

## FULL PAPERS

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### Recent changes in the distribution of some Scottish butterflies and the arrival of new species in Scotland

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Thirty-five species of butterflies are now resident or regular visitors to Scotland. The distributions of many of them have been changing, often dramatically, in recent years almost certainly as a result of climate change. Climate change may bring opportunities for some species of butterflies, while posing threats to others (Fox *et al.*, 2006). Several 'generalist' or 'wider countryside' species, which have a range of food plant or habitat requirements, have been expanding their ranges in Scotland. There have been major expansions in the range of four butterflies and others have shown more gradual increases. Two species have recently been recorded in Scotland for the first time for over a hundred years and another one has been recorded in Scotland for the first time ever.

However, several species which are 'habitat specialists' have experienced declines in their ranges. These have particular requirements relating to habitats and/or foodplants. Site destruction, habitat deterioration, fragmentation of habitats and butterfly populations and climate change are all factors which may be responsible for declines. (Fox *et al.* 2006). Some apparent declines may simply be due to under-recording.

The large number of records submitted to the *Butterflies for the New Millennium* project organised by Butterfly Conservation since 1995 has allowed the changes in butterfly distributions to be carefully recorded.

#### **Orange-tip** *Anthocharis cardamines*

In the mid-19<sup>th</sup> century the orange-tip was a relatively widespread species. However, by the early 1900s it had contracted its range, until there were just two widely separated Scottish populations; one in the Borders and the other in the Grampian - Strathspey area. In the 1950s the species slowly started to spread out from these core areas. Initially this happened slowly, but by the early 1980s the spread gained momentum. A Scottish postcard survey was conducted in 1997 (Sutcliffe & Kirkland, 1998) and was repeated in 2007. Over 800 records received in 1997 and 2,400 records in 2007 from these surveys and other general recording have enabled the rapid expansion to be monitored. The

species has now been recorded from the majority of 10km squares in Scotland south of the Great Glen and continues to spread.

As well as the obvious increase in the butterfly's distribution, there has also been a clear change in the species' emergence dates. In the early 1980s the first records were usually at the beginning of May, but it has been emerging progressively earlier. The peak period for sightings has moved forward as well. In 2007 there had been at least 1150 sightings by the end of April. The first report of the species was on 27 March, near Alford, Aberdeenshire (NJ5517).

#### **Peacock** *Inachis io*

Except for parts of Argyllshire and Dumfries and Galloway, the peacock was relatively uncommon in most of Scotland until the mid-1990s. In 1995 there was a sudden and dramatic appearance of large numbers of peacocks in southern Scotland. These butterflies bred and established resident populations, from which the species has continued to expand its range. These were possibly migrants from northern England or immigrants from the continent. There were notable influxes of peacocks in 1994 and 1995 reported from Orkney, Fair Isle and Shetland (Pennington, 1996), which were probably of continental origin. There were further records from Orkney and Fair Isle during 2000-2004 (Fox *et al.*, 2006). Stewart *et al.*, (1998) did not believe that the peacock bred regularly in the Highlands, although it turned up regularly as a wanderer. However, in September 2002 observers in Highland noted a sudden appearance of large numbers of them (Fox *et al.*, 2006). Since then considerable numbers have been reported in Highland. The species was recorded for the first time on the Isle of Lewis in 2004 (Randall, 2007). A Scottish postcard and web-based survey organised by Butterfly Conservation in 2008, similar to the orange-tip surveys above, received many hundreds of records. These are still being analysed, but it is clear that the species has now been found throughout Highland, at least as far north as Ullapool and Brora in the west and along the Moray Firth to Aberdeen in the east. It can now be found virtually anywhere on the Scottish mainland.

### **Speckled wood** *Pararge aegeria*

Two different subspecies of the speckled wood have been recorded in Scotland. *Pararge aegeria tircus* (the subspecies which occurs in England) was found in the Borders, Lothians, Fife, Perthshire and Aberdeenshire up until the early 20<sup>th</sup> century (Thomson, 1980), but is no longer found in these areas.

The subspecies *P. aegeria oblita* is widely distributed in Argyll, Arran and the Highlands; and 19<sup>th</sup> century records from Wigtownshire, Ayrshire and Lanarkshire were probably of this subspecies. In recent years *P. aegeria oblita* has spread dramatically in the Highlands. The first record from the Inverness area (60 miles from the nearest known colony on the west coast) was in 1955 and Davidson (1956) believed this to be a vagrant from that population. Two individuals were seen together in 1961, 8 miles east of Inverness, suggesting an established population (Barbour, 1986). These early records are probably the origin of the subsequent expansion of the species in this part of Scotland. Barbour (1986) describes possible reasons for the rapid spread of the butterfly between 1969 and 1984, which had reached Banffshire by 1983. Since then, the species has continued to move east and has reached Aberdeenshire. At the same time the isolated populations on the west coast were also expanding, but did not connect to the eastern populations (Stewart *et al.*, 1998).

Further south, the species has recently been recorded near Kenmore in Perth and Kinross, having probably been established by a single nomadic female (presumably from the populations in Grampian) or human introduction (Stamp, 2004). It was reported from Newington in Edinburgh (NT2671) in 2006, and at Monteviot Estate, north of Jedburgh (NT651237) in June 2007 (J. Mercer, pers. comm.). Its presence in Edinburgh was confirmed in June 2008 (Butterfly Conservation Scotland, 2008).

In the north west it has been recorded for the first time from a woodland on Lewis – the first record for the western Isles (Fox *et al.*, 2006). It was recorded from the island of Colonsay (NR396966) for the first time in August 2007 (A. Davis pers. comm.).

In Galloway in 1996 there were two sightings of individual butterflies near Stoneykirk (NX0752) and Torrs Warren (NX1756) and there was a further record in 1997 from Kirkmadrine (NX0848). These were believed to be vagrants from Northern Ireland, where the species is widespread and common (Futter *et al.*, 2006). No others were reported until 2006, when eleven individuals were seen at Senwick Wood, on the west side of Kirkcudbright Bay (NX6545), two at Rascarrel Bay (NX8048), (A. White pers. comm.), five at Torrs Point (NX6746), (M. Pollit, pers. comm.) and another was seen at the RSPB's reserve at Mersehead (NX5866), (G. Smith pers. comm.). Further individuals were seen in the area around Senwick Wood in 2007 and at Rascarrel in 2007 and 2008 (R. Mearns, R. Eagles, J.P. Black and A. White pers. comms.). This indicates that the butterfly successfully survived the

winter and poor summer weather of 2007 and will hopefully spread further in Dumfries and Galloway (R. Mearns pers. comm.). Two individuals were seen at Castle Loch, Lochmaben (NY0881) on 6 June 2007 (R. Eagles pers. comm.). These insects in southern Scotland appear to be the subspecies *P. aegeria tircus*, which occurs in Ireland and England. Two fresh individuals with typical *tircus* colouration were recorded at Rascarrel Bay on 17 June 2007 (J.P. Black pers. Comm.)

### **Ringlet** *Aphantopus hyperantus*

The ringlet has also seen a major expansion. In the early 1980s, it was widespread in the north east of Scotland, the Borders, Ayrshire and Dumfries and Galloway, but there were few records of the species from central Scotland or in Highland. When Ringlets were found at Cander Moss near Stonehouse in 1985 they were the first Lanarkshire records since 1911. The species spread quickly and was recorded from sixteen 1km squares in the Clyde Valley in 1991 and 1992 (Futter, 1993).

Since then, the ringlet has moved north towards Glasgow and populations further north have spread south. By 2004 the Ringlet was on the outskirts of Glasgow and in 2005 the first sightings were reported within the city boundary and the butterfly was even reported from Eglinton Toll (NS587636). The butterfly also appeared in Renfrewshire at Glen Moss, Kilmacollm (NS3669) in 2005, (N. Gregory pers. comm.) and was seen near Lochranza (NR9350) on the Isle of Arran in July 2006 (B. Zonfrillo, pers. comm.). In 2006, 2007 and 2008 more and more reports were received from in and around Glasgow.

In the Highlands, the ringlet was not regarded as a 'Highland' butterfly there having been only three recent records in the region up to 1996 (Stewart *et al.*, 1998). Within ten years this situation had changed. In 2004 and 2005 there were numerous sightings from the Morayshire coast to Grantown on Spey (Barbour, 2006). By 2006 it had reached Dornoch in Sutherland (McAllister, 2007).

### **Holly blue** *Celastrina argiolus*

The holly blue is widespread in England and there is clear long-term evidence of a northern spread of the species (Fox *et al.*, 2006). Colonies have been present in Cumbria for many years. Apart from two sightings in north and western Scotland (Munlochy in the Black Isle, Ross-shire in 1966 and Knapdale Forest, Argyll in 1972 (Thomson, 1980)), the only Scottish records of the Holly Blue have been in southern Scotland. There have been sporadic records from Dumfriesshire, Kirkcudbrightshire and Wigtownshire over the last 60 years. A female specimen was captured in Dumfries on 26 August 1950 (Cunningham, 1950). It laid 25 ova, from which several specimens were reared. One of these, which emerged on 24 May 1951 is in Glasgow Museums' collection (Registration number Z.1955.33), (Fig. 1a). Another individual was seen in Dumfries in 1973 (Thomson, 1980).

Subsequently there were occasional reports of individual butterflies, from Garlieston (NX44) on 18 May 1990, Rockcliffe (NX85) on 20 August 1992 and Dunskey, Portpatrick (NX0155) on 20 August 2002. A sighting of an unusual blue butterfly at Rascarrel Bay (NX8048) in 2003, may have been a holly blue. In August 2004 there were multiple records from a garden in Rockcliffe (NX8553) and it was also recorded on the butterfly transect at Rockcliffe. In 2005 it was again recorded in Rockcliffe and at two locations in nearby Kippford (NX8354). In 2006 Peter Summers located larvae on ivy at both Kippford and Rockcliffe, confirming that the species was indeed breeding in the area. In 2007 it was also recorded from Dalbeattie (NX8361) (B. Smith, pers. comm.) and the Crichton in Dumfries (NX9874), (M. Pollitt pers. comm.). 2008 saw yet more new locations in the south west. A blue butterfly seen near Stairhaven (NX2152) was probably a holly blue (M. Pollitt pers. comm.). A female was seen on 9 and 10 August in a garden in Ayr (NS3320), (A. Murray pers. comm.). A single individual was seen in the centre of Kirkcudbright (NX6850) on 21 August (N. Gregory pers. comm.) and another was seen in a garden in Kilmacolm, Renfrewshire (NS3670), on 2 September (N. Gregory pers. comm.).

It is not certain if the earlier records of holly blue represent vagrants, and it has recently established itself in the area, or if it has in fact been present in very low numbers in Dumfries and Galloway for a long time. (Futter *et al.*, 2006).

In the east there was a single record of holly blue from Anstruther, Fife recorded by Ann Marie Smout on 18 August 1998. In 2006 a strong colony of the butterfly was discovered at Loanhead on the outskirts of Edinburgh (Bowles & Fox, 2006a). In April and May 2007 the species was also reported from further sites in the New Town and from the Royal Botanic Gardens in Edinburgh (NT2475) (R. Buckland pers. comm.). Others were seen at Newhailes (NT3272) (Butterfly Conservation Scotland, 2007). There were further sightings in the Lothians in 2008 (R. Buckland, pers. comm.).

#### **Marsh fritillary *Euphydryas aurinia***

In Scotland the marsh fritillary is restricted to parts of Argyll, Islay, Jura, Mull and southern Inverness-shire. It is generally regarded as a sedentary species. Marking studies have shown that most adults rarely fly more than 50-100m, but a small proportion disperse further and females have been known to colonise sites 10-15km away (Asher *et al.*, 2001). It was therefore a surprise when the species turned up at Balnakailly Bay (NS022743) at the northern tip of the Isle of Bute in 2006 (G. Walker, pers. comm.), at least 20km away from the nearest known colonies on the other side of Loch Fyne. In 2007 further butterflies were seen at the same site and numerous larvae were located in April 2008 (P. Kirkland pers. comm.). Another site was discovered at the southern end of the island at Glencallum Bay (NS13527) by members of Edinburgh Natural History Society in 2007 (J. Waddell, pers.

comm.). In June 2008 a third Bute site was discovered at Scoulag Moor (NS092605) by N. Mullholland. It seems unlikely that the species has been present but remained undiscovered on the island and then suddenly turned up in three different localities. It is more likely that these represent completely new sites for this species. Marsh fritillaries were also found near Mallaig at another site many miles from the nearest known colony in 2007 (Butterfly Conservation Scotland, 2007).

#### **Pearl-bordered fritillary *Boloria euphrosyne***

The Pearl-bordered Fritillary has undergone a dramatic decline in Britain. Although it is still widespread in the west of Scotland and the Highlands (Asher *et al.*, 2001), several colonies in south west Scotland have been lost since the 1970s. However, possible new records have recently come to light for the Pearl-bordered Fritillary on Arran. The species was apparently recorded at a site on the lower slopes of Goatfell in June 2007, and there are also possible records from nearby Glen Rosa from 1993, 2001 and 2003 (S. Mason, pers. comm.). Although the recorders are adamant about their identifications, there are some doubts about these records and confirmation is still required.

#### **Small blue *Cupido minimus***

The small blue occurs at several sites in Angus, at coastal sites along the Moray Firth and in north east Caithness, and some inland sites in Speyside. It was formerly reported from the Arran, Dumbarton and even Govan up until 1900, and was known from Ayrshire and Galloway until the 1970s. The last records from south west Scotland were from Rockcliffe on the Solway Firth in 1980. It was still present at Coldingham and Burnfoot in Berwickshire up until 1994. It also occurred at two sites on the disused railway line at Hawick until the late 1990s, until the habitat became unsuitable and it died out. It was then believed extinct in southern Scotland, but was re-discovered by Iain Cowe at Catcairn Bushes (NT9659), a coastal site in the Borders on 18 June 2007 (Bowles & Fox, 2007).

#### **Clouded yellow *Colias croceus***

The clouded yellow is an irregular migrant to Scotland from northern Africa and southern Europe. It migrates northwards and although regularly seen in England it was formally a rare butterfly in Scotland. Apart from notable 'clouded yellow years' such as 1992 when there were over 2,300 individual butterflies reported, it was so rare that every record was notable (Sutcliffe, 1994). Since 1994, it has become a much more regular visitor to Scotland and has been reported almost every year. The majority of records tend to be from the Solway and Ayrshire coasts, but there have also been sightings from as far north as Skye, Easter Ross and the Moray Firth. Large numbers were seen in south west Scotland in 1998 (at least 72), 1999 (at least 77), 2000 (at least 565) and 2006 (at least 41).

**Dingy skipper** *Erynnis tages*

Probably now Scotland's most endangered species, the dingy skipper has two widely separated populations – one in the south west in Dumfries and Galloway and Ayrshire and the other in north east Scotland, mainly along the Moray Firth. It has disappeared from several sites in recent years. Some sites in the Highlands have been lost due to building or they have become overgrown with bracken, trees and rank vegetation (McKellar & Barbour, 2005). However, it seems to be able to survive at very low population levels and go undetected for several years. It was unrecorded at Pinbain Burn (NX1391), a frequently-visited site on the Ayrshire coast between 1997 and 2006, but was rediscovered there in 2007 and was seen again in 2008. (R. Henderson, pers. comm.). Targeted searches located populations at three sites on the Galloway coast in May 2008 (J.P. Black, pers. comm.) and an individual was discovered for the first time at the Scottish Wildlife Trust's Reserve at Feoch Meadows in Ayrshire (NX262821) on 3 July 2008 (G. Smart, pers. comm.).

**Green hairstreak** *Callophrys rubi*

In Scotland the green hairstreak is a widespread but local species. It is inconspicuous and its small colonies are easily overlooked, making detailed interpretation of change difficult (Fox *et al.*, 2006). However, the species may have suffered a decline in SW Scotland as there were several colonies reported from the region during the late 1990s but there have been very few recorded since then – especially in Dumfries and Galloway. This may be due to under-recording, rather than an actual decline.

**Purple hairstreak** *Neozephyrus quercus*

The purple hairstreak is an easily overlooked butterfly, as it flies around the tops of oak and ash trees and rarely comes down to ground level. It is found in oak woodlands in central Scotland, Argyll, Ayrshire and Dumfries and Galloway. There are a few sites in Stirling and Perthshire and it was discovered for the first time in Highland in 2003 and 2004 from Morvern (Barbour, 2006). It was recorded from Renfrewshire (at Langbank, NS3773) for the first time in 2005 (J. McOwat, pers. comm.). In Glasgow it was only known from Garscadden Wood (NS5272), but in 2006 it was also confirmed from Bull Wood (NS5162) in south west of Glasgow (R. Sutcliffe, pers. obs.) and another woodland near Gartloch (NS6767) in the north of the city (A. McNeil, pers. comm.). In 2008, the species was discovered for the first time on the Isle of Bute. A single individual was found at Balnakilly Bay (NS0274) (J. Herriot, pers. comm.).

In England there is good evidence of range expansion in Northumberland, County Durham and elsewhere (Fox *et al.*, 2006). In Scotland it is more likely that many new records simply represent under-recording in the past, rather than a real expansion. However, the species does seem to be absent in apparently suitable habitats in some parts of Scotland, such as the Clyde Valley. This may be because the butterfly prefers

pedunculate oak, *Quercus robur*. It appears to be absent from many oakwoods, especially those on acid soils and does not seem to have been recorded where sessile oak, *Q. petraea* is dominant (Futter *et al.*, 2006), although its key Loch Lomond sites are considered to be *Q. robur/petraea* hybrids. Further observations are needed to confirm this.

**Wall brown** *Lasiommata megera*

The wall brown was formerly recorded in the Lothians, Borders, Fife, Clackmannanshire and as far north as Aberdeen but became extinct in the east of Scotland before 1900 (Thomson, 1980). It returned to Berwickshire in 1955, and was recorded at some time between 1970 and 1988 from St Abb's Head (Emmet & Heath, 1989). There were then no records until one was seen at St Abb's Head in 1997 (Stamp, 1998). In 2006 the species was reported from Dunbar, Duns and Galashiels, suggesting it is now starting to re-colonise the Borders (R. Buckland, pers. comm.). It was also reported from Catcairn Bushes (NT9659), in 2008 (Butterfly Conservation Scotland, 2008).

In the west the species is widespread in Dumfries and Galloway and southern Ayrshire, where it is commonly associated with coastal sites. It was also recorded at isolated sites on Arran, Bute, Islay, Jura and at Arisaig in the 1970s. There was a sighting on Bute in 1989 (R. Sutcliffe & E.G. Hancock, pers. obs.) and one was seen at Dumbarton in 1990 (Futter *et al.*, 2006). There were no other records from outside its core range until it was discovered at Carsaig on Mull (NM51) in 2004 (B. Prater, pers. comm.).

**Large heath** *Coenonympha tullia*

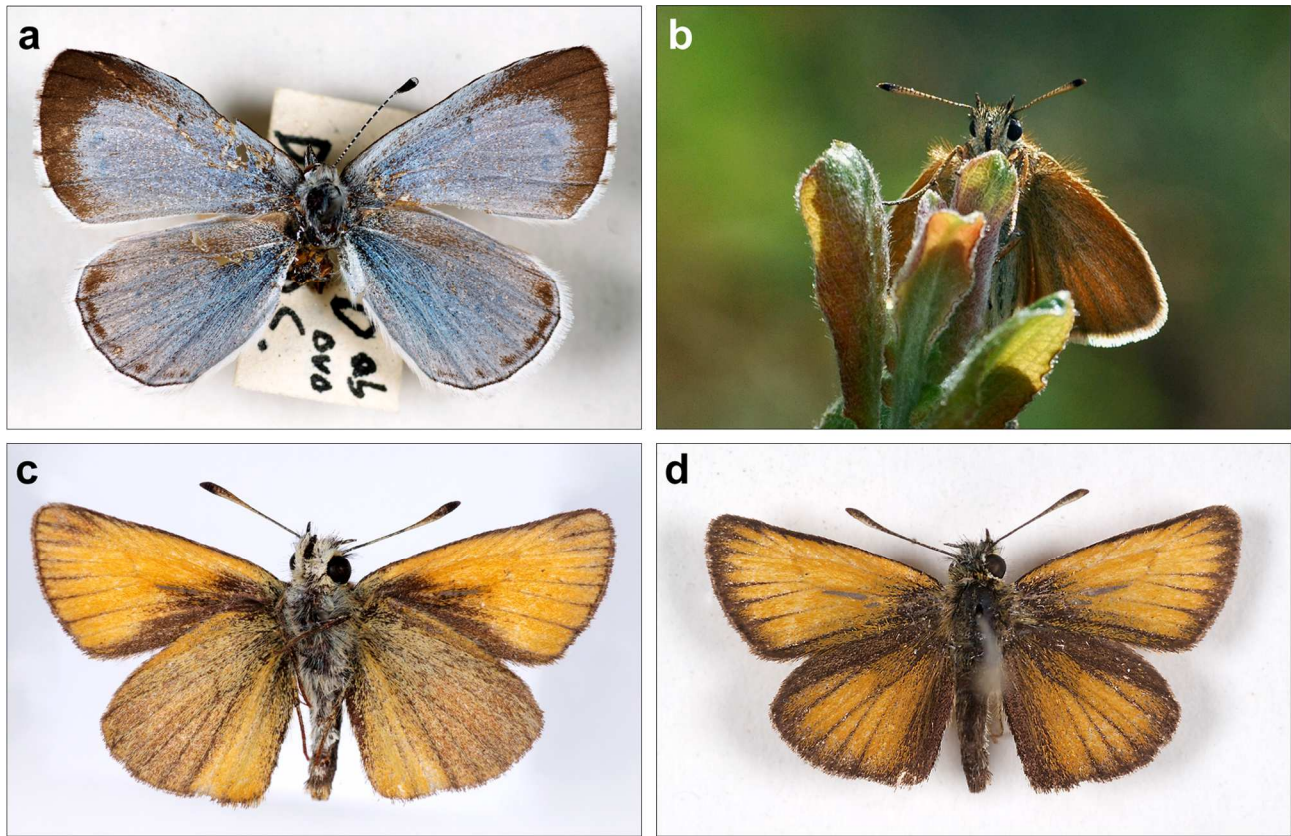
Although widespread in South West Scotland and the Highlands, the large heath appears to be declining. This is in part due to the increasing isolation and destruction of its preferred lowland bog habitats (Futter *et al.*, 2006).

Two species have been recently been recorded in Scotland for the first time for over a hundred years and another species has been recorded in Scotland for the first time ever.

**Comma** *Polygonia c-album*

In the mid 19<sup>th</sup> century, the comma was resident in Scotland as far north as Fife and Clackmannanshire. However its range had retracted and the last Scottish sightings were 'about 1870' from Berwickshire. By the 1920s it was restricted to south of the English midlands. Since the 1930s the butterfly has moved slowly but steadily north again and had reached Durham by 1976 (Thomson, 1980). After an absence of 130 years the butterfly reappeared in Scotland, in 1996, when it was recorded near Chesters in the Borders on 26 October 1996 by Mr D. Skinner. There were a further four records from the Borders in 1997, four in 1999 and two in 2001. In addition, there were single records from Dumfries & Galloway in 1999, 2000 and 2001. These first records were regarded as vagrants by Asher *et al.*, (2001). However, in 2002 there were at

least 12 sightings in the Borders, Lothians and one from as far north as Midmar, Aberdeenshire (NJ6409). There were at least another seven sightings in 2003, including some from Fife and one from Fenwick, Ayrshire (NS4643). 2004 saw a dramatic increase in records with nearly 50 reports including one from Fort Augustus, Highland (NH3709). In 2005, 2006 and 2007 there were many sightings in the south east.



**Fig. 1a.** Holly blue. Bred from ova, Dumfries 26 August 1950. Emerged 24 May 1951 Glasgow Museums registration number Z.1955.33 Photograph: Culture and Sport Glasgow (Museums). **b.** Essex skipper (male). Birkshaw Forest, Dumfriesshire, August 2007. Photograph: Richard Mearns. **c.** Essex Skipper (male). Underside of antenna. Birkshaw Forest, Dumfriesshire, 20 August 2007 Glasgow Museums registration number Z.2007.54. Photograph: Culture and Sport Glasgow (Museums) **d.** Essex Skipper (male). Birkshaw Forest, Dumfriesshire, 20 August 2007. Glasgow Museums registration number Z.2007.54. Photograph: Culture and Sport Glasgow (Museums)

Breeding was confirmed for the first time in Scotland with the discovery of a larva on Elm near Kelso in the Borders in August 2006 (Bowles & Fox, 2006b).

By the end of 2007 it had been recorded in about seventy 10km squares in Scotland (the majority in the Lothians, the Borders and Dumfries and Galloway). The first record for the Glasgow area was reported in 2007, when the species was recorded from Mugdock Country Park (NS5477), just north of the city (S. McQueen, pers. comm.). Several commas were also recorded from the Motherwell, Hamilton and Lanark areas (Hancock, 2008). This species now appears to be firmly established in southern Scotland (Fig. 2).

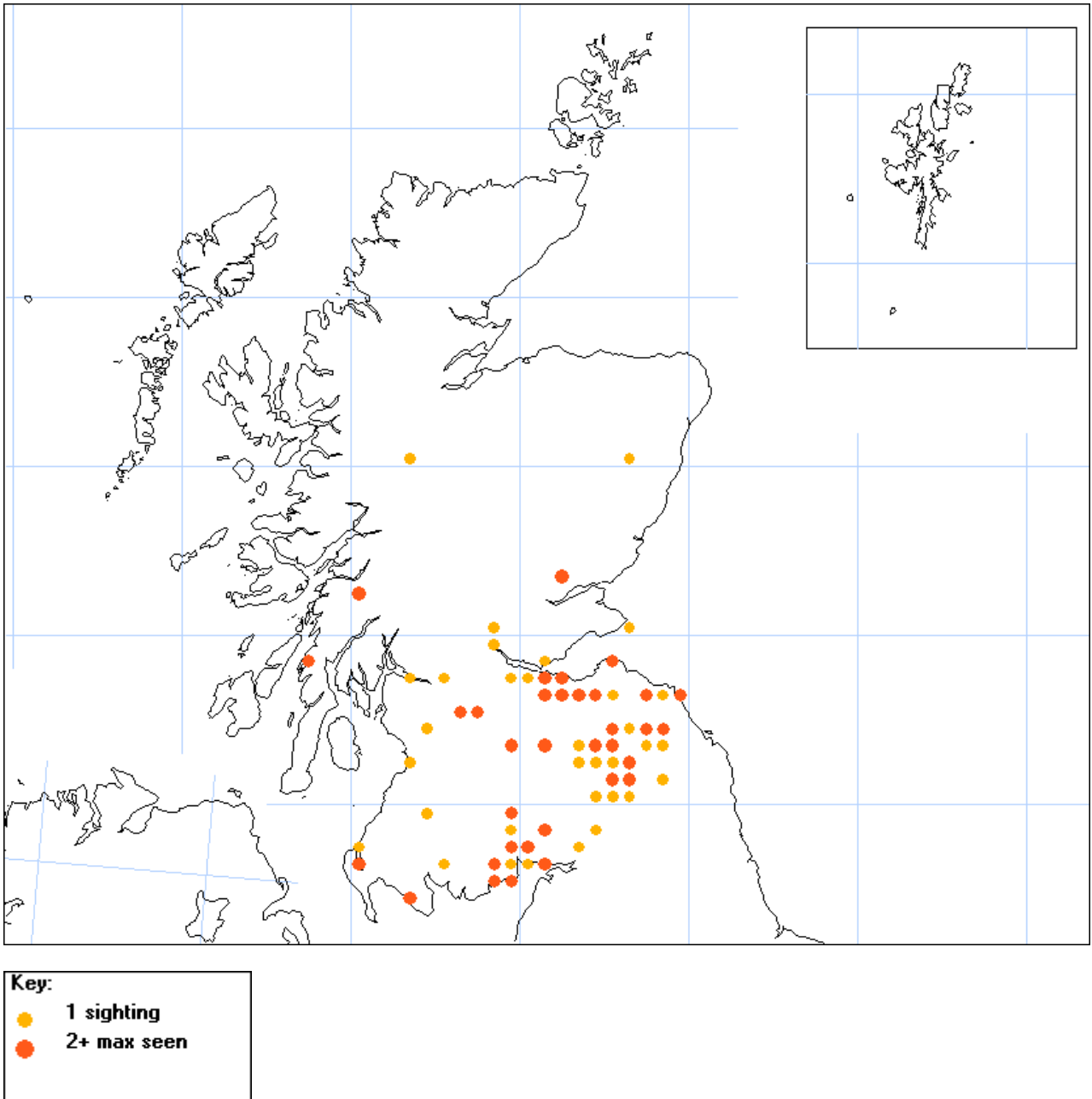


Fig. 2. Distribution map showing records of the Comma reported in Scotland 1996-2007.

### **Small skipper** *Thymelicus sylvestris*

The only historical records for the small skipper in Scotland were from the neighbourhood of Edinburgh in 1811 and Alloa Parish in 1845 (Thomson, 1980).

The species has undergone a rapid expansion in northern England since the 1970s. Between the publication of the Atlas of butterflies in Britain and Ireland, covering the period 1970-1982 (Heath *et al.*, 1984) and the Butterflies for the New Millennium survey (1995-1999), the species extended its range north by nearly 100km (Asher *et al.*, 2001). By 2004 it was within a few miles of the Scottish border (Fox *et al.*, 2006) and widely expected to reach Scotland 'within the next five years'. The prediction was soon justified. Individual Small Skippers were reported from five different sites in 2006.

The first report was of at least five individuals seen at a disused railway line at Hassendean near Lilliesleaf (NT5420) in the Borders, by Derrick Moore on 21 July. (J. Mercer pers. comm.). They had also been recorded at Chirnside (NT859578) in July 2006 by Iain Cowe (but not reported until 2007) and in Newcastleton Forest (NY516901) on 18 July by David Spooner. In Dumfriesshire some were reported from Upper Dormont (NY102763) on 28 July by Owen Figgis; and at Gall Moss near Torthorwald (NY027814) on 3 August by Stuart Graham. Most of these places are many miles from the nearest previous records in northern England. This means that they had either been in the area for some time and overlooked or that the butterfly has expanded into southern Scotland very rapidly. Given the fact that the butterfly suddenly appeared in several different places at once, the latter explanation is most likely. Bizarrely there was also a confirmed record in July 2006 of an individual small skipper seen in a garden in Newtonmore (NM79) in the Highlands. It is highly likely to have been accidentally transported there by human activity.

In 2007 and 2008, the species was again recorded at Birkshaw Forest near Dormont. In the east, one small skipper was reported from the outskirts of Berwick-upon-Tweed (NT9853) on 16 July 2008 (Berwick Wildlife Group, 2008), and two were seen at Piper's Knowe Quarry (NT8859) by Iain Cowe on 4 July 2008, suggesting that the species is consolidating its foothold this far north and should continue spreading (Prater, 2008).

### **Essex Skipper** *Thymelicus lineola*

On 29 July 2007, at the Upper Dormont site where small skippers were reported in 2006, Owen Figgis noticed that the skippers he was seeing did not look like small skippers after all. At about the same time, Richard and Barbara Mearns also noticed that the skippers they were seeing along forestry tracks in the same area did not look like small skippers. Looking at the underside of the antennae, they appeared to be black, rather than orange. This feature distinguishes the small skipper from the Essex skipper. Could these butterflies really be Essex skippers? The nearest

known Essex Skipper populations are over 150km away in southern Yorkshire, and although it has shown the greatest percentage increase in its distribution of any resident species of British butterfly since 1970 (Fox *et al.*, 2006), it seems extremely unlikely that it could have reached Scotland of its own accord. One theory is that it may have been introduced accidentally with a load of hay from the south (R.Mearns pers.comm.) Numerous photographs of the butterflies were taken (Fig. 1b) and opinions were sought from several butterfly experts in England.

On 20 August 2007, a single specimen was taken by Dr Jim Black at Birkshaw Forest (NY123778) to settle the debate. The specimen was identified by Glasgow Museum's entomologist, Jeanne Robinson as a male Essex skipper (Fig. 1c, d) and has been added to the museum's collection (registration number Z.2007.54).

Essex skipper has so far only been confirmed as present at Birkshaw Forest. However, skipper butterflies were also seen at two nearby sites near Dormont (NY1175) and near Eskrigg (NY1279), (R. Mearns, pers. comm.). It is quite possible that these butterflies were Essex skipper as well. On 5 August 2008, seven small skippers and one Essex skipper were observed flying together at the same site at Birkshaw Forest (NY122778), (J.P. Black pers. Comm.). There are now two almost identical species present in southern Scotland, as well as the similarly coloured large skipper *Ochlodes sylvanus*, which occurs in Dumfries and Galloway, southern Ayrshire, and Borders and was recorded for the first time in the Lothians at Linn Dean (NT4659) in 2008 (Davidson, 2008). Great care is now required when identifying any skipper butterflies seen in this part of the country.

Which will be the next new species to appear in Scotland? The white-letter hairstreak *Satyrrium w-album* is now found just south of the border in north east England and the gatekeeper, *Pyronia tithonus* occurs in the Lake District. We will have to wait and see.

The author would welcome any records of the above species (or any other Scottish butterflies).

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