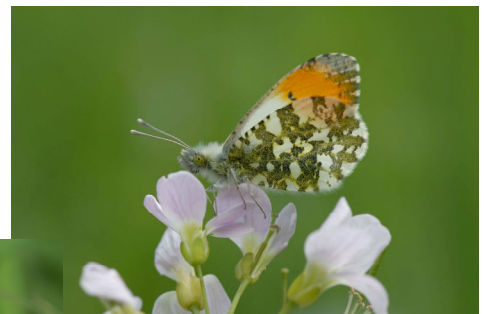
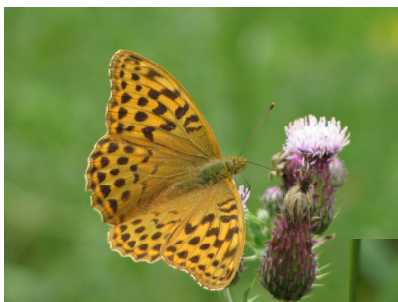




Lineover Wood Butterfly Report 2010



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Results of 2010 butterfly survey in Lineover Wood

2010 has been an interesting year as although total number of butterflies recorded on the transect decreased by 16% from 1966 last year to 1643 this year, there has been a significant increase in number of species from 20 to 27. In other words, this has been a year of quality rather than quantity!

The transect has now been carried out continuously for 20 years. If we compare the total butterflies recorded in the first 10 years (16112) with those in the second 10 years (16406), we see a slight increase. This increase, although small, is significant if we take into account the general decline in butterflies nationally in the last 20 years.

Results

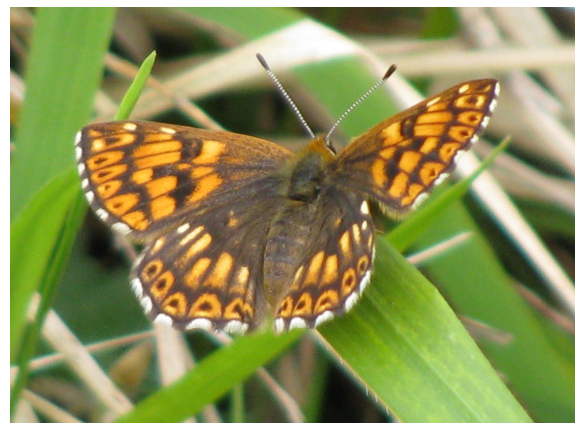
The results are presented as tables and figures as follows:-

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The results of this year's survey are given in Tables 1 - 4 and Figures 1 - 10. A walk was carried out in every week. All walks were carried out in acceptable weather conditions except for in week 6, when the weather was too cold. In Table 1, estimated counts for this week are shown in red. These estimated values are calculated by the software and only affect the Index value which we tend not to use, but which is widely used by Butterfly Conservation when producing national trends. The actual numbers recorded in Week 6 are included in Table 2, the butterflies recorded in each section.

The species recorded this year which were not recorded last year are: Essex Skipper, Dingy Skipper, Small Copper, Small Blue, Brown Argus, Holly Blue, Duke of Burgundy, Dark Green Fritillary and Small Heath. Most of these are grassland species and were recorded in section 3, Dr Watkinson's field or section 7, the meadow. Often just singletons were recorded, so in some cases may have strayed from other sites, but that is the way butterflies move into new areas and are able to colonise that new area if the habitat is right for them.

We are very excited about the record of the Duke of Burgundy in Section 3. It was observed at the top of the slope near to the stile to section 2. No doubt, it flew in from the bottom of Ravensgate Hill where there is a thriving colony. We think it was a female so it could have laid eggs there, although there are few Cowslips in that field. Our hope is to get Dukes back into the wood where they have been recorded on the transect in the past (1994 and 1997). Nationally, there are very few Duke of Burgundy colonies in woodland as the lack of



management has forced them to move out to scrubby grassland. If we could get them back into Lineover, that would be a great achievement.

Purple Hairstreaks were not recorded on transect walks this year, but there were quite a few casual records (Table 4 and Figure 9). They live high in the tree canopy and tend only to be active in late afternoon and early evening on hot sunny days. As transects are carried out between 11am and 4pm, they are unlikely to be seen on transect walks.

Total numbers of butterflies recorded has decreased by 16%. Why is this? Figure 5 shows the trends for most of the main species. Many species have decreased, but a couple of species have had notable increases. The number of Orange Tips recorded is more than double the numbers recorded for the previous six years. Also, the Common Blue has had an incredible year. There has been a record number on the transect, although this reflects numbers recorded throughout the south of England where the second brood, which flies mainly in August, has been particularly numerous. It certainly has lived up to its name!

The trends of some species groups are shown in Figure 6. The three common brown butterflies (Gatekeeper, Meadow Brown and Ringlet) show a substantial decrease this year. The three common white butterflies (Green-veined, Large and Small) have together decreased in number from last year's huge count. Conversely, Large and Small Skippers have increased three-fold from last years count and the four main butterflies of the Vanessid family (Small Tortoiseshell, Red Admiral, Comma and Peacock) have together shown a slight increase in numbers. To conclude, the common widespread butterfly species belonging to the Brown and White families have decreased, whereas the Skippers and Vanessids and other species have increased. Because there are greater numbers of the common species, a decrease in those numbers outweighs the increases of less common species.

This year the Ringlet has overtaken the Meadow Brown to be the most numerous butterfly on the transect.

Section 5

Numbers of butterflies have decreased in all sections (see Fig 4), except for Section 5. Here the total count increased from 39 last year to 65 this year. Taking into account the general decrease in the common species this year, this increase becomes even more significant. To determine which species account for this increase, the performances of the five main species recorded in this section are shown in Figure 7. There were huge increases in numbers of Brimstones, Orange Tips, Speckled Woods and Ringlets while Green-veined White numbers remained more or less the same. In fact, there were more Orange Tips recorded in Section 5 than in any other section.

I think we can attribute the significant rise in numbers in section 5 to the clearing and opening up of the canopy carried out by the volunteer group in the winter of 2010. It is still a relatively shady part of the wood, but this management work has certainly had a significant effect on the butterflies.



Silver-washed Fritillary

The number of Silver-washed Fritillary on the transect this year has been pretty much average with the total number recorded hardly changing from last year. It is also close to the average count since the transect began. Section 9 still seems to be the favoured spot with 21 out of the 39 individuals recorded here. However, they were recorded in seven out of the ten sections on the transect. The map of sightings in Figure 8 confirm that Section 9 is the main area of activity. (Actual number of sightings recorded are given in the red shaded areas.)

In week 19 (9 Aug), only one Silver-washed Fritillary was recorded on the transect whereas four were observed by Mary's seat. It was thought that the reason for this was that the bramble flowers on which they usually feed had finished, but the Hemp Agrimony near Mary's seat was providing a new source of nectar, so the butterflies were moving there to make use of this. Hence Silver-washed Fritillaries were still in the wood but not on the transect.

Following sightings of the Valesina form in 2009, it is good to report more sightings of this form this year. The Valesina is an aberration and only occurs in females. These butterflies are a lovely olive brownish-green with an underside washed with pink. They tend to occur in woods in southern England around Hampshire where about 15% of the females are of the Valesina form. They are quite unusual in Gloucestershire although more have been recorded in recent years. This year there were three sightings: one in Section 8, one in section 9 and one at the western end of section 1. (See Figure 8 for more precise positions.) It is interesting to note that, including casual records, there were about 48 reported sightings of Silver-washed Fritillary this year. If we assume that about a half were females, 15 % of 24 is 3.6. Both in 2007 and 2009, there were also 3 sightings. We should be careful not to draw conclusions from such a small sample, but could it be that the Valesina form occurs as frequently here in Gloucestershire now as it does in the woods of southern England?

Weather

Overall, the summer of 2010 was pretty average compared with summers in the last ten years. Figure 10 shows the weather records from 2000 until 2010. The values were obtained by taking an average of Ross-on-Wye and Oxford weather records. (Historical weather records are not available for Cheltenham.) 2010 is represented by the yellow bars and the average represented by the turquoise bars.

April was warmer, drier and sunnier than average. May was quite variable with cooler weather at the start of the month and warmer weather towards the end. Overall, it was drier and sunnier than average. The dry weather continued into June which was much warmer, drier and sunnier than average. In fact there was a prolonged hot dry spell at the end of the month. Normal British summer weather was resumed during July when the weather turned more changeable during the second half of the month. Overall July was warmer and drier than average, although not as sunny. August brought many cool, wet and dull days and was the coldest, wettest and dullest August of the 10 years since 2000 and was by far the wettest month of the summer. The butterfly season finished with a cool September with lower than average levels of sunshine. However, there were still some glorious spells of weather in September which were made use of to carry out the transect in some of the weeks. As in 2009, it was disappointing that the poor weather occurred during August, one of the peak butterfly months. The number of butterflies recorded on a transect is much higher on a warm, sunny day than on a duller, cooler day, even if on both days, the weather conditions are deemed acceptable for recording butterflies.

In conclusion, the warm and sunny spring resulted in earlier emergences and higher counts, whereas the cooler August led to lower counts and the earlier tailing off of butterfly numbers. Many of the extra species recorded this year, eg, Dingy Skipper, Small Blue and Duke of Burgundy fly in the spring and no doubt benefited from the good weather which occurred then.

Comparison with other sites

Official results from butterfly transects in 2010 are not yet available, but unofficial reports from other Gloucestershire sites suggest that many species have performed similarly to those at Lineover. In particular, there have also been decreases in numbers of Whites, particularly Large White and two of the common brown species, Meadow Brown and Gatekeeper.

However, while there has been a significant rise in Orange Tips in Lineover this year, this hasn't been the case in many other sites in Gloucestershire. It could be that opening up

Section 5 has encouraged Orange Tips to move into this area from the other areas of the wood. As we do not have records from the rest of the wood, it could be the case that there has not been an overall increase of Orange Tips in the wood as a whole.

It has been a good year for Silver-washed Fritillary in woods in Gloucestershire and other areas in southern England despite the changeable weather for much of their flight period.

Marbled Whitenumbers have been low again this year in Lineover as in 2009. Reports from other sites in Gloucestershire are mixed, with increases at some sites and decreases at others.

It has been a very good year for Large and Small Skippers on the Lineover transect. This is not reflected at other sites where, although there has been a slight increase in Large Skipper, numbers of Small Skipper are well down.

Management of the wood

We have good management of the wood with coppicing and cutting back and widening of paths and rides. This has helped to improve the habitat for most of the species in the wood. The effects of management in Section 5 in winter 2009/2010 have been clearly seen this summer. 'Bramble islands' have continued to be successful in providing valuable nectar sources. (Bramble flowers are the favourite flower for Silver-washed Fritillary and many other species.) They also attract the butterflies to one spot for easier observation.

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	16	17	14	17	14		19	19	15	23	20	17	25	21	21	19	23	18	20	20	20	18	21	18	20	17		
Mean Sun	90	96	100	100	95		58	100	60	36	100	95	90	76	100	54	59	10	65	100	96	40	100	75	45	53		
Small Skipper														3	2	9	2										16	16
Essex Skipper														1													1	1
Small/Essex Skipper																											0	0
Large Skipper										1	7	7	34	12	2	4											67	67
Dingy Skipper								1		1																	2	2
Grizzled Skipper																											0	0
Clouded Yellow																											0	0
Brimstone	1	1	4	7			3	3	4			1			2		1										27	27
Large White							1	1		2	2				1		14	11	10		2						44	44
Small White					2	2									3	4	9	1	9	8	1		1	1	1		40	42
Green-veined White				4	4	7	21	12	6	3	3	1		5	3	10	20	32	21	12	8	3				168	175	
Orange-tip				14	19	9	1	1	3																		38	47
Green Hairstreak																											0	0
Purple Hairstreak																											0	0
Small Copper								1							1	1		1	1	2	1					8	8	
Small Blue												1															1	1
Brown Argus																		1									1	1
Common Blue									4		3	1	2				1	20	22	14	8	4				79	79	
Chalkhill Blue																											0	0
Holly Blue								1									1			1						3	3	
Duke of Burgundy										1																1	1	
White Admiral																										0	0	
Red Admiral													1	3		1	1					1		1		8	8	
Painted Lady																										0	0	
Small Tortoiseshell			1										1	1	1	1				1						6	6	
Peacock	2	13	9	16	5	3	4								4	4	5	10	2	1	1	2		1	1	2	97	100
Comma										1				4	4	4	5	2		1	1					34	34	
Dark Green Fritillary																		1								1	1	
Silver-washed Fritillary														2	8	20	4	3	1	1						39	39	
Speckled Wood					1	3	4	5	8	10	14	15	18	19	11	2	4	4	12	9	12	16	17	11	8	7	207	210
Wall																										0	0	
Marbled White													11	9	12	10	1	6	1							50	50	
Grayling																										0	0	
Gatekeeper																5	4	13	6	7	1					36	36	
Meadow Brown											3	13	40	34	37	58	29	16	30	5	4		1			270	270	
Small Heath									1	2																3	3	
Ringlet											1	5	64	116	104	75	11	14								390	390	
Total	3	14	14	41	31	24	34	25	26	21	33	44	171	209	191	205	132	139	124	63	37	28	19	14	10	9	1637	1661

Table 1. Lineover Wood - 2010 - Total butterflies recorded each week

Table 2. Lineover Wood - 2010 - Total butterflies recorded in each section

Section	1	2	3	4	5	6	7	8	9	10	Total
Small Skipper	1						4	6	5		16
Essex Skipper			1								1
Small/Essex Skipper											0
Large Skipper	1	2	4			2	37	9	12		67
Dingy Skipper			1				1				2
Grizzled Skipper											0
Clouded Yellow											0
Brimstone			2	4	8		1	7	5		27
Large White	3		12	7		3	16	2	1		44
Small White	2		12	1	4	1	11	6	3		40
Green-veined White	17		24	19	9	9	24	31	36	2	171
Orange-tip	3		1	4	11	5	4	6	4		38
Green Hairstreak											0
Purple Hairstreak											0
Small Copper			2				6				8
Small Blue			1								1
Brown Argus			1								1
Common Blue			29				49		1		79
Chalkhill Blue											0
Holly Blue			1	1					1		3
Duke of Burgundy			1								1
White Admiral											0
Red Admiral			1		1		1	4	1		8
Painted Lady											0
Small Tortoiseshell	1		2				3				6
Peacock	1		22	11		1	16	15	31		97
Comma	1	1	10	3	1	1	4	3	10		34
Dark Green Fritillary							1				1
Silver-washed Fritillary	3		1	6		1	1	6	21		39
Speckled Wood	31	5	4	13	17	12	15	79	26	8	210
Wall											0
Marbled White			6			1	41	1	1		50
Grayling											0
Gatekeeper			13	1	1	2	9	4	6		36
Meadow Brown	5	5	61	43	2	4	98	17	35		270
Small Heath			2				1				3
Ringlet	5	10	33	34	11	19	94	64	118	2	390
Total	74	23	247	147	65	61	437	260	317	12	1643

Table 3. Lineover Wood - Total butterfly species count for each year
Years 1991- 2000

	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
<i>Number of species</i>	22	22	25	29	25	24	29	23	25	24
Small Skipper	20	12	13	13	55	21	33	4	20	3
Essex Skipper	0	0	0	0	0	0	0	0	0	0
Small/Essex Skipper	0	0	0	0	0	0	0	0	0	0
Large Skipper	2	21	53	109	118	43	31	23	109	20
Dingy Skipper	3	1	1	1	2	0	0	0	0	0
Grizzled Skipper	0	0	1	0	0	0	2	0	0	0
Clouded Yellow	0	0	0	1	0	0	0	0	0	0
Brimstone	19	72	18	27	39	110	56	55	31	40
Large White	30	108	19	30	63	25	41	73	46	30
Small White	19	30	21	59	82	27	10	16	20	34
Green-veined White	63	106	67	173	126	122	214	262	138	104
Orange-tip	8	22	29	37	28	38	26	39	21	23
Green Hairstreak	0	0	2	1	0	0	1	0	1	0
Purple Hairstreak	0	0	0	3	15	1	0	6	7	4
White-letter Hairstreak	0	0	0	1	0	3	1	0	0	1
Small Copper	1	0	3	11	10	17	4	3	3	2
Small Blue	0	0	0	0	0	0	0	0	0	0
Brown Argus	0	0	1	0	4	0	1	0	0	0
Common Blue	27	12	7	3	35	68	21	4	3	0
Holly Blue	20	7	1	0	0	17	18	18	2	2
Duke of Burgundy	0	0	0	1	0	0	2	0	0	0
White Admiral	0	0	0	1	0	0	0	0	0	0
Red Admiral	9	14	8	16	30	129	8	23	21	8
Painted Lady	0	4	0	5	2	318	1	1	1	4
Small Tortoiseshell	20	46	17	15	60	60	38	14	7	15
Peacock	74	168	65	131	158	368	160	103	118	67
Comma	31	18	4	5	27	21	69	14	17	7
Dark Green Fritillary	0	0	0	0	0	0	1	0	1	0
Silver-washed Fritillary	25	44	28	75	61	91	92	17	20	6
Marsh Fritillary	0	0	0	0	0	0	0	0	0	0
Speckled Wood	121	167	117	128	147	80	141	203	241	158
Wall	0	0	0	1	0	0	1	0	0	1
Marbled White	54	102	51	69	97	139	174	117	121	85
Grayling	0	0	0	0	0	0	0	0	0	0
Gatekeeper	15	28	23	72	72	162	137	53	137	93
Meadow Brown	153	437	228	433	812	542	405	297	443	238
Small Heath	8	11	5	18	31	17	20	9	6	2
Ringlet	82	168	157	196	254	168	178	201	178	121
Totals	804	1598	939	1635	2328	2587	1886	1555	1712	1068

Table 3. (Continued) Lineover Wood - Total butterfly species count for 2000 - 2010
Years 2001 - 2010

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Avg
<i>Number of species</i>	23	22	24	26	24	27	24	21	20	27	24
Small Skipper	9	36	26	28	97	36	9	8	5	16	24
Essex Skipper	0	0	0	5	5	4	0	0	0	1	1
Small/Essex Skipper	0	0	0	2	2	2	2	0	0	0	0
Large Skipper	33	20	25	35	32	43	39	20	22	67	42
Dingy Skipper	0	0	0	2	0	0	0	0	0	2	1
Grizzled Skipper	0	0	0	0	0	0	0	0	0	0	0
Clouded Yellow	0	0	0	0	0	0	0	0	0	0	0
Brimstone	5	21	33	27	26	42	32	31	17	27	37
Large White	7	57	36	22	139	34	22	42	111	44	49
Small White	7	23	82	41	154	31	48	44	74	40	43
Green-veined White	31	123	121	128	141	100	97	94	340	171	134
Orange-tip	0	19	65	19	19	10	16	15	13	38	24
Green Hairstreak	0	0	0	0	0	0	0	0	0	0	0
Purple Hairstreak	4	19	3	5	26	2	7	4	5	0	6
White-letter Hairstreak	0	0	0	2	1	2	1	0	0	0	1
Small Copper	4	1	16	4	0	1	1	0	0	8	4
Small Blue	0	0	1	0	0	2	0	0	0	1	0
Brown Argus	0	0	0	0	0	0	0	0	0	1	0
Common Blue	5	2	46	32	15	36	3	3	11	79	18
Holly Blue	4	3	1	5	2	4	1	7	0	3	6
Duke of Burgundy	0	0	0	0	0	0	0	0	0	1	0
White Admiral	0	0	0	0	1	2	1	0	0	0	0
Red Admiral	8	8	17	5	18	26	19	10	5	8	20
Painted Lady	1	2	6	1	0	6	0	0	56	0	21
Small Tortoiseshell	12	15	42	26	4	8	1	1	6	6	21
Peacock	24	69	63	62	96	107	121	59	89	97	111
Comma	1	9	22	14	23	57	17	7	31	34	21
Dark Green Fritillary	2	0	0	0	0	0	0	4	0	1	0
Silver-washed Fritillary	1	13	25	20	35	81	72	28	38	39	41
Marsh Fritillary	0	0	0	0	0	0	0	0	0	0	0
Speckled Wood	64	164	206	186	252	214	171	170	209	210	165
Wall	0	0	0	0	0	0	0	0	0	0	0
Marbled White	108	103	68	112	157	178	83	102	40	50	103
Grayling	0	0	0	0	0	0	0	0	0	0	0
Gatekeeper	78	134	125	148	149	194	184	133	99	36	107
Meadow Brown	275	277	393	595	594	571	257	369	419	270	407
Small Heath	1	0	4	15	12	2	0	0	0	3	8
Ringlet	172	191	247	235	191	271	267	304	376	390	208
Totals	856	1309	1673	1776	2191	2066	1471	1455	1966	1643	1625

Table 4. Extra butterflies recorded in Lineover Wood in 2010

For location see map of Lineover Wood in Figure 9

Date	Week	Butterflies Seen	Location	Recorder
18 Apr	3	2 Orange Tip 2 Peacock 1 Brimstone	Section 1 986185 (A on map)	JH
23 May	7	1 Brimstone	By Mary's seat 989186 (B on map)	TA
30 May	9	1 Red Admiral	Section 8 989188 (C on map)	TA
8 July	15	1 White Admiral	Near honeysuckle gate 987189 (D on map)	Tom Mabbett
9 July	15	10 Purple Hairstreak 2 Purple Hairstreak 10 Purple Hairstreak	Old railway line 986195 (E on map) 'Yorkshire Tea' trees 986192 (F on map) Large Oaks 985190 (G on map)	JC
12 July	15	8 Purple Hairstreak	Young plantation 986194 (H on map)	JC
23 July	17	3 Purple Hairstreak 10 Purple Hairstreak 10 Purple Hairstreak 3 Purple Hairstreak	Dr Watkinson's field edge by Lineover Wood 981189 (J on map) Large Oaks 985190 (G on map) 'Yorkshire Tea' trees 986192 (F on map) Section 8 989188 (C on map)	JC
9 Aug	19	4 Silver-washed Fritillary 1 Small Tortoiseshell 1 Peacock 1 Comma	By Mary's seat 989186 (B on map)	TA
15 Aug	20	1 Silver-washed Fritillary 1 Comma 1 Red Admiral 6 Peacock 4 Meadow Brown 5 Holly Blue 6 Gatekeeper	By Mary's seat 989186 (B on map)	JH

Table 5. Day-flying moths recorded in 2010

Date	Week	Moths Seen	Location	Recorder
23 May	8	2 Common Heath		JC
5 Jun	10	1 Burnet Companion 3 Burnet Companion 2 Chimney Sweeper	Section 3 Section 7 Section 7	TA
16 Jun	11	5 Chimney Sweeper 6 Burnet Companion 1 Cinnabar moth	Section 7 Section 7 Section 7	TA

Figure 1. Lineover Wood - Number of butterflies recorded each week in 2009 and 2010 and average for 1991 - 2009

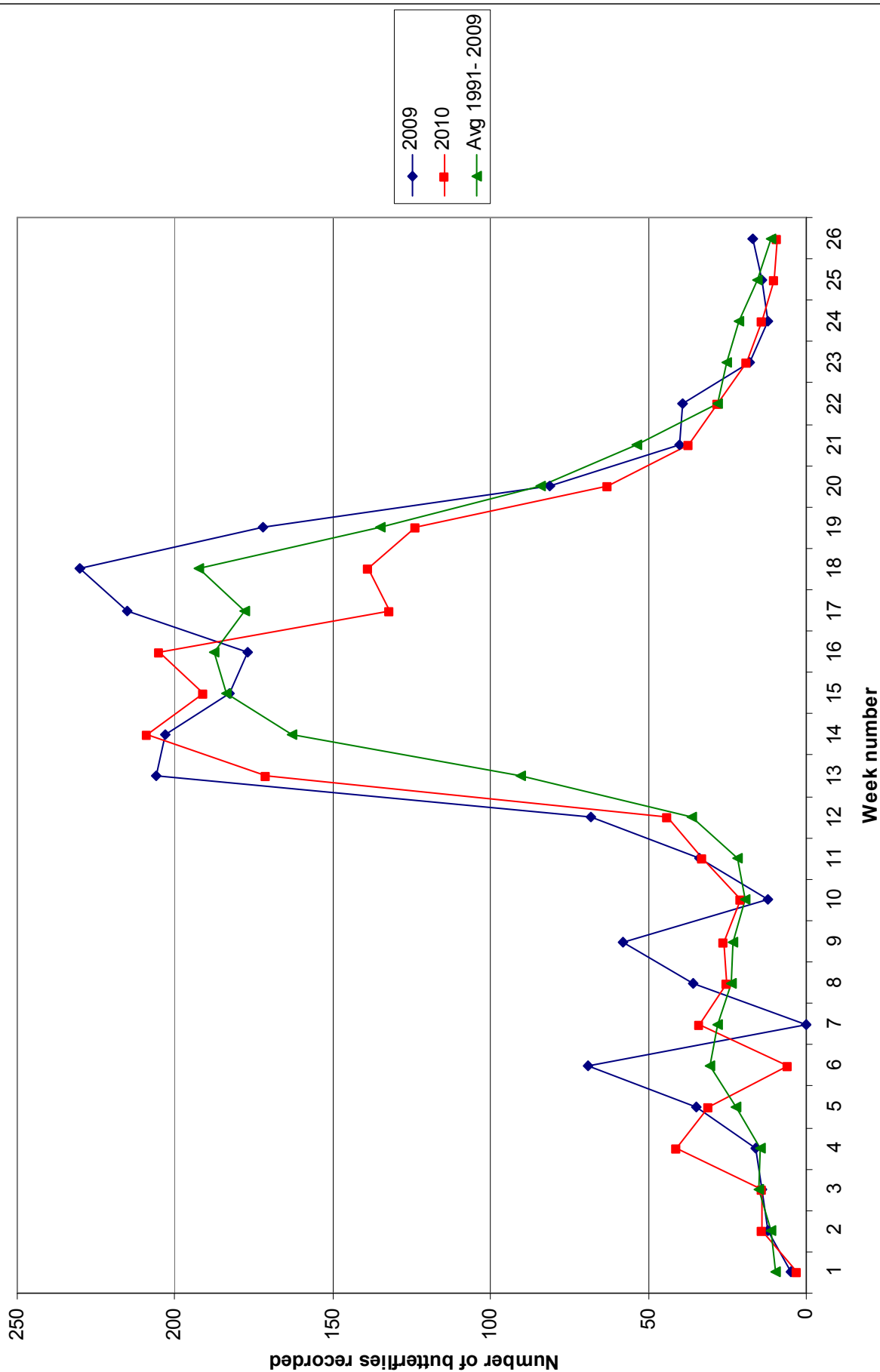


Figure 2. Number of butterflies recorded in each section in 2009 and 2010

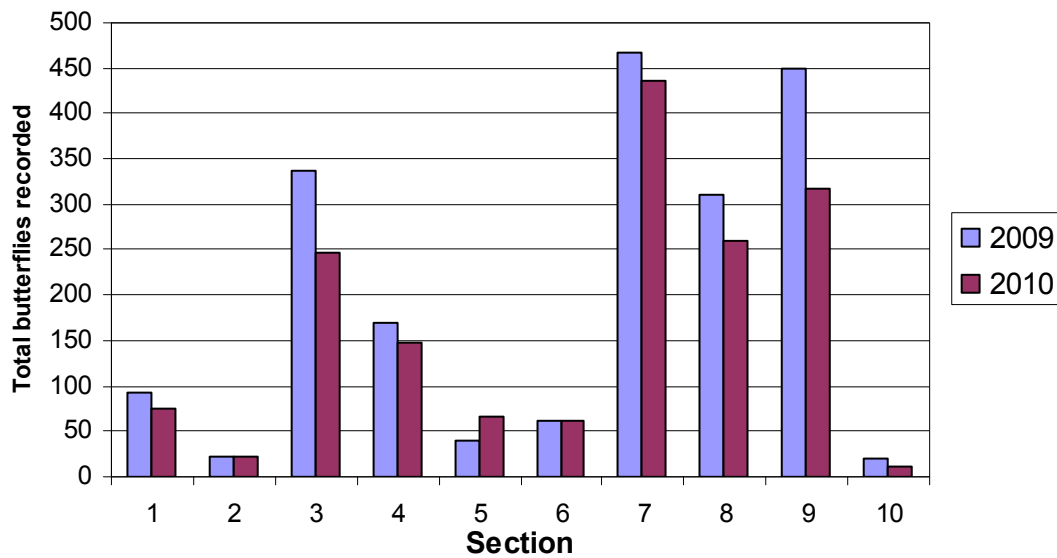


Figure 3. Total number of butterflies recorded each year

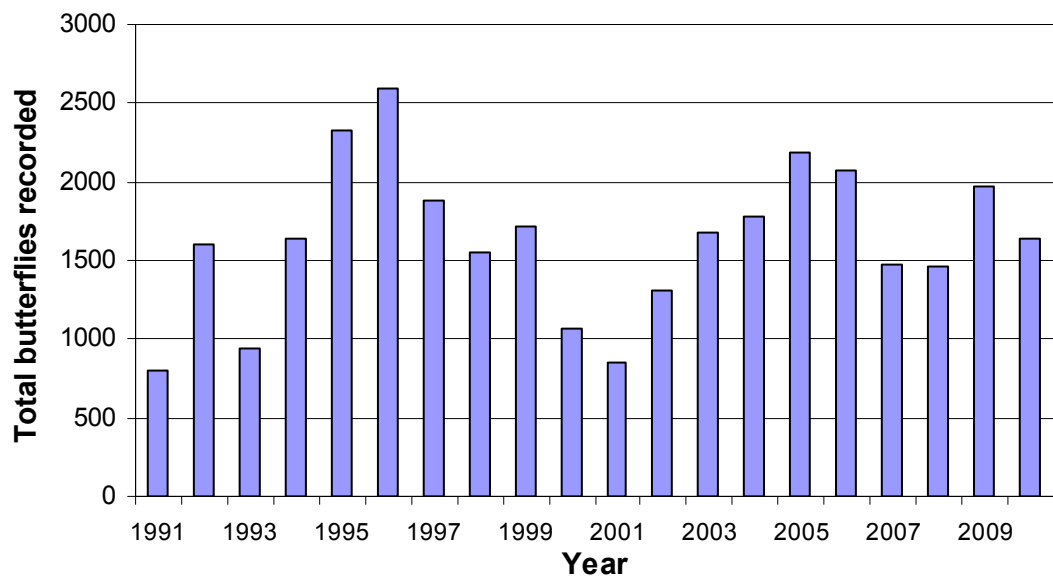
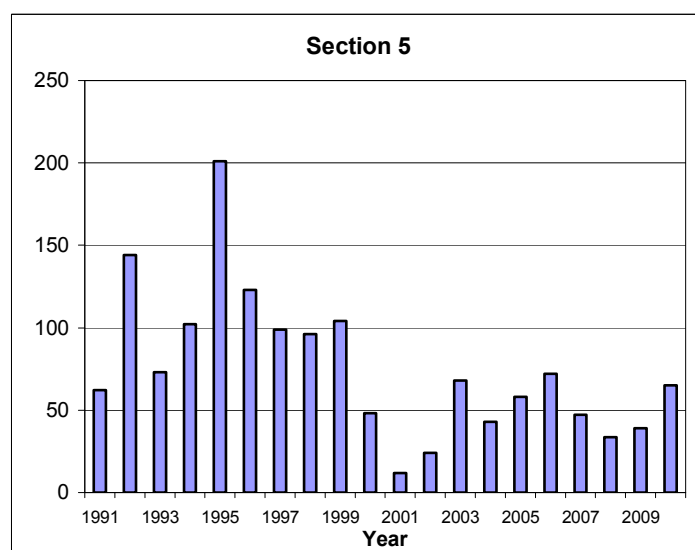
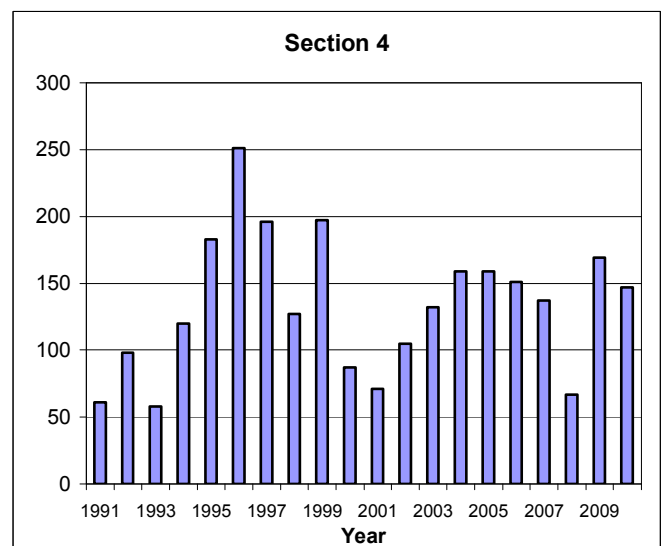
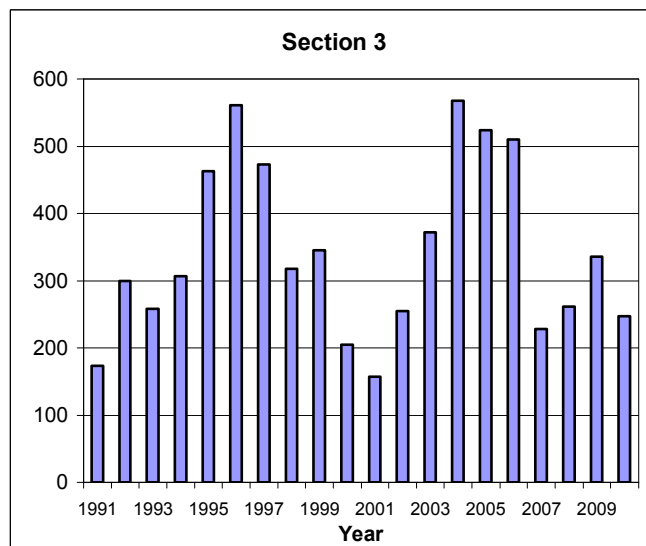
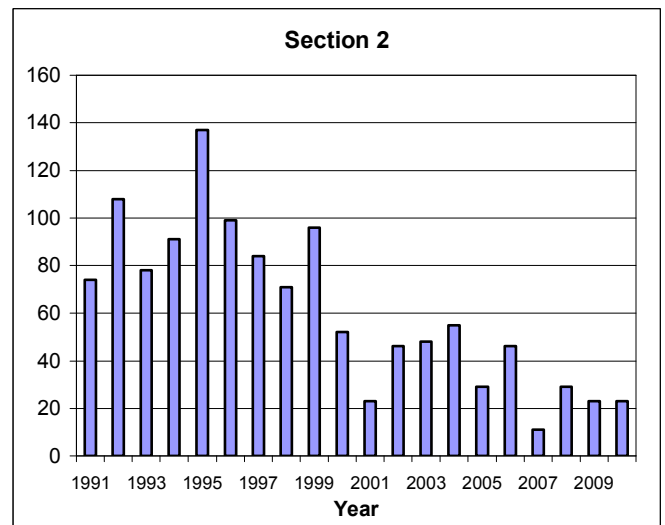
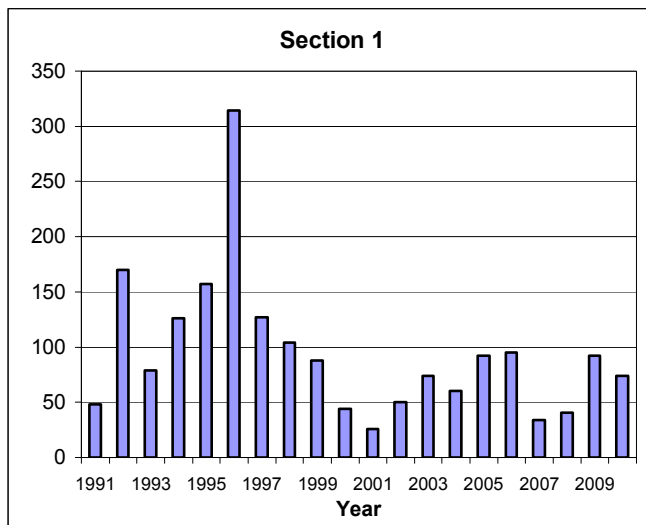
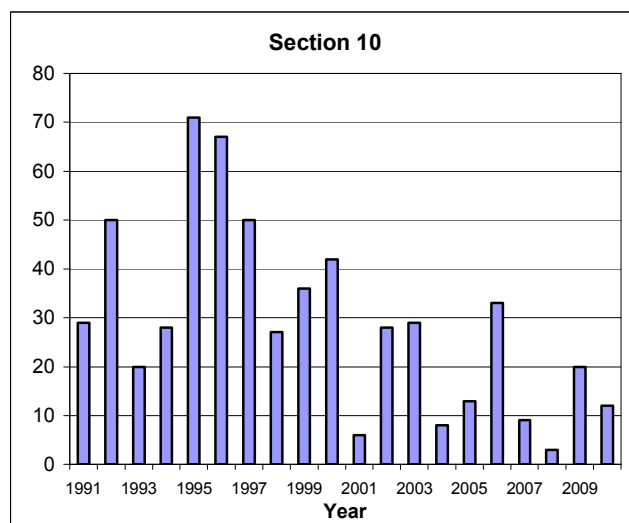
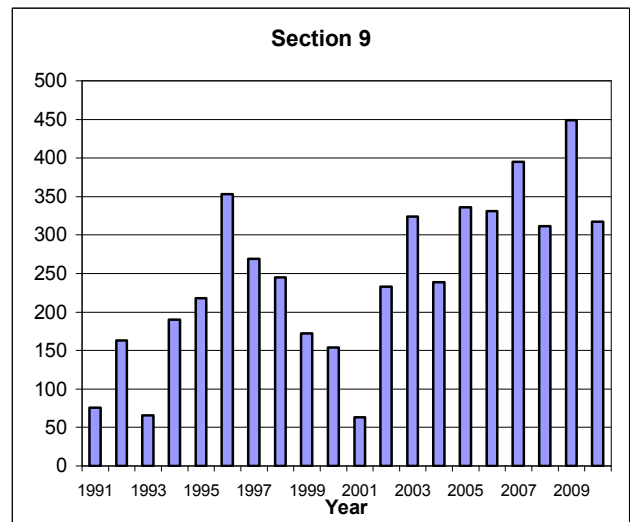
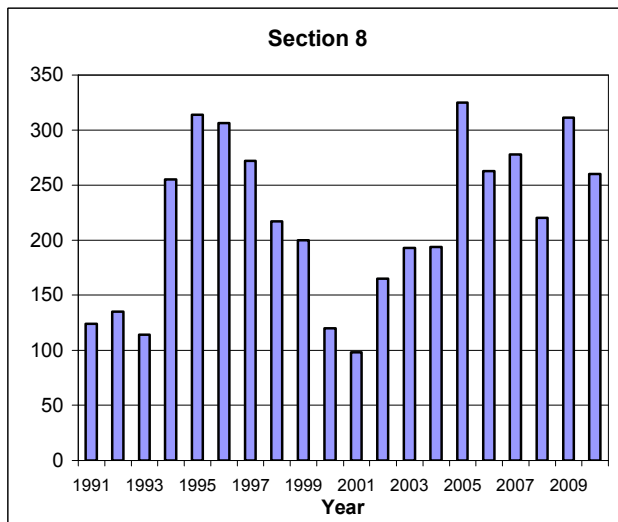
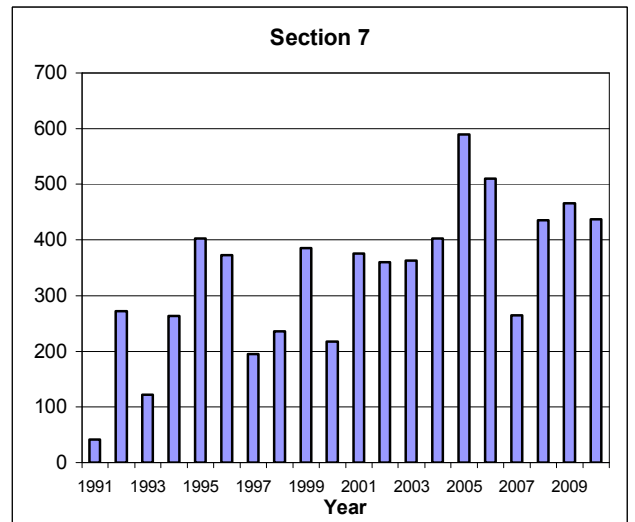
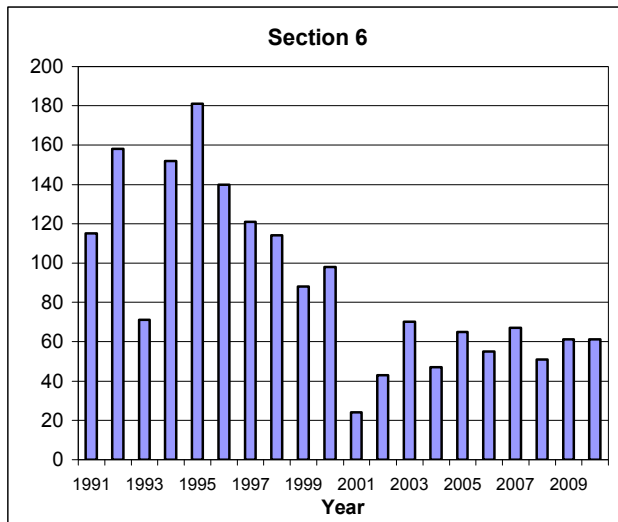


Figure 4. Number of butterflies in each section 1991 - 2010
Sections 1- 5



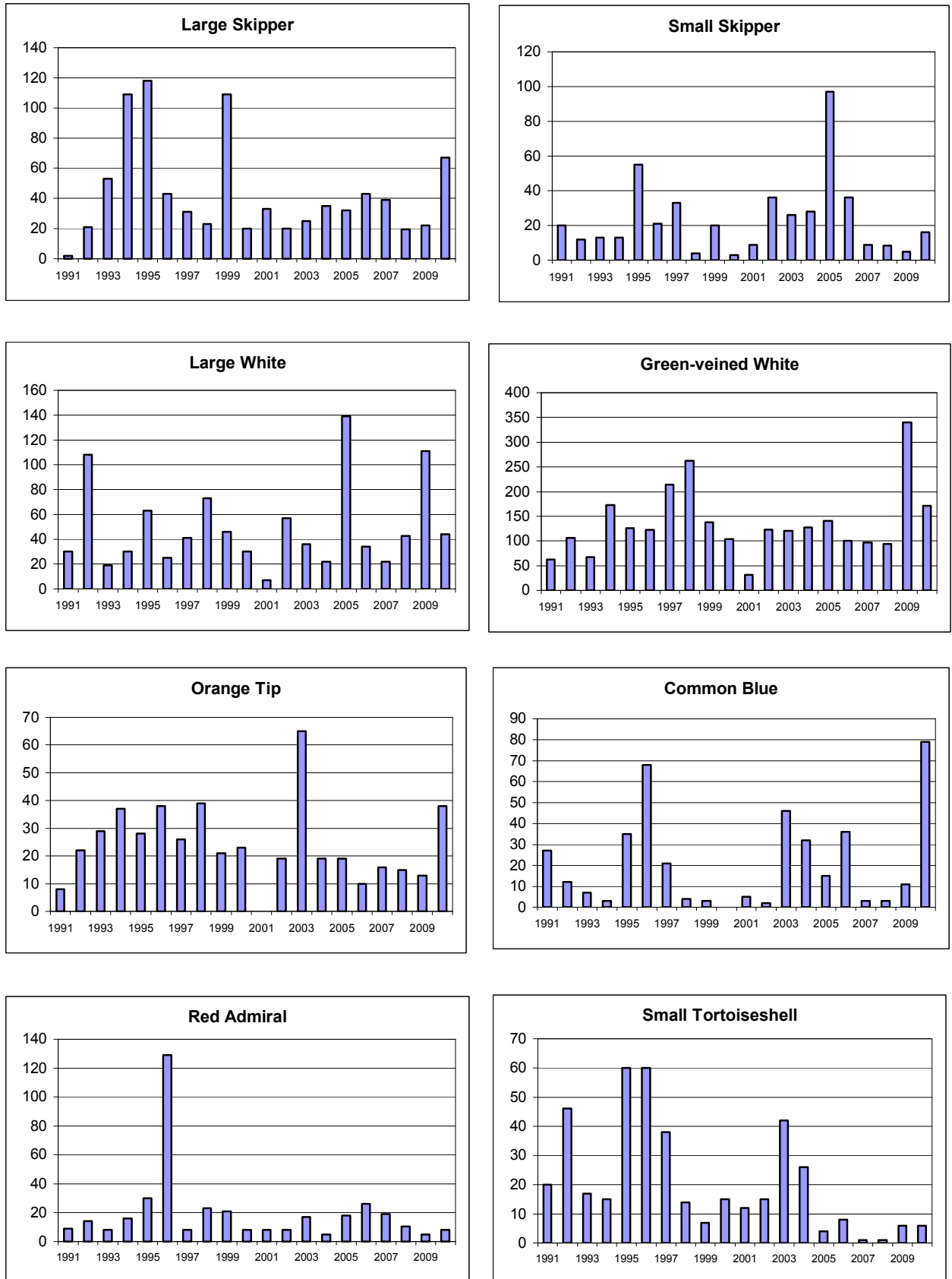
N.B. Scales for charts are not the same!

Figure 4 (Cont). Number of butterflies in each section 1991 – 2010
Sections 6 – 10



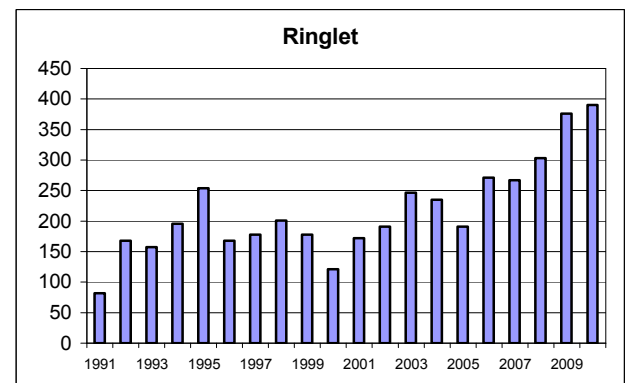
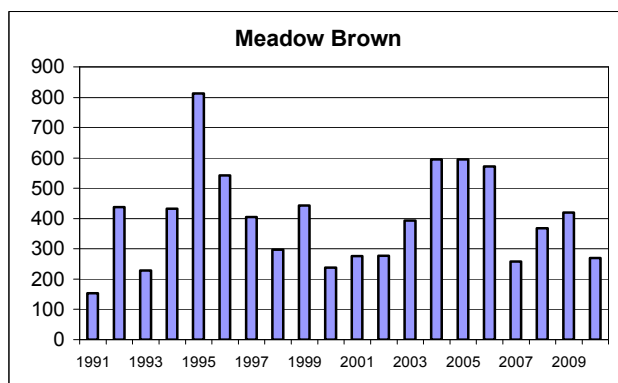
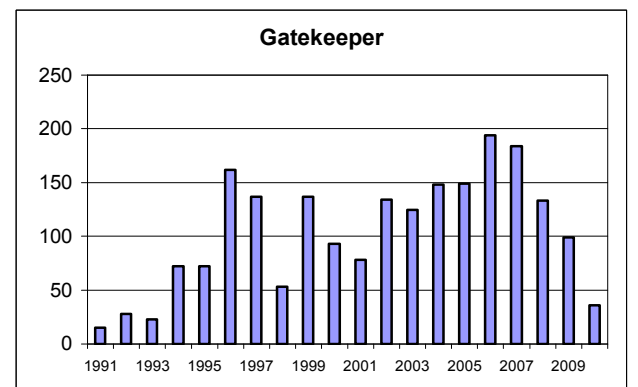
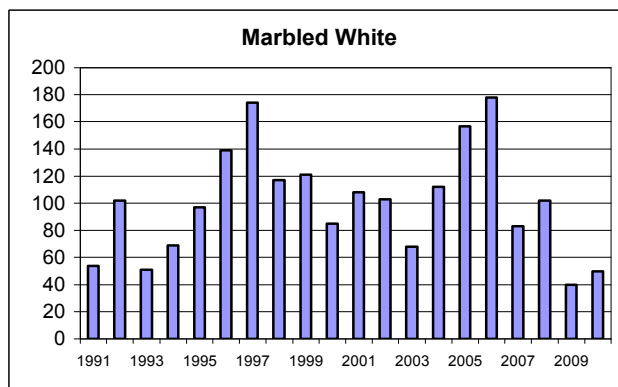
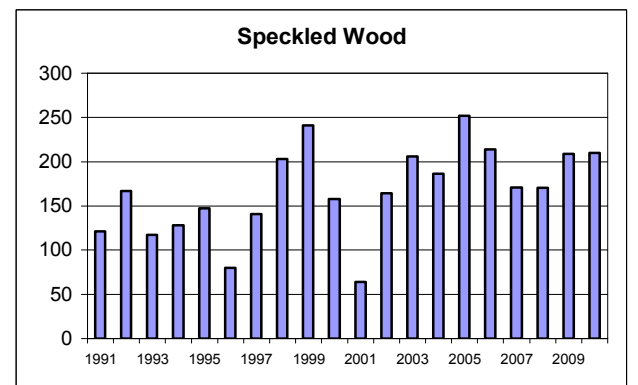
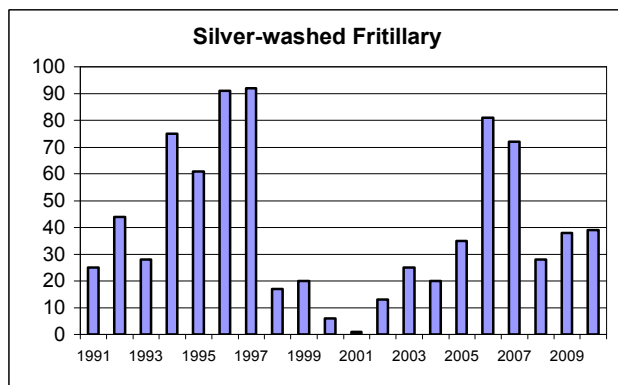
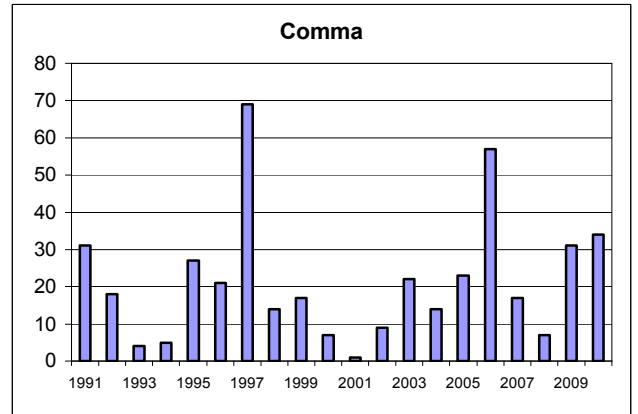
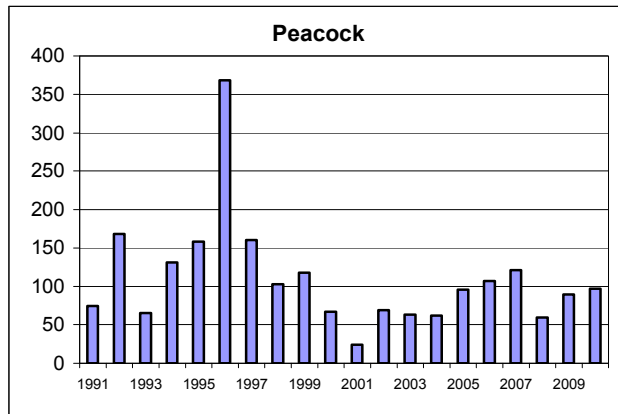
N.B. Scales for each chart are not the same!

Figure 5. Trends for several species



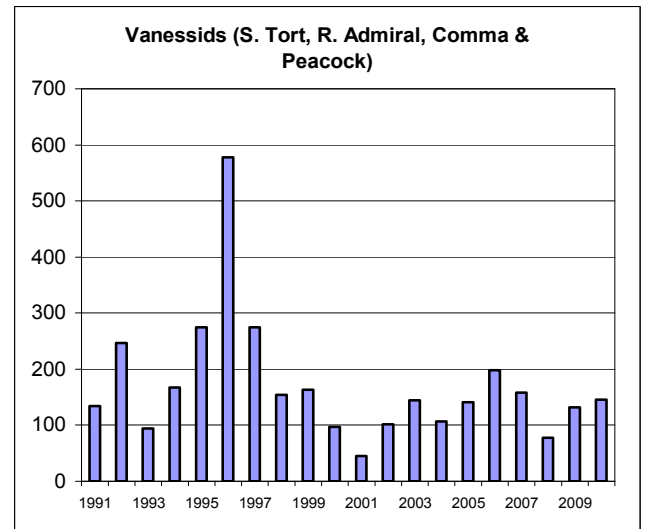
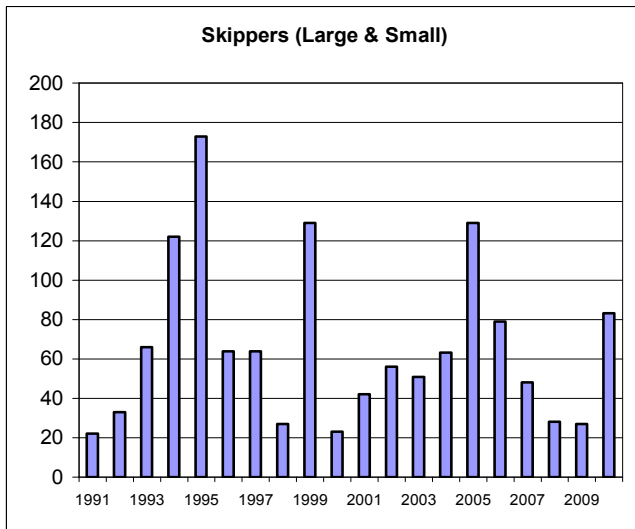
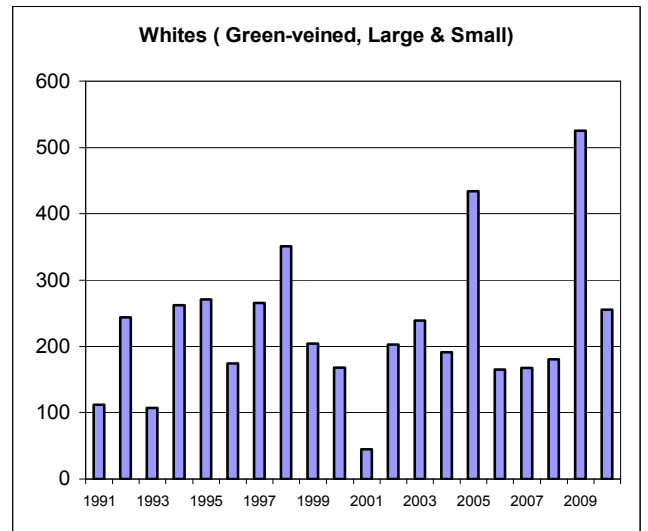
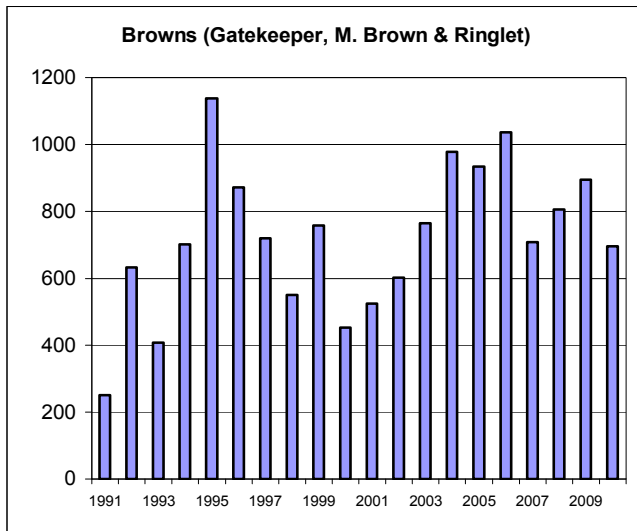
N.B. Scales for each chart are not the same!

Figure 5 (Continued). Trends for several species



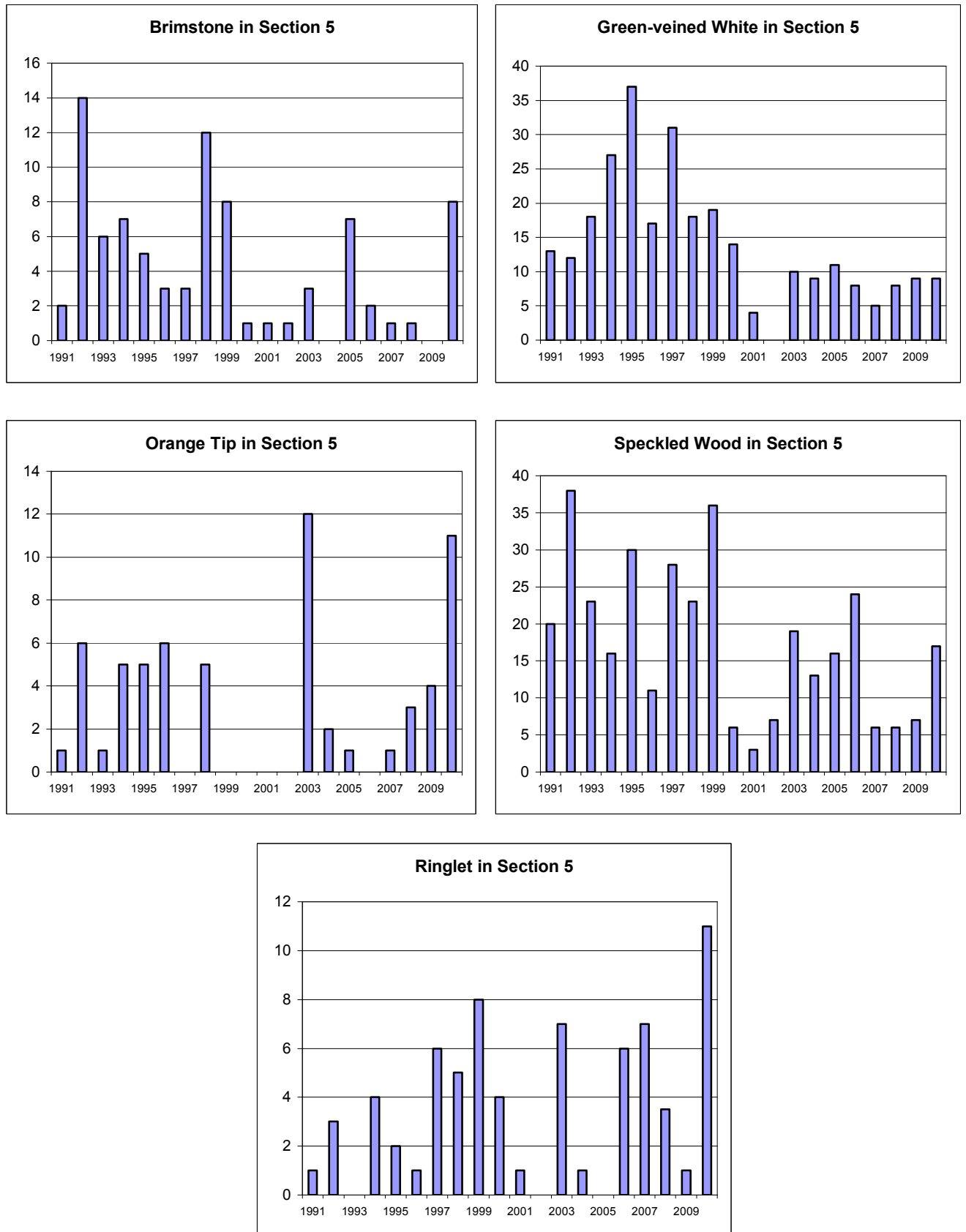
N.B. Scales for each chart are not the same!

Figure 6. Trends for groups of species



N.B. Scales for each chart are not the same !

Figure 7. Performance of main butterfly species in Section 5



N.B. Scales for each chart are not the same !

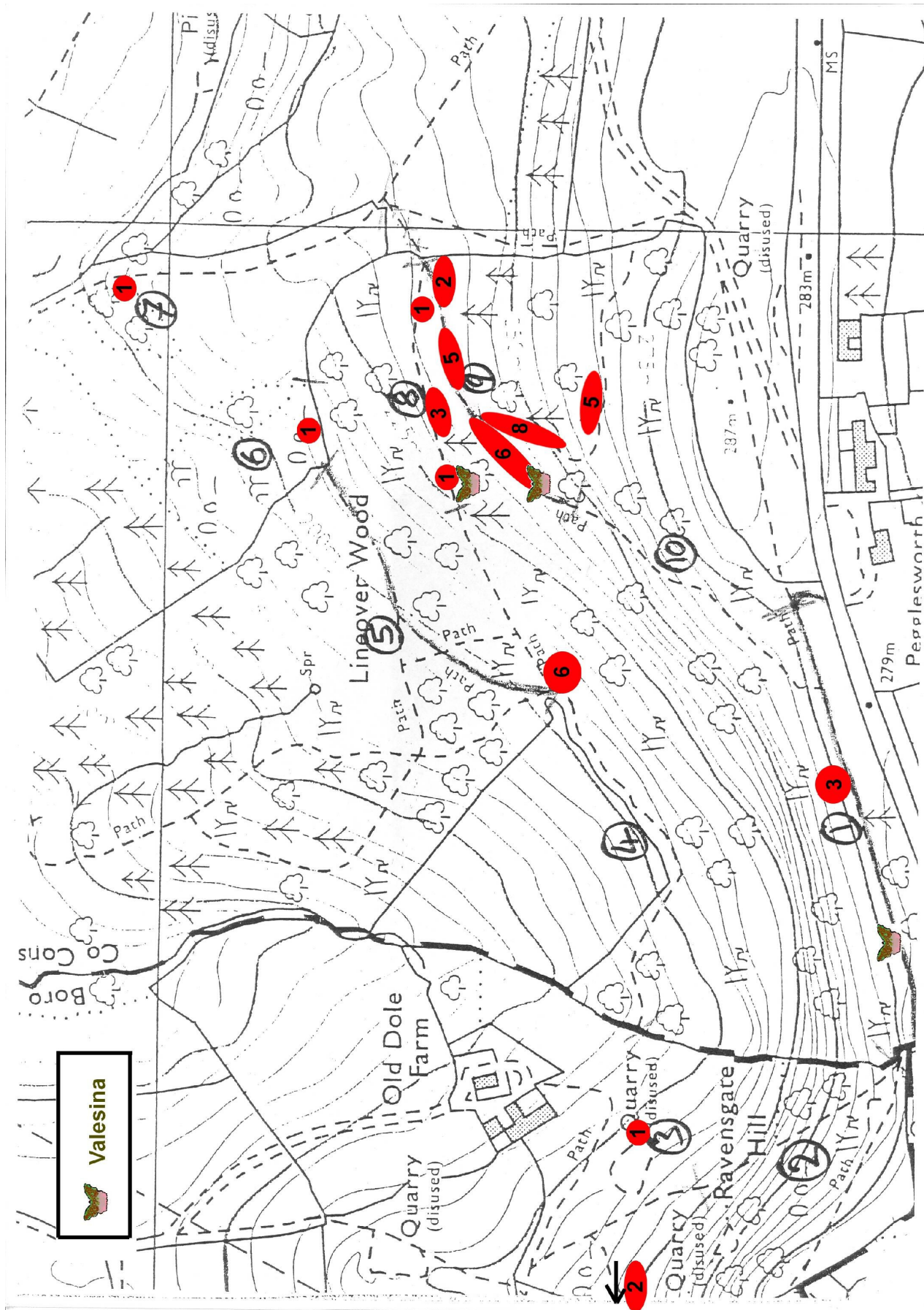


Figure 8. Map of sightings of Silver-washed Fritillary

Figure 9. Map of transect and sightings of extra butterflies recorded

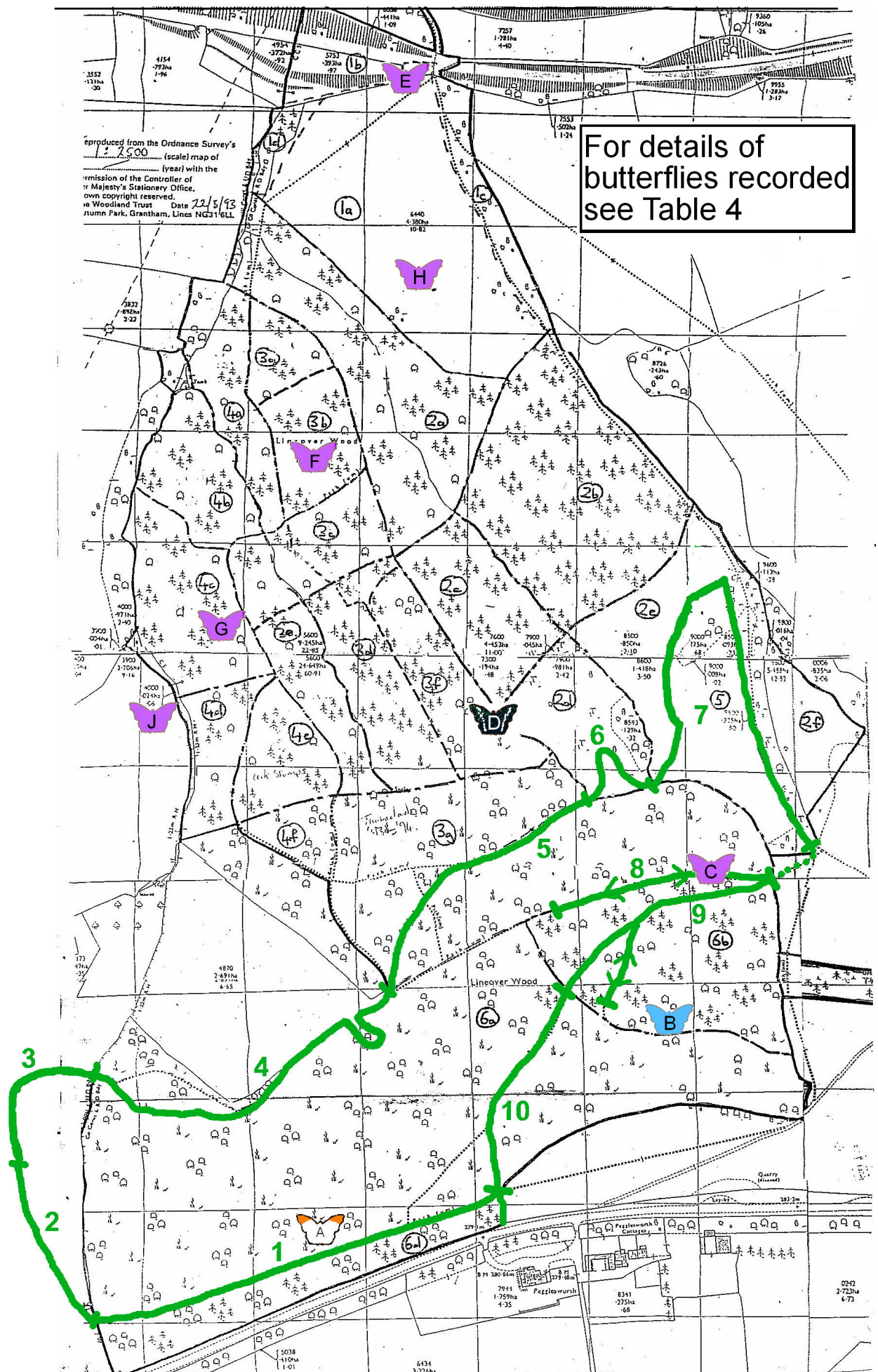


Figure 10. Weather records from 2000 to 2010
(Average of observations from Ross-on-Wye and Oxford)

