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ABSTRACT	1984 was the third successive good yea for many butterflies, although migrants were not abundant. There were no new sites. Comments on the similarity of annual fluctuations in many species' abundance which it is now realized are closely synchronised over the whole of their ranges. The synchrony suggests that the weather is of paramount importance in determining fluctuations. An annotated list of species summarises changes from 1976 to 1984.
CONTRACT	Methods for monitoring population changes.
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INTRODUCTION

1984 was the third successive good year for many butterflies, although migrants were not abundant. As discussed later, some species have begun to expand their range slightly. An antidote to too much optimism is the Atlas of Butterflies in Britain and Ireland (Viking Press 1984) in which the retraction of range of many species in the last decades is outlined. Recorders may be interested to know that some of the monitoring scheme data were used in the Atlas to show recent trends and also flight periods of many species.

1985 is the 10th year of the scheme and we will be producing a full account of the 1976-85 period. The form of publication is not yet known, but we hope that it will be widely available.

RECORDING

After a number of years recording it is easy to forget some of the guidelines for transect counts. Could we ask all recorders (including ourselves), to make a point of reading through the instruction booklet again before the next recording season. The single main point we would like to emphasise is that the aim is not to count all of the butterflies present along the route, but to walk at a uniform pace and record all butterflies seen when so doing. Uniformity of recording methods is very important, especially as, eventually, a new recorder may take over your site.

SITES

There are no new sites this year, although there has been a little 'coming and going' of sites already in the scheme.

A1 Woodwalton Farm
A2 Bevills Wood
3 Holkham
A4 Monks Wood
6 Yarner
7 Brockwells Farm
8 Old Winchester Hill
9 Kingley Vale
10 Oxwich
12 Leigh Marshes
13 Craig Y Cilau
14 Gamm Valley
15 Foxholes
16 Swanage
17 Buttler's Hanging
A18 Woodhurst
19 Studland Heath
20 Ham Street Woods
21 Castor Hanglands
22 Coedydd Maentwrog
23 Ebbor Gorge
24 Dyfi
25 Chippenham Fen
26 Rostherne Mere
A27 Holme Fen
28 Walberswick
29 Aston Rowant N.
30 Aston Rowant S.
31 Waterperry Wood
32 Wye
34 Potton Wood
36 Eure Marshes
37 Upper Teesdale
39 Saltfleetby
41 Vane Farm
42 Ben Lawers
43 Leighton Moss
44 Radipole Lake
45 Gibraltar Point
47 Skomer
48 Hampstead Heath
49 Inverpolly
51 Loch Garten
52 Avon Gorge
54 Nagshead
55 Loch Lomond
59 Wooting Heath
60 Lindisfarne
61 Insh Marshes
62 Northward Hill
64 Skokholm
65 Woodwalton Fen
66 Tentsmuir Point
67 Carnforth Marsh
69 Holme Dunes
70 Newborough Warren
71 Castle Hill
72 Gait Barrow
73 Wart Barrow
76 Wicken Fen
77 Morton Lochs
78 Morrone Birkwoods
79 St Cyrus
83 Pewsey Down
84 Ampfield Wood
85 Derbyshire Dales
86 Airesford Farm
87 Sands of Forvie
89 West Dean Woods
91 Woods Mill
92 Murlough (N. Ireland)
93 Martin Down
95 Wyre Forest
96 Coombes Valley
97 Lullington Heath
99 Moor Farm
100 Ynys-Hir
101 Newton Links
102 Picket Wood
104 Barnack
106 Church Wood Bleau
107 Batch Farm
108 Morris's Wood
110 Pyne's Farm
111 St Osyth
112 Luckett Wood
113 Stour Wood

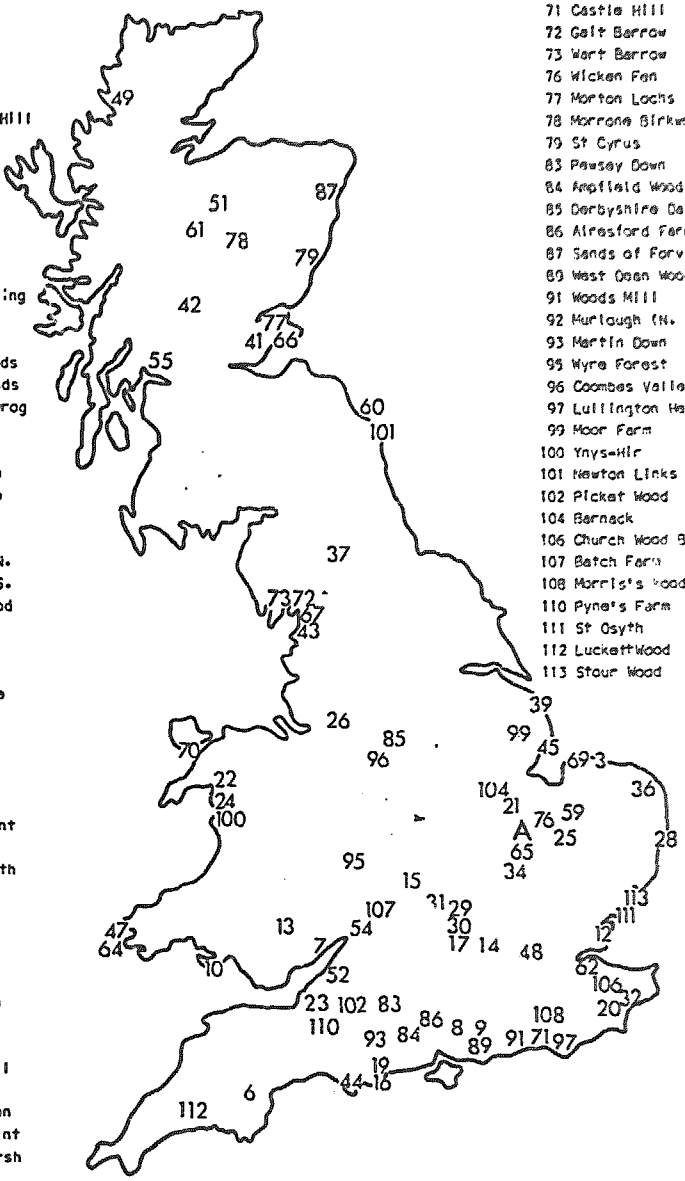


Figure 1 Sites in the monitoring scheme 1984.

NUMBERS OF BUTTERFLIES SEEN

Since 1982, we have included some information in the report on the number of 'sightings' of butterflies, with cautions on the interpretation of these data. These sightings cannot be considered to be a measure of relative abundance, because species vary in how conspicuous they are. In addition, our transect routes are not representative of the countryside as a whole, as a large number of sites are nature reserves. This year, again with these reservations, we show (Table 1) the 'top ten' species in 1983. The main change is the recovery of the small tortoiseshell to close to its 1982 level. The fluctuations in the numbers of this species are very erratic, perhaps dependent on the number of individuals which emerge in mid-summer and produce a second generation.

TABLE 1 'Sightings' of the ten butterflies seen most frequently at the sites in the scheme in 1984.

		Sightings	Sites	Position in: 1983	1982
1	Meadow brown	47,366	79	1	1
2	Hedge brown	24,001	57	2	2
3	Common blue	11,333	75	3	8
4	Small (+ Essex) skipper	11,137	56	6	6
5	Small heath	10,771	69	4	5
6	Ringlet	9,341	48	7	7
7	Small tortoiseshell	8,503	76	15	4
8	Green-veined white	6,737	67	5	3
9	Marbled white	6,620	30	9	11
10	Peacock	5,432	63	10	9

SYNCHRONY OF FLUCTUATIONS

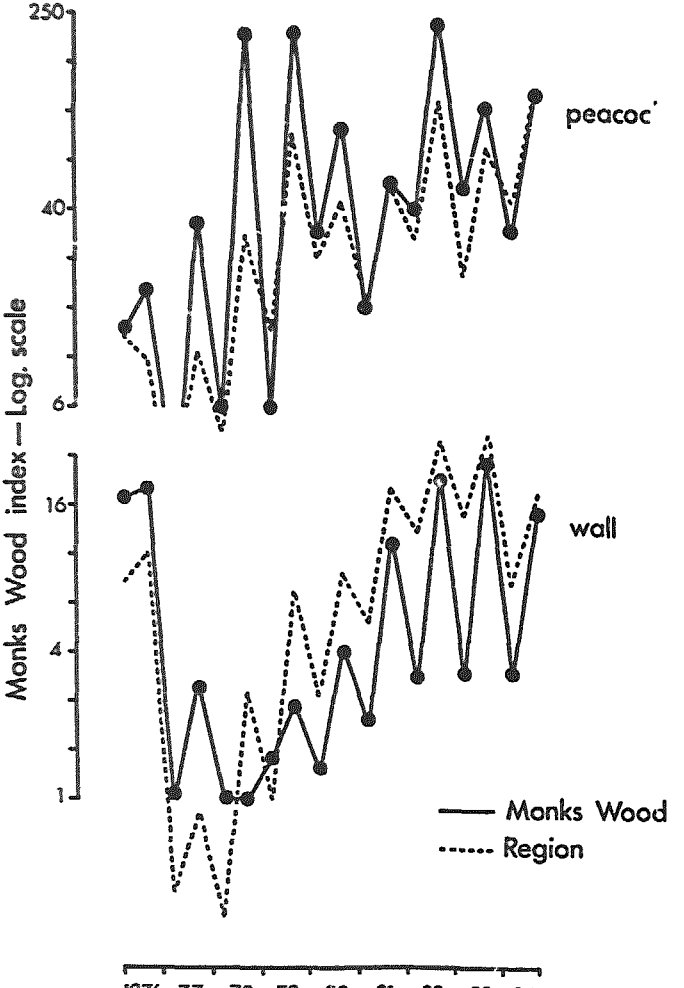
One of the most striking features of the data from the Butterfly Monitoring Scheme has been the similarity of annual fluctuations at sites within a particular geographical area and sometimes over the whole of Britain. We had previously been aware that a particular species might have 'good' or 'bad' years and that these descriptions applied to much of the country. However we did not realise that the fluctuations in abundance of many species were as closely synchronised as has proved to be the case.

We illustrate the point using the Monks Wood data for all of the more abundant species which have discrete flight periods for each generation (Figures 2-5). Some of the species do not have local populations but fly over a large part of the country. These species are the brimstone, large white, small white and peacock. Other species occur as more or less discrete populations with limited movement between them; adults are generally seen in their breeding localities. We believe that the following species fall into this category: large skipper, hedge brown, meadow brown and ringlet. These categories are not clear-cut however and the mobility of local populations may vary according to population density and other factors; including perhaps the nature of the habitat. The green-veined white, orange tip and wall are probably intermediate between the two groups we have described as very mobile or very sedentary.

It might be expected that the highly mobile butterflies would show similar fluctuations over wide areas. The numbers seen at a site are, in such mobile species, 'samples' from a larger population. However, it is some of these species which show the greatest disparity from the wider trends, for example, the brimstone and small white. In contrast, most of the sedentary species, especially the hedge brown and ringlet, show very close agreement with wider trends.

The synchrony of fluctuations has proved useful to us, as departures from wider trends are often associated with habitat changes. There are also wider implications in relation to the population ecology. The

synchrony suggests that the weather is of paramount importance in determining fluctuations. Only the weather is likely to affect butterflies similarly over wide areas. The effects may of course be direct, or indirect, through food plants or even through changes in the abundance of predators or parasites. However the character of the fluctuations makes it very unlikely that interactions of populations with competing herbivores or with local populations of parasites or predators have any importance.



Figures 2-5 Changes in index values at Monks Wood, compared with other E. midlands/E. Anglia sites.

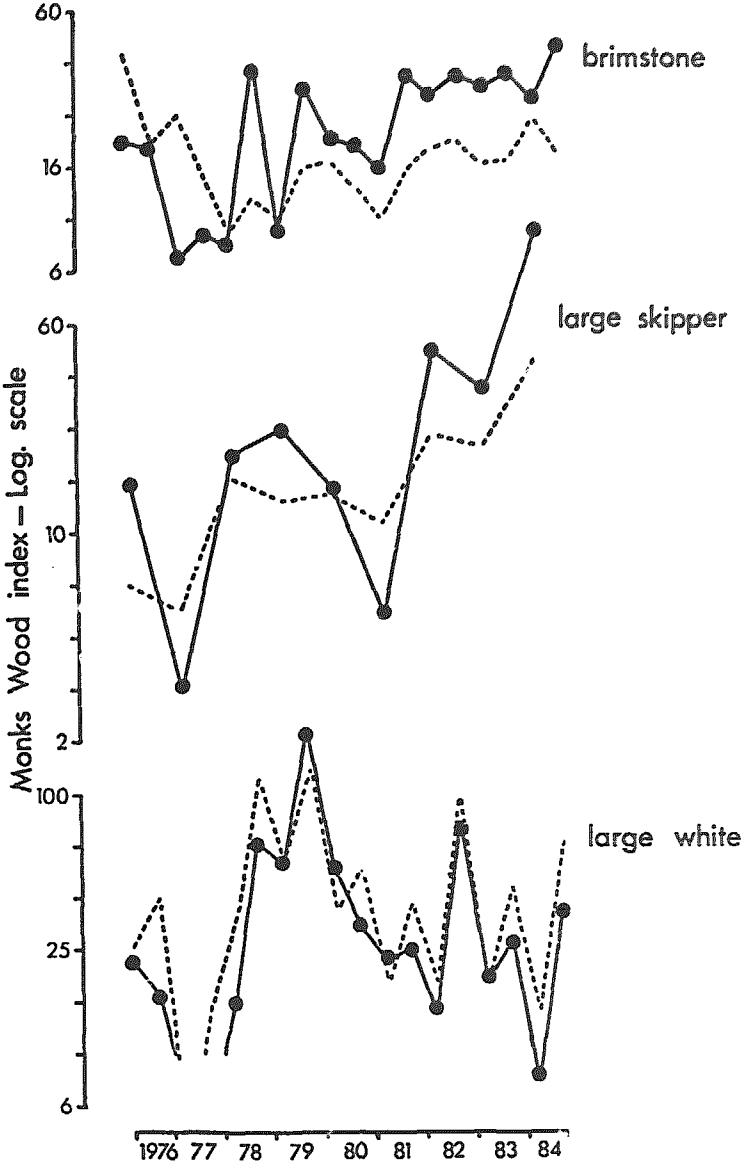

60
16
6
brimstone
60
10
2
large skipper
Monks Wood index – Log. scale
100
25
6
large white
1976 77 78 79 80 81 82 83 84

Figure 3

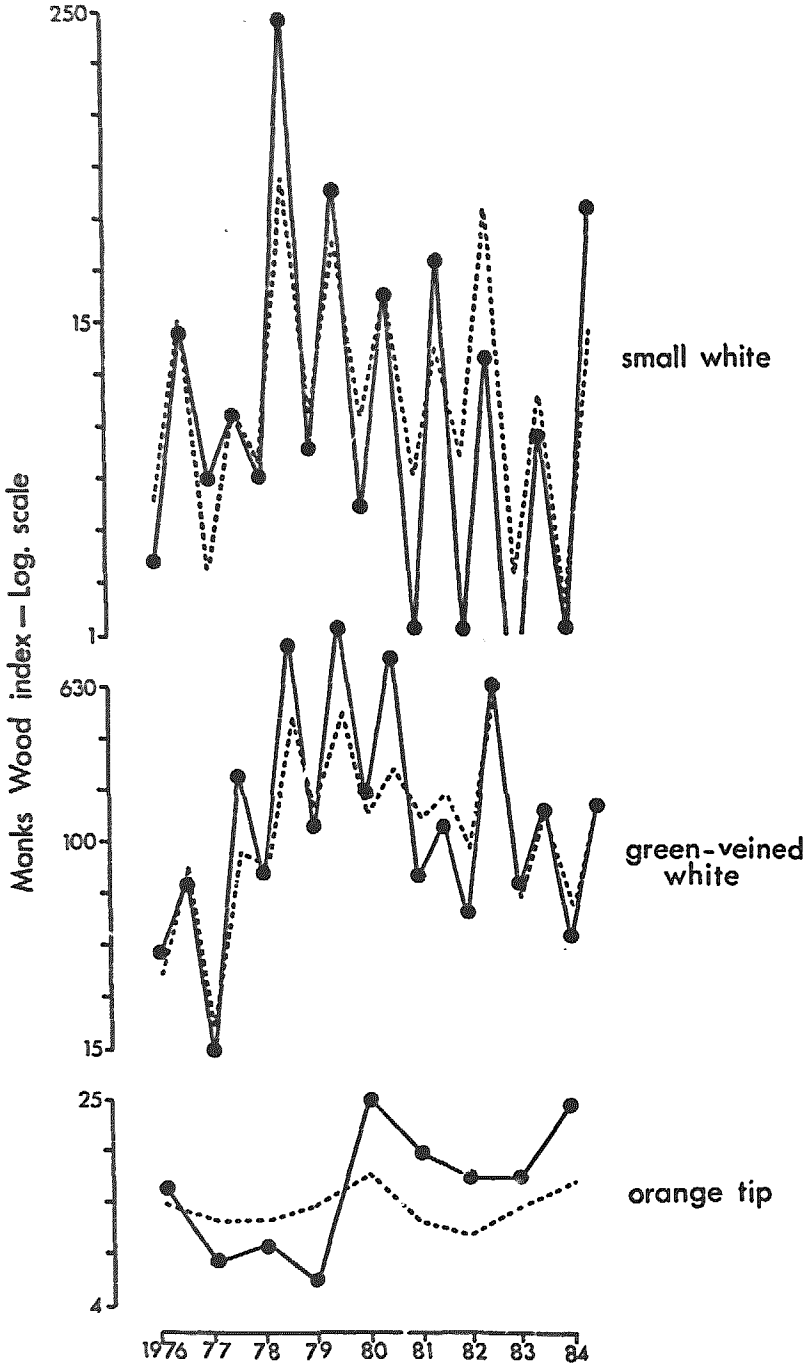

250
15
1
small white
Monks Wood index — Log. scale
630
100
15
green-veined white
25
4
orange tip
1976 77 78 79 80 81 82 83 84

Figure 4

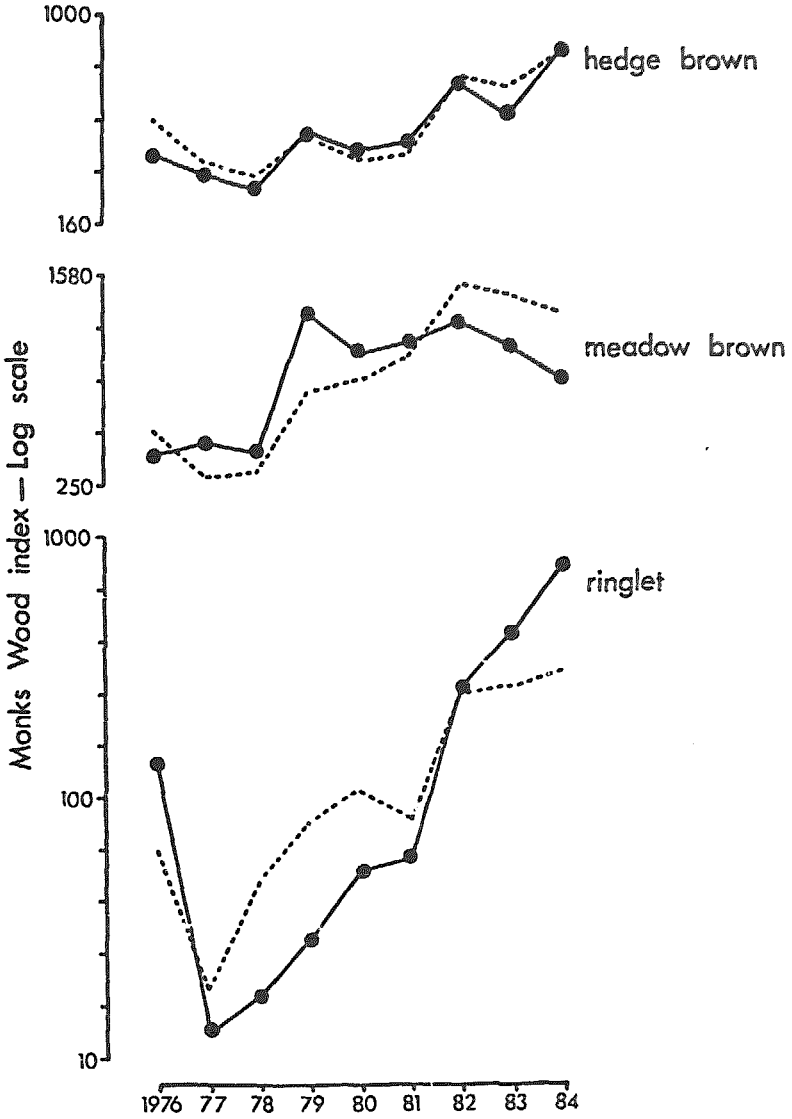

1000
160
hedge brown
1580
250
meadow brown
1000
100
10
ringlet
Monks Wood index — Log scale
1976
77
78
79
80
81
82
83
84

Figure 5

SUMMARY OF CHANGES IN 1984

1984 was another very good year for many species. The period of recording, 1976-84, began with the drought of 1976 and the very low numbers of 1977. The low levels of 1977 are thought to be partly the result of the drought and partly the result of the cool 1977 summer. Since 1977, and particularly in the period 1982-84 there has been a sharp increase in numbers and now some of the common species are several times as abundant as in 1976.

Of the species for which we produce national index values, the changes from 1976 to 1984 may be summarised as follows:

increase	x 4	Small (+ Essex) skipper*, Large skipper*, Ringlet*.
	x 3	Marbled white*.
	x 2	Small tortoiseshell, Peacock, Comma*, Hedge brown*, Meadow brown*.
little change	x 1	Brimstone, Large white, Small white, Green-veined white, Orange tip, Green hairstreak, Small copper, Common blue, Chalkhill blue, Holly blue, White admiral, Dark green fritillary, Wall, Speckled wood, Small heath, Grayling.
decrease	x ½	Dingy skipper, Grizzled skipper*, Silver-washed fritillary.

* - Statistically significant trends.

These changes conceal a great deal of regional variation. In the northern sites in particular some increases have been much greater than this, while correspondingly, in the south west of Britain there have been more declines. In some cases the 1976/84 ratio is of little significance, merely reflecting two particular values in a greatly fluctuating series of data. For this reason, statistically significant trends (regression) over the period are indicated by *. However, with these limitations and bearing in mind that 1976 was a year of great abundance of many species, it is clear that many butterflies are at present in very high numbers. In the last few years this abundance has been accompanied by expansion of range. Of these species, the hedge brown, marbled white, small skipper, ringlet, comma, white admiral, and even the silver-washed fritillary have spread to new sites or new areas. Of the rarer species, the adonis blue, and silver-spotted skipper have colonised new sites.

These expansions of range have, so far, been minor and are presumably the result of a series of years in which weather conditions have been favourable. An example of the effects of weather on the hedge brown was included in last year's report and we hope to complete such analyses for all species during the next year. The recent good weather will not, of course, result in the return of many butterflies such as the woodland fritillaries, the Duke of Burgundy, the marsh fritillary, the small blue and many others, to eastern England and other areas where their habitats have been lost. However the prospects for recolonisation of nature reserves and other areas, which have been managed in such a way that suitable habitats have been retained or created, are at present relatively good. The recent recolonisation of Monks Wood by the silver-washed fritillary seems to be such an example.

NATIONAL AND REGIONAL TRENDS - ANNOTATED LIST OF SPECIES

Collated data can only be presented for the more abundant species. For the local species, some indication of the 1983-84 changes is given as in the following example. High brown fritillary 6(4+ 1= 1-). This indicates: 6 sites, 4 increases, 1 no change, 1 decline.

The index values are provisional in that there may be minor (we hope) changes, as errors are reported to us or detected by us. The index values start from an arbitrary figure, 100 in 1976.

Small skipper Thymelicus sylvestris

Increased in numbers in 1984 and now 3 to 4 times as abundant as in 1976. Not separated from the Essex skipper and therefore there must be some doubt about the significance of the regional differences shown. The Essex skipper is generally absent from south west Britain.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	83	203	87	128	114	154	93	138
South/South east	100	114	73	161	98	200	283	227	325
E. midlands/E. Anglia	100	125	111	264	202	180	627	748	716
All sites	100	114	102	196	137	203	337	304	389

Essex skipper Thymelicus lineola

Not consistently separated from the small skipper and so results not presented.

Lulworth skipper Thymelicus sylvestris

One site only, Swanage, where there was a small increase.

	1976	77	78	79	80	81	82	83	84
Swanage	9	15	61	61	70	243	120	40	51

Silver-spotted skipper Hesperia comma 5(5+ 0= 0-)

Some large increases and a first appearance at a new site, Martin Down.

	1976	77	78	79	80	81	82	83	84
Aston Rowant N.	12	5	3	13	16	7	5	12	59
Aston Rowant S.	9	4	2	10	5	2	1	19	72
Lullington Heath				0	2	0	1	1	12
Old Winchester Hill	0	0	0	0	3	3	7	2	18
Martin Down				0	0	0	0	0	1

Large skipper Ochlodes venata

Large increases everywhere; now much more abundant than in the mid-1970s.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	72	193	182	208	117	229	108	239
South/South west	100	54	111	133	152	79	181	193	253
E. midlands/E. Anglia	100	79	257	214	227	176	390	354	749
North and west	100	139	164	111	95	88	145	92	218
All sites	100	82	185	180	195	123	258	232	398

Dingy skipper Erynnis tages

A small increase, taking the index to the highest value since 1976.

	1976	77	78	79	80	81	82	83	84
South/south east	100	28	24	32	26	17	37	39	46
All sites	100	25	27	38	31	24	40	36	44

Grizzled skipper Pyrgus malvae

A third increase in successive years, halting, at least temporarily, a worrying decline.

	1976	77	78	79	80	81	82	83	84
South/south east	100	93	41	21	26	10	15	18	28
All sites	100	86	40	25	40	14	17	20	30
Kingley Vale	126	89	28	22	11	4	1	5	14

Brimstone Gonepteryx rhamni

A good year with exceptionally high spring counts. The large ratio of spring to autumn counts in the south west remains very pronounced and inexplicable.

	1976	77	78	79	80	81	82	83	84
South west/South Wales									
Spring	115	165	161	206	152	92	161	206	527
Autumn	100	84	27	46	51	42	72	157	70
South/south east									
Spring	158	128	97	93	107	76	133	161	247
Autumn	100	201	124	99	67	66	162	120	169
E. midlands/E. Anglia									
Spring	202	109	41	46	78	49	88	80	119
Autumn	100	67	68	74	63	76	98	83	90
All sites									
Spring	162	133	99	94	114	74	122	139	232
Autumn	100	143	91	94	76	80	145	120	150

Swallowtail Papilio machaon

One site, Bure Marshes in the Norfolk Broads.

	1976	77	78	79	80	81	82	83	84
Bure Marshes	64	7		18	12	13	27	13	15

Wood white Leptidea sinapis

Three sites only, little change from last year. Increase at our research site in Northamptonshire.

Clouded yellow Colias croeceus

We wondered whether last year's high levels would be repeated. 1984 saw the second highest counts since 1976, but certainly no repeat of the 1983 numbers. Numbers are generally too low for the calculation of a national index, but the following data give an indication of relative abundance.

	1976	77	78	79	80	81	82	83	84
Sites in the scheme	34	57	65	80	81	80	78	86	87
Sites where recorded	1	1	0	2	4	6	5	48	9
Sum of index values	1	3	0	2	21	16	19	601	33

Large white Pieris brassicae

Very low numbers in the first generation, but, subsequently, quite a successful breeding season.

All sites	1976	77	78	79	80	81	82	83	84
Generation I	59	8	38	99	60	39	44	58	19
Generation II	100	62	116	159	64	61	124	80	69

Small white Pieris rapae

There has been speculation that the enormous increase in the acreage of rape has increased the abundance of pests of other brassica crops. This does not seem to be true of the white butterflies, perhaps because the harvest period is before the emergence of the second generation. Many larvae and pupae must perish at harvest.

All sites	1976	77	78	79	80	81	82	83	84
Generation I	18	12	29	28	22	16	20	13	11
Generation II	100	85	113	78	40	32	105	69	64

Green-veined white Pieris napi

Increases in the southern parts of Britain, but some substantial declines in the north and west, leading to a small overall decline in the national index.

South west/South Wales	1976	77	78	79	80	81	82	83	84
Generation I	78	42	155	126	68	87	94	70	42
Generation II	100	76	135	100	53	52	172	86	99
South/South east									
Generation I	75	51	278	477	256	351	434	276	179
Generation II	100	230	511	373	490	339	1051	406	515
E. midlands/E. Anglia									
Generation I	40	24	101	158	162	145	113	76	68
Generation II	100	125	408	424	268	186	440	162	181
North and west									
Generation I	121	22	37	37	78	43	88	72	72
Generation II	100	58	98	61	98	91	139	138	95
All sites									
Generation I	59	29	93	112	112	98	134	101	92
Generation II	100	97	235	200	168	148	285	186	162

Orange tip Anthocaris cardamines

General increases to give the highest national index so far. The spring drought severely reduced the flowering of one food plant Cuckoo-flower Cardamine pratense and there may be a sharp decline next year.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	95	185	181	116	138	122	119	140
South/south east	100	73	79	92	83	63	72	74	72
E. midlands/E. Anglia	100	83	82	93	135	85	74	95	118
North and west	100	73	75	56	80	70	48	79	113
All sites	100	84	105	102	117	98	78	106	136

Green hairstreak Callophrys rubi

A big increase, continuing the oscillations since 1976.

	1976	77	78	79	80	81	82	83	84
South/south east	100	106	125	127	177	50	220	92	196
All sites	100	64	77	71	116	62	155	100	143

The other hairstreaks are not recorded adequately by the transect count method, because they usually fly at canopy height. However, in the long term, the results will be of value and recorders should continue to record them. It has been another good year for the purple hairstreak, but the white-letter hairstreak was recorded at only two sites. There is a very large white-letter colony at Northward Hill.

Small copper Lycaena phlaeas

A general increase, but a big fall at some East Anglian sites. The east coast suffered from cold east winds well into the summer and this seems to have badly affected a number of species.

South west/South Wales	1976	77	78	79	80	81	82	83	84
Generation I	12	(0.3)	4	6	4	3	4	2	6
Generation II	100	14	19	33	18	11	34	26	128
South/south east									
Generation I	35	9	11	5	13	5	13	12	9
Generation II	100	54	35	26	27	18	99	51	59
E. midlands/E. Anglia									
Generation I	15	(1.3)	11	45	42	27	25	32	12
Generation II	100	10	26	134	65	56	116	219	37
North and west									
Generation I	21	4	18	28	19	13	15	16	78
Generation II	100	21	33	69	26	53	56	84	168
All sites									
Generation I	22	4	11	20	19	12	15	15	41
Generation II	100	28	28	61	31	37	76	85	112

(NB Some corrections to these data since last year).

Small blue Cupido minimus 6(5+ 0= 0-)

Low numbers at most sites. Decline at Pewsey, big increase at Buttler's Hanging.

Common blue Polyommatus icarus

A second year of high numbers, but generally slightly lower in the second generation than in 1983. In the north, however, there were some large increases.

South west/South Wales	1976	77	78	79	80	81	82	83	84
Generation I	59	5	24	44	27	6	12	15	23
Generation II	100	31	21	80	24	26	41	97	64
South/south east									
Generation I	101	28	16	30	73	31	48	54	95
Generation II	100	15	18	60	46	39	119	193	169
E. midlands/E. Anglia									
Generation I	34	6	10	47	125	38	159	262	184
Generation II	100	16	42	183	179	47	432	625	503
North and west									
Generation I				21	17	27	35	57	95
Generation II				12	11	11	16	53	70
All sites									
Generation I	73	16	19	34	47	32	48	55	87
Generation II	100	20	19	53	36	26	62	119	112

Data from some northern sites where the common blue is generally single brooded.

	1977	78	79	80	81	82	83	84
Insh Marshes		31	16	9	0	33	72	138
Lindisfarne	34	15	22	7	27	133	144	108
Tentsmuir Point			50	17	18	54	29	21
Morrone Birkwoods			5	1	0	1	11	147
St Cyrus			12	16	6	63	29	26
Sands of Forvie			5	1	8	121	323	446

Silver-studded blue Plebejus argus 3(0+ 0= 3-)

Small decline at Studland Heath, the only site we have with substantial numbers.

	1976	77	78	79	80	81	82	83	84
Studland Heath	21	11	16	46	66	36	80	54	45

Brown argus Aricia agestis 17(10+ 0= 7-)

High numbers maintained over the last three years.

Swanage	1976	77	78	79	80	81	82	83	84
Generation I	150	56	206	93	40	18	122	19	92
Generation II	60	246	57	79	87	90	175	170	191

Northern brown argus Aricia artaxerxes 5(1+ 0= 4-)

Declines, except at Morrone Birkwoods where several species increased greatly in numbers.

Chalkhill blue Lysandra coridon

Substantial increases almost everywhere, to give the highest national index since 1976. Another large increase at Old Winchester Hill, where a potential competitor, the Adonis blue, which feeds on the same food plant, has been introduced and become abundant in the last few years. 'Strays' recorded at Picket Wood and Ampfield Wood.

	1976	77	78	79	80	81	82	83	84
All sites	100	37	40	60	38	19	38	38	65

Adonis blue Lysandra bellargus 5(3+ 0= 2-)

High numbers at Castle Hill, especially in the first generation. The increase in numbers of the introduced population at Old Winchester Hill did not continue this year.

Castle Hill	1976	77	78	79	80	81	82	83	84
Generation I			12	1	44	10	22	70	650
Generation II			5	36	14	20	179	419	483
Swanage									
Generation I	188	13	35	99	237	101	384	168	288
Generation II	17	17	67	254	493	271	1247	1006	699
Old Winchester Hill									
Generation I	0	0	0	0	0	2	10	20	38
Generation II	0	0	0	0	0	14	75	115	103

Holly blue Celastrina argiolus

The increase of recent years has continued and in 1984 it was recorded on 39 of our sites, compared with 12 in 1981. Nowhere does it occur in large numbers.

All sites	1976	77	78	79	80	81	82	83	84
Generation I	13	37	39	27	21	4	13	16	55
Generation II	100	56	18	41	9	3	14	35	90

Duke of Burgundy Hamearis lucina 5(2+ 0= 3-)

Low numbers at all sites except Picket Wood, where there was a second slight decline.

White admiral Ladoga camilla

A substantial increase at most sites. Recorded for the first time since counts began in 1974 at Castor Hanglands.

	1976	77	78	79	80	81	82	83	84
All sites	100	33	52	68	21	22	67	54	98

Purple emperor Apatura iris

One site only, West Dean Woods; low numbers.

Red admiral Vanessa atalanta

A single index value is given because the generations are not easy to separate. Spring immigrants were in very low numbers, but later in the year the red admiral was quite abundant.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	21	13	19	27	19	121	27	29
South/south east	100	34	17	21	35	75	300	104	46
E. midlands/E. Anglia	100	29	25	22	20	39	290	52	72
North and west	100	4	2	9	30	8	121	20	15
All sites	100	18	13	18	34	28	219	47	38

Painted lady Vanessa cardui

A single index value is given. Extremely low numbers, lower than the clouded yellow. Recorded at only 8 sites.

	1976	77	78	79	80	81	82	83	84
All sites	100	95	18	76	1170	34	855	232	21

Small tortoiseshell Aglais urticae

A single index value given because the summer and autumn generations may be hard to separate. A year of great abundance, especially in eastern England. Very large numbers at Wicken Fen, Rostherne Mere and Coombes Valley, presumably mainly drawn in from surrounding agricultural land.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	62	130	185	187	106	430	145	313
South/south east	100	64	132	127	115	50	544	61	268
E.midlands/E. Anglia	100	97	198	209	315	177	1532	226	1455
North and west	100	30	52	30	39	21	75	39	96
All sites	100	50	98	84	98	52	307	81	281
Wicken Fen				33	48	33	562	14	1031
Rostherne Mere	356	126	188	262	333	55	844	331	732
Coombes Valley				51	-	140	577	57	530

Comma Polygonia c-album

Abundant in eastern England, but generally a slight decline and no further signs of expansion of range. Results from Holme Fen and Woodwalton Fen illustrate the changes at some sites over the last few years.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	24	66	154	87	64	94	92	66
South/south east	100	21	50	57	100	86	237	132	113
E. midlands/E. Anglia			43	110	200	214	1119	466	603
All sites	100	24	55	111	109	93	308	169	159
Holme Fen	-	0	0	0	5	29	165	74	98
Woodwalton Fen	-	-	0	0	-	6	46	2	11

Peacock Inachis io

High numbers, except in the north and west, and even there, spring counts were high. Highest numbers recorded in two conifer plantations in eastern England, Potton Wood and Bevill's Wood. As with the small tortoiseshell, the breeding sites are primarily along hedges and field edges of arable farmland.

South west/South Wales	1976	77	78	79	80	81	82	83	84
Spring	34	38	119	111	99	36	78	75	88
Autumn	100	91	120	128	51	60	158	158	201
South/south east									
Spring	-	6	22	36	29	14	36	28	49
Autumn	100	39	64	53	25	32	58	41	70
E. midlands/E. Anglia									
Spring	115	26	47	117	242	153	284	208	382
Autumn	100	114	401	820	424	461	1049	661	1013
North and west									
Spring	-	10	22	11	21	7	15	22	36
Autumn	100	28	36	21	23	17	120	21	21
All sites									
Spring	56	23	61	64	79	39	79	75	124
Autumn	100	73	136	167	93	97	315	149	200

Small pearl-bordered fritillary Boloria selene 14(10+ 1= 3-)

General increases; no index values calculated because of the large influence of a relatively small number of sites and because of the difficulty of separation from the pearl-bordered fritillary.

Pearl-bordered fritillary *Boloria euphrosyne* 12(10+ 0= 2-)

Increases except at Wyre Forest and Waterperry.

High brown fritillary *Argynnis adippe* 14(10+ 1= 3-)

A good year for this species, as for all of the fritillaries, at its few sites in the monitoring scheme.

	1976	77	78	79	80	81	82	83	84
Wyre Forest				5	13	4	14	2	14
Leighton Moss	-	-	-	57	42	27	53	45	94

Dark green fritillary *Argynnis aglaia*

An exceptionally good year at virtually every site. Is this an individual good year or the start of a recovery for this species?

	1976	77	78	79	80	81	82	83	84
South/south east	100	42	51	26	31	16	33	13	50
North and west	(100)		(192)	145	110	59	124	114	279
All sites	100	63	75	54	47	25	51	39	101

( ) indicates very few sites.

Silver-washed fritillary *Argynnis paphia*

General modest increases. Decline at Wyre Forest. This species has returned to Monks Wood after many years of absence, although it was not recorded on the transect counts.

	1976	77	78	79	80	81	82	83	84
All sites	100	25	44	45	29	27	43	25	39

Marsh fritillary Eurodryas aurinia 6(4+ 1= 1-)

A good year at most of our few sites. Continues to increase at Pewsey Down, following the creation of grazing exclosures in some sections of the transect route.

	1976	77	78	79	80	81	82	83	84
Pewsey Down				8	26	4	130	136	212

Heath fritillary Mellicta athalia

Increase at the site in Kent, decrease at the site in the west.

Wall Lasiommata megera

One of the few species to decline in numbers this year.

South/south east	1976	77	78	79	80	81	82	83	84
Generation I	49	5	8	10	12	12	24	29	17
Generation II	100	9	51	24	24	53	118	79	55
E. midlands/E. Anglia									
Generation I	75	4	3	9	24	45	101	116	63
Generation II	100	8	24	62	70	154	239	252	142
North and west									
Generation I	39	10	8	9	6	7	18	11	15
Generation II	100	33	20	27	16	26	36	48	40
All sites									
Generation I	50	7	9	12	15	19	42	39	28
Generation II	100	20	38	41	37	69	113	109	74

Speckled wood Pararge aegeria

A complex succession of generations, but presented as a single annual index. A second year of decline at most sites.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	33	80	76	86	103	104	73	68
South/south east	100	48	113	115	109	140	198	176	125
All sites	100	37	84	84	88	107	129	108	91

Mountain ringlet Erebia epiphron

One site, Ben Lawers, a second slight decline.

Scotch argus Erebia aethiops

Three sites, including a first appearance at Morrone Birkwoods in the 6th year of recording. Sharp increases at the other two sites.

Marbled white Melanargia galathea

A year of big increases in numbers at almost all sites. First appearance at Northward Hill in the 8th year of recording, following two similar new records last year. Some of the increases in the last few years have been spectacular.

	1976	77	78	79	80	81	82	83	84
All sites	100	87	80	82	86	84	174	160	295
Gomm Valley		30	31	66	136	228	494	496	614
Old Winchester Hill	9	11	22	50	26	44	108	133	457
Castle Hill			52	40	17	62	101	297	482

Grayling Hipparchia semele

Modest declines at most sites. First record on transect counts at Gait Barrow in the 7th year.

	1976	77	78	79	80	81	82	83	84
All sites	100	69	69	70	52	54	127	140	126

Hedge brown Pyronia tithonus

Increases at most sites, in some cases very large. At present a very successful species, expanding its range. In the monitoring scheme, some of the greatest increases have been on chalk downland sites.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	85	84	93	45	73	129	126	130
South/south east	100	73	51	87	60	75	126	116	193
E. midlands/E. Anglia	100	69	60	88	72	78	151	139	193
All sites	100	74	64	86	61	74	136	133	190
Buttler's Hanging	2	6	-	22	12	26	80	87	269
Wye	33	61	73	166	87	127	526	336	777

Meadow brown Maniola jurtina

A mixture of increases and declines, with increases most pronounced in the north.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	85	82	99	112	144	265	172	155
South/south east	100	125	151	147	101	114	144	111	176
E. midlands/E. Anglia	100	73	76	166	171	210	371	330	284
North and west	100	45	36	51	38	54	123	172	193
All sites	100	100	111	129	102	121	191	170	203
Gait Barrows			276	239	50	28	69	186	333
Wicken Fen				7	6	6	44	39	89
Sands of Forvie				11	11	25	94	143	173

Small heath Coenonympha pamphilus

General small increases, but declines on the east coast of East Anglia. A complex succession of generations in southern Britain, but a single annual index is given.

	1976	77	78	79	80	81	82	83	84
South west/South Wales	100	76	95	86	49	25	66	28	43
South/south east	100	34	45	40	38	25	58	44	52
E. midlands/E. Anglia	100	44	67	126	118	112	138	157	126
North and west	100	98	74	62	63	69	168	161	196
All sites	100	46	59	68	63	52	98	89	95

Ringlet Aphantopus hyperantus

Yet another increase, in some cases the seventh successive increase since 1977. Now some evidence of an expansion of range in parts of Scotland.

	1976	77	78	79	80	81	82	83	84
South/south east	100	56	80	127	213	321	491	450	649
E. midlands/E. Anglia	100	27	66	112	153	120	364	408	506
All sites	100	33	59	102	146	168	325	317	404
Kingley Vale	74	5	16	49	95	154	339	403	498
Holme Fen	108	10	88	116	120	123	492	572	532
Monks Wood	86	8	11	18	33	37	169	267	511
Castor Hanglands	84	22	40	56	115	115	462	446	990
Skomer	-	0	0	0	3	4	20	24	13