



**Table 7a (amended).** Trends in mean flight date and length of flight period for those species with one distinct flight period. Levels of statistical significance are also given: \* P < 0.05, \*\* P < 0.01, \*\*\* P < 0.001.

Species	Change in date of mean abundance (days)	Change in Flight Period length (days)	No. Years of transect monitoring	Mean flight date	Mean flight period (days)
<b>Skippers</b>					
Chequered Skipper	-9	-3	19	01-Jun	46
Small Skipper	-8*	-2**	33	21-Jul	38
Essex Skipper	-12**	-1**	33	25-Jul	31
Lulworth Skipper	-11	-2	31	31-Jul	68
Silver-spotted Skipper	-6	2	33	14-Aug	28
Large Skipper	-6	0	33	06-Jul	32
Dingy Skipper	-12**	1	33	02-Jun	32
Grizzled Skipper	-14***	-2	33	30-May	32
<b>Swallowtails</b>					
Swallowtail	-3	2	32	19-Jun	34
<b>Whites</b>					
Wood White	-7	-3	33	18-Jun	43
Clouded Yellow	-8	10*	32	09-Aug	53
Brimstone	-12*	2*	33	14-Aug	35
Orange Tip	-21***	0	33	18-May	29
<b>Lycaenids</b>					
Green Hairstreak	-12***	0	33	29-May	32
Brown Hairstreak	-3	-7*	27	24-Aug	30
Purple Hairstreak	-10*	-1	33	31-Jul	32
White-letter Hairstreak	-16***	-6**	33	26-Jul	28
Black Hairstreak	-23***	0	28	30-Jun	22
Silver-studded Blue	-15**	-2	33	19-Jul	57
Northern Brown Argus	-11*	-2	31	13-Jul	36
Chalk-hill Blue	-8*	0	33	09-Aug	56
<b>Metalmarks</b>					
Duke of Burgundy	-18***	-2*	33	31-May	26
<b>Nymphalids (excluding Fritillaries)</b>					
White Admiral	-12**	-1	33	18-Jul	28
Purple Emperor	-14**	0	31	22-Jul	26
Red Admiral	-20***	12***	33	07-Aug	69
Painted Lady	-12*	7	33	31-Jul	69
Small Tortoiseshell	-19**	-8**	33	10-Jul	85
Peacock	-13**	0	33	12-Aug	34
Comma	-12*	15***	33	21-Jul	83
<b>Fritillaries</b>					
Small Pearl-bordered Fritillary	-3	-3*	33	24-Jun	30
Pearl-bordered Fritillary	-12**	-3**	33	03-Jun	31
High-brown Fritillary	-7*	-2	33	16-Jul	30
Dark-green Fritillary	-6	-2*	33	22-Jul	35
Silver-washed Fritillary	-6	2**	33	26-Jul	31
Marsh Fritillary	-11**	1	30	06-Jun	33
Glanville Fritillary	5	-4*	16	02-Jun	34
Heath Fritillary	-13**	-1	29	07-Jul	47
<b>Browns</b>					
Speckled Wood	-10*	9***	33	27-Jul	57
Mountain Ringlet	7	-2	29	13-Jul	50
Scotch Argus	0	0	32	10-Aug	59
Marbled White	-13***	1*	33	16-Jul	35
Grayling	-6*	-4***	33	05-Aug	35
Gatekeeper	-9**	0	33	02-Aug	42
Meadow Brown	-2	1*	33	22-Jul	52
Small Heath	4	-1	33	09-Jul	55
Large Heath	5	-5*	32	09-Jul	29
Ringlet	-13***	2***	33	16-Jul	35



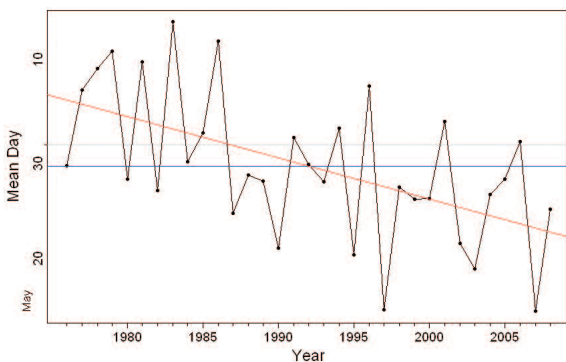
**Table 7b (amended).** Trends in mean flight date and the length of flight period for those species with two distinct flight periods for both flight periods (FP1 and FP2) separately. Levels of statistical significance are also given: \* P < 0.05, \*\* P < 0.01, \*\*\* P < 0.001.

Species	Change in date of mean abundance (days)		Change in Flight Period (days)		Mean Flight Date		Mean Flight Period (days)		No. Years of transect monitoring	
	FP 1	FP 2	FP 1	FP 2	FP 1	FP 2	FP 1	FP 2	FP 1	FP 2
Large White	-14***	-10**	-3**	4***	31-May	08-Aug	35	35	33	33
Small White	-19***	-6	-4***	3**	27-May	11-Aug	38	37	33	33
Green-veined White	-18***	-6	0	5***	24-May	07-Aug	32	35	33	33
Small Copper	-15***	-3	-1	1	31-May	20-Aug	34	39	33	33
Small Blue	-11**	8	-1	1	11-Jun	06-Aug	27	32	33	31
Brown Argus	-14**	-10**	-1	1	08-Jun	18-Aug	32	29	33	33
Common Blue	-14***	-11**	-1	1	16-Jun	16-Aug	32	35	33	33
Adonis Blue	-14**	-7	1	1	08-Jun	28-Aug	43	48	33	33
Holly Blue	-10**	-8	2	1	15-May	08-Aug	31	28	33	33
Wall Brown	-16***	-14***	-3***	-2	31-May	19-Aug	31	30	33	33

Below, we will describe some of the most interesting trends in individual species within each butterfly family.

**Species with one distinct flight period**

**Skippers:** It is the skipper that flies earliest in the year, the Grizzled Skipper, which has shown the greatest advance in mean flight date, advancing by two weeks since 1976 (see Figure 16). There has been no significant change in the length of flight period for the Grizzled Skipper suggesting that the whole flight period has advanced over time. The other spring-flying skipper, the Dingy Skipper, has also shown a significant advance in date of mean abundance, of almost two weeks



**Figure 16.** The change in mean flight date for the Grizzled Skipper since 1976



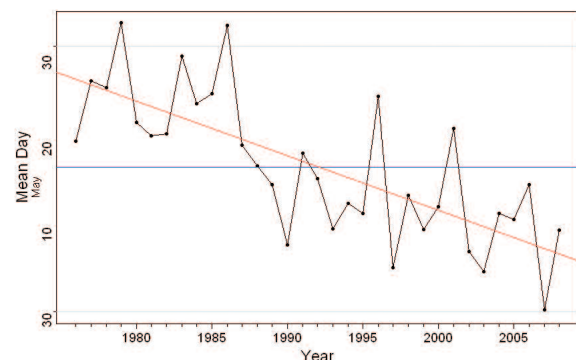
The mean flight date of the Grizzled Skipper has advanced by two weeks since 1976. Photograph by Charlotte Barwick

**Swallowtails:** Both the timing and duration of the flight period for our single UK species of this family, the Swallowtail, have changed very little since 1976. There has been a non-significant advance in the mean flight date of just three days and a non-significant increase of two days in the length of flight period.



Neither the timing or duration of flight period in the Swallowtail have changed significantly since 1976. Photograph by Matthew Berry

**Whites:** The Orange Tip has shown the most significant advance of three weeks (Figure 17) whilst the length of its flight period has not changed since 1976, suggesting that the entire flight period from start to finish has become earlier.



**Figure 17.** The change in mean flight date for the Orange Tip since 1976