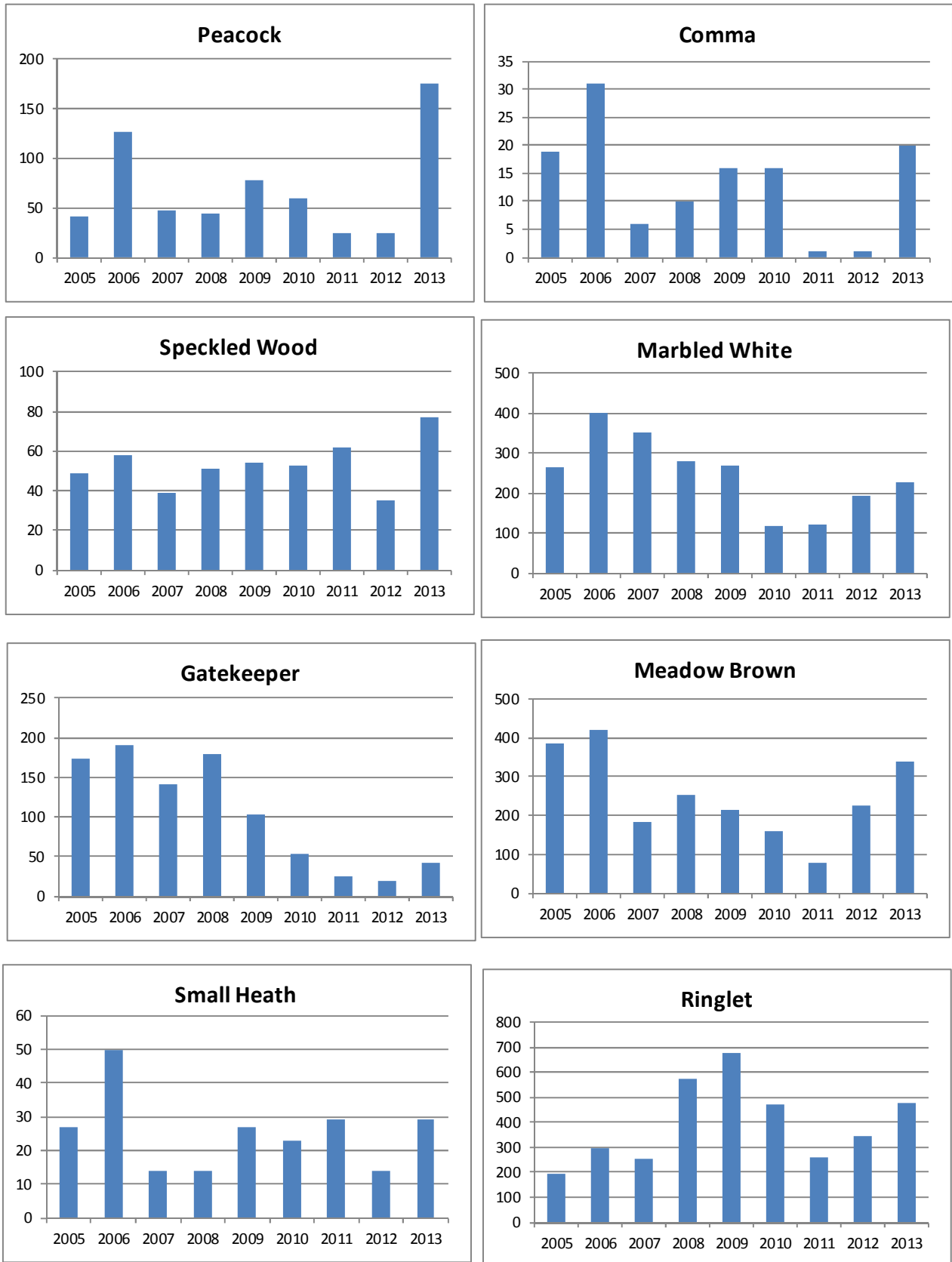
Note that scales for each chart are different

**Figure 3. Trends for several species**



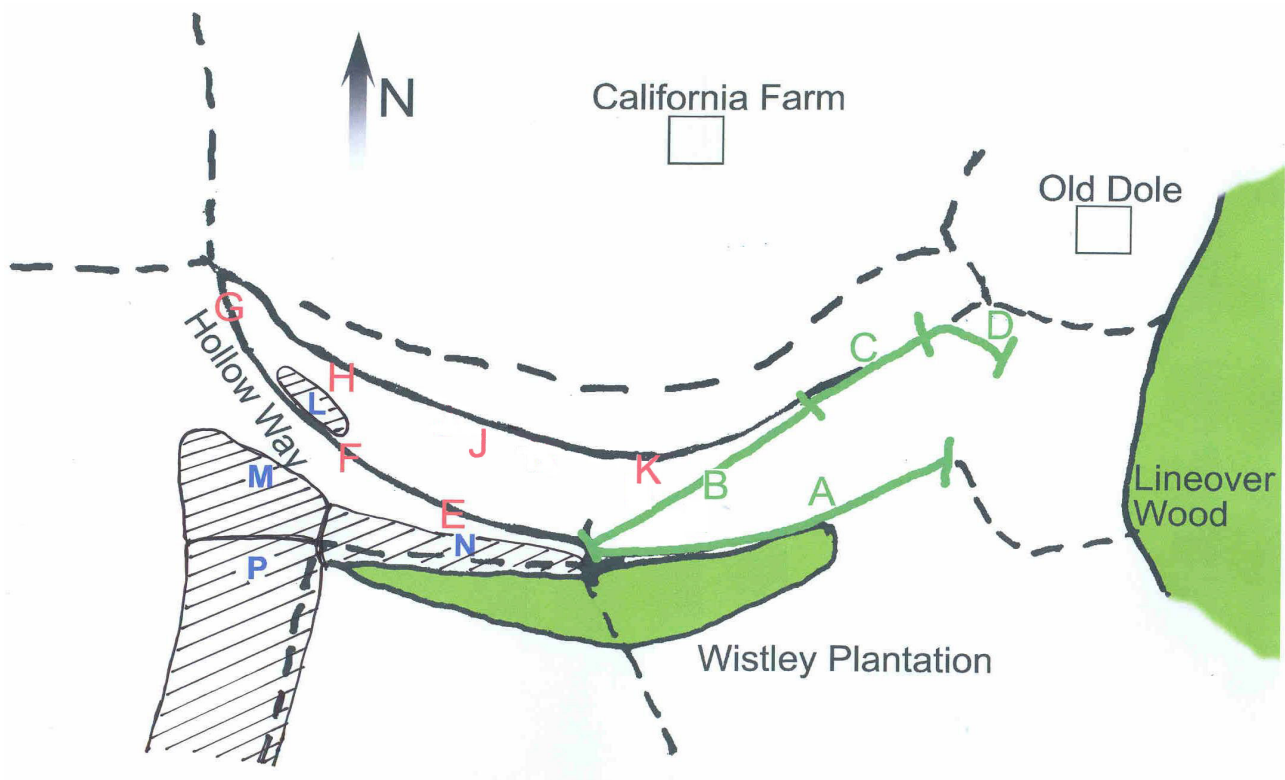
Note that scales on charts are not the same.

**Figure 3 (continued) Trends for several species**



Note that scales on the charts are not the same

**Figure 4. Map of transect and sections off-transect**



**Note**

Transect route and sections A, B, C, D (in green)

NB. Section D is on Dr. Watkinson's land at Old Dole Farm and not within Ravensgate Common

Off-transect 'sections' E, F, G, H, J, K (in red)

Other areas of hill surveyed L, M, N, P (in blue on shaded areas)

**Figure 5. Weather records from 2003 to 2013**  
**(Average of observations from Ross-on-Wye and Oxford)**

