

## Results from the Earnwood Pipeline Butterfly Transect 2011-2013

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"The butterfly counts not humans nor months, but moments, and has time enough." (Rabindranath Tagore)

### Method

As in the Review for 2010, p.61. The Index of Diversity employed is Simpson's Reciprocal Index.

### Results

Shown in Table 1. Results for 2005-2010 are shown and subsequent sightings added with new ranking.

### Conclusions

The number of species sighted and the butterflies per hour show fluctuation but combine to indicate some stability. However there are individual species variations. On the positive side there are increases in some species, notably Ringlet *Aphantopus hyperanthus* and to a lesser extent Pearl-bordered Fritillary *Boloria euphrosyne*. Others remain stable, e.g. Dingy Skipper *Erynnis tages*. Marbled White *Melanargia galathea* has been observed in greater numbers, probably as a result of its steady northern expansion in range; will it have bred here as both males and females were observed including courtship behaviour? On the negative side there has been a sharp fall in Common Blue *Polyommatus icarus*, Gatekeeper *Pyronia tithonus*, Small Pearl-bordered Fritillary *Boloria selene* and the Small/Essex Skipper *Thymelicus sylvestris/lineola*. The question arises whether these are genuine long-term fluctuations or vagaries of seasonal observation; e.g. Grizzled Skipper *Pyrgus malvae* has not been seen since 2008.

These changes have influenced Index of Diversity (IoD), which is subject to statistical variation. An increasing proportion of one species accompanied by declining proportions of other species both tend to decrease the IoD – a higher IoD suggests a higher number of species well represented in an area. The graph shows this relationship with respect to the increasing proportion of Ringlet observations; in statistical terms this is 'very highly significant' ( $p > 0.001$ ).

In the results recorded in the 2010 Review the hope was expressed that "recent forestry management will

lead to increases in Index of Diversity and numbers of sightings per hour". Results do not, as yet, indicate that there have been major changes, but analysis of the two distinct sections of the transect show that the track from Earnwood car park to the pipeline has shown a slight increase in both criteria, the average number of species sighted per season having risen from 16 pre-management changes to 18 since.

Additionally the Pearl-bordered Fritillary sightings (for the track expressed as a percentage of total sightings for the complete transect) has risen from 16.4% pre-management activity to 18.8% since, suggesting an increase in mobility for this species.

It is hoped that the trend continues and that further analysis and forestry management will lead to increases in IoD and rate of butterfly sightings.

Thanks to Mick Blythe for digitising this article.

**Table 1.** Species observed in rank order of total observations for the period 2005-2010 followed by annual frequencies for the period 2011-2013, revised total and rank, with a listing of the number of years seen (max 9).

Rank	SPECIES	TOTAL 2005-10	2011	2012	2013	TOTAL 2005-13	Rank	No of Years
1	Ringlet	4598	672	299	955	6524	1	9
2	Meadow Brown	3027	295	167	326	3815	2	9
3	Gatekeeper	699	29	7	12	747	5	8
4	Pearl-bordered Fritillary	569	374	76	57	1076	3	9
5	Speckled Wood	557	85	48	71	761	4	9
6	Common Blue	394	37	2	4	437	7	9
7	Green-veined White	345	136	10	32	523	6	9
8	Small / Essex Skipper *	340	43	6	15	404	9	8
9	Silver-washed Fritillary	307	39	20	59	425	8	9
10	Large Skipper	205	28	12	15	260	10	9
11	Small White	167	15	2	23	207	12	9
12	Large White	159	38	5	25	227	11	9
13	Dingy Skipper	104	17	23	19	163	13	9
14	Small Pearl-bordered Frit.	81	3		2	86	16	8
15	Peacock	70	15	8	7	100	14	8
16	Brimstone	69	8	9	3	89	15	9
17	Red Admiral	55	3	3		61	17	7
18	Painted lady	41	1			42	19	4
19	Orange-tip	30	10	3	4	47	18	7
20	Comma	27	4	1	1	33	20	8
21	Small Copper	16	1		1	18	21	5
22	Grizzled Skipper	14				14	24	3
23	Small Tortoiseshell	9	5		1	15	23	4
24	Holly Blue	7	2	2		11	25	6
25	Purple Hairstreak	6			3	9	26	3
26	Marbled White	5			11	16	22	3
27	White Admiral	4	1		2	7	27	5
28	Small Heath	2				2	28	1
29	Wood White	1				1	29	1
29	large Fritillary **	1				1	29	1

Total number of sightings	1862	703	1648
Number of species	24	19	23
Butterflies per hour	106	81	142
Index of Diversity	4.87	3.91	2.63

\* Both present but not scored independently

\*\* One individual at close range, definitely not Silver-washed Fritillary



Dingy Skipper

Rosemary Winnall

