

BUTTERFLY SPECIES CHANGES AT FRYENT COUNTRY PARK COMPARED WITH CHANGES IN ENGLAND

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Introduction

While the year 2012 was a poor year for some butterfly species at Fryent Country Park, it is instructive to highlight longer-term changes and trends. This commentary attempts to compare the changes at Fryent Country Park with those for England as a whole. The comparison is approximate only, as while all the data was obtained using the Transect Walker monitoring method, the statistical analysis used differs slightly between the two datasets.

Methods

Monitoring of butterflies using the Transect Walkers method commenced in the UK in 1976. The method is described elsewhere and on the United Kingdom Butterfly Monitoring Scheme (UKBMS) website at

<http://www.ukbms.org/Methods.aspx>

Results for all transects in England (and for each of Wales, Scotland, and for the UK as a whole including Northern Ireland) are provided on the UKBMS website. The most recent data available is for all years from 1976 to 2011. A few species were not recorded in the early years of the monitoring though that does not affect the comparison with the Fryent Country Park data. Data is provided as percentage changes in abundance, positive or negative, and for some species, probability levels.

Transects were established at Fryent Country Park in 1986; and then at Beane Hill in 1988 where trees to create a new woodland had recently been planted. The Transect Walker software enables local linear trend analysis of changes over several years and an indication of the change is provided as r values, either positive or negative.

Note in comparing the data, that the English data covers a period including the decade before the Fryent Country Park transect was established. In Table 1, below, the main Fryent Country Park transect has been used for the comparison as it encompasses a wider range of habitats than that of the Beane Hill transect.

These notes are concerned with population abundance. Note that some species have extended their range in the UK during recent years.

Table 1. Changes in abundances of butterfly species on the Fryent Country Park (1986-2012) and Beane Hill (1988-2012) transects at Fryent Country Park; and in England (1976-2011)

Fryent Country Park, and Beane Hill: Linear trend analysis: r (regression) values calculated in Transect Walker. Probabilities available too.

England series: Percentage change in collated index. Significance of trends: Significant: *P<0.05; highly significant: **P<0.01; very highly significant: ***P<0.001. Source: UK Butterfly Monitoring Scheme.

Species	Fryent Country Park	Beane Hill	England
Small Skipper	-0.51	-0.48	-71***
Essex Skipper	-0.32	Low sample size	- 56
Small/Essex Skippers	-0.39	-0.25	No figure
Large Skipper	-0.73	-0.59	-10
Clouded Yellow	Presence only	Presence only	610
Brimstone	0.79	0.75	16
Large White	0.27	0.22	-25
Small White	0.27	0.41	-13
Green-veined White	-0.71	-0.75	-4
Orange Tip	0.27	0.42	6
Purple Hairstreak	Low sample size	Low sample size	-6
Small Copper	-0.43	-0.53	-12
Common Blue	0.14	0.01	0
Holly Blue	-0.30	0.20	168
Red Admiral	0.56	0.19	334***
Painted Lady	0.03	0.02	360
Small Tortoiseshell	-0.85	-0.76	-70**
Peacock	0.08	-0.38	31
Comma	0.31	0.43	299***
Silver-washed Fritillary	Presence only	Presence only	131***
Speckled Wood	0.41	0.58	145***
Wall Brown	-0.44	-0.50	-85***
Marbled White	Low sample size	Presence only	51
Gatekeeper	0.89	0.88	-35*
Meadow Brown	-0.37	-0.87	4
Small Heath	-0.66	-0.49	-60***
Ringlet	Presence only	Presence only	341***

Table 2. Comparison of relative changes between Fryent Country Park and England

<p>Species with relatively stable populations at Fryent Country Park, and in England: Large White (possibly increased at FCP; possible decline in England) Small White (possibly increased at FCP; possible decline in England) Orange Tip (possibly increased at FCP) Common Blue Peacock (possible increase in England)</p>
<p>Species with large declines at Fryent Country Park and in England: Small Skipper Essex Skipper Small Tortoiseshell Wall Brown (probably now locally extinct at FCP – no records for over 10 years) Small Heath (probably now locally extinct at FCP – no records for over 10 years)</p>
<p>Species that have declined at Fryent Country Park but with little change in England: Large Skipper Green-veined White Small Copper Meadow Brown</p>
<p>Species that have declined at Fryent Country Park but increased in England: Holly Blue</p>
<p>Species that have increased at Fryent Country Park and in England: Red Admiral Comma Speckled Wood</p>
<p>Species that have increased at Fryent Country Park more so than in England: Brimstone (only slight increase in England) Gatekeeper (decline in England).</p>

Comparison of the transects of Fryent Country Park and Beane Hill

The main Fryent Country Park transect includes a range of lowland countryside habitats, albeit surrounded by London, including hay meadow and other neutral grasslands, hedgerows, deciduous woodland, ponds and other features. The amount of hedgerow and woodland has increased since 1986.

The Beane Hill transect is situated in the south-east of Fryent Country Park; and shares a small section of its route with that of the main transect. Since 1988 the area has become increasingly wooded though much of the transect is along paths, glades, and woodland edges.

Four species of butterflies have shown a clear difference of population trends between the two transects as summarised in Table 3.

Table 3. Species with differences in population trends at Fryent Country Park and at Beane Hill

Little changed at Fryent Country Park; declined at Beane Hill	Peacock
Large increase at Fryent Country Park; smaller increase at Beane Hill	Red Admiral
Declined at Fryent Country Park; increased at Beane Hill	Holly Blue
Declined at Fryent Country Park; larger decline at Beane Hill	Meadow Brown

These changes are consistent with increasing woodland at Beane Hill. While the Peacock and Red Admiral will occur at woodland edges, they generally prefer more open habitats than shaded woodland. The larval foodplants of the Holly Blue however are Holly and Ivy, which are often found in woodland. The Meadow Brown is a species of grasslands and hay meadows.

London trends

As for Fryent Country Park, several of the Skipper species have declined throughout London. The Brimstone has increased in urban north London but the London index shows little overall trend as the Brimstone is still more common in outer London areas. The Small Copper, and particularly the Small Heath have declined probably due to reduced rough grassland habitats; and of the acid grassland in particular. The Small Tortoiseshell has declined considerably; and the Wall Brown is considered to be locally extinct throughout much of London. Migrant species such as the Painted Lady have had some good years; while the Red Admiral is increasingly over-wintering possibly due to a warming climate in London. The Comma has increased. The Speckled Wood has colonised large areas of London since the 1980s; and the Gatekeeper since the 1990s.

Species conservation

Maintaining habitat, habitat connectivity and viable populations of species are the main considerations. The following species may benefit from conservation work as below, in addition to the current restoration and conservation programmes at Fryent Country Park:

Small Skipper, Essex Skipper, Large Skipper: Creation of rough grassland, conservation of acid grassland, areas cleared of Blackthorn in hedgerows.

Brimstone: Planting and establishment of Alder Buckthorn, the larval food-plant.

Orange Tip: Hedgerow ditches, shallow margins created around ponds.

Small Copper, Common Blue, Small Heath: Acid grassland conservation (though it is doubtful whether the Small Heath could re-colonise the Country Park from other areas in the short term).

Meadow Brown: Hay meadows harvested once a year; and areas of rough grasslands.

Many of the species above would probably benefit from hedgerow/scrub/edge conservation, the creation of orchards, and woodland management, as could:
Red Admiral, Peacock, Comma, Silver-washed Fritillary (one record only to date), Speckled Wood, Marbled White (few records to date), Gatekeeper, Meadow Brown, Ringlet (two records to date).

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References

See the text for links to websites.

References are not cited here but are widely available. Please contact us for further information.