The 'Northern Bullfinch' invasion of autumn 2004

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ABSTRACT A record invasion of 'Northern Bullfinches' *Pyrrhula pyrrhula pyrrhula* occurred in Britain in autumn 2004. It also affected many other parts of Europe with birds being recorded as far afield as Iceland, Ireland, Italy and Bulgaria. As well as in Britain and Ireland, record numbers were seen in parts of Scandinavia and several countries in central and eastern Europe. Field identification of 'Northern Bullfinches' is difficult, as there is no single diagnostic feature. However, trapped birds are easily separable using biometrics (particularly wing length). Many, but not all, birds in the 2004 influx were giving a distinctive call, which became known as the 'trumpet call'. This call is not diagnostic of Northern Bullfinch, as birds over most of the range of this subspecies give a call hardly distinguishable from that of 'British Bullfinch' *P. p. pileata*. Although the 'trumpet call' was unfamiliar to most observers and attracted much attention, it was soon established that birds giving such a call had been recorded in northern and western Europe before. Speculation on the birds' origin was widespread, and research so far has suggested that European Russia is the most likely source (a recording from the Komi Republic matches the 'trumpet' call), although others, possibly lingering from previous influxes, have been heard farther west in the breeding season.

In autumn 2004, large numbers of Bullfinches *Pyrrhula pyrrhula* began moving through northern Europe. Although the numbers were remarkable in themselves, it was the unusual and frequently given calls of these birds which aroused most interest. This call was soon dubbed the 'trumpet call' in many countries, and debates raged on message boards and mailing lists about its significance, and the origins of the birds themselves; some observers began to refer to them as 'Siberian' birds or suggested that they belonged to an 'eastern race'. It soon transpired that some of the claims being made were unfounded, but it also became clear that there were several intriguing aspects of the autumn movement, and that there are still many things to discover even about a common and familiar species such as the Bullfinch. It is worth remembering that, unlike the situation with other irruptive northern European species, the reasons for influxes of Bullfinches into western Europe are largely unknown (Clement *et al.* 1993; Cramp & Perrins 1994), although they are presumably related to failures of an important seed crop(s) used as a food source. Several correspondents suggested that Rowan *Sorbus aucuparia* berries were an important autumn food source in their area, so perhaps high population levels following a good breeding season in a poor Rowan-crop year may be the trigger for movements.

Information on the scale of the 2004 influx is presented here, showing it to be the largest on record in Britain and Ireland, as it was in several other parts of Europe. The identification of Bullfinch races is discussed, given the widespread debate on field characters, although the results are inconclusive. The debate on whether or not the 'trumpet' calls heard in 2004 were as unusual as was first suspected, and the presumed origins of these 'trumpet' callers are also discussed. Relevant background information is given to put the 2004 influx in context.

Another interesting aspect of this influx was the amount of information that was posted on websites within a day or two of the actual sightings. The public-access record system in Sweden (Artportalen) and BirdGuides in Britain provided much useful information, but several other sites were used. Appeals for information were also made in *British Birds* and on several internet mailing lists, the internal AERC (Association of European Rarities Committees) mailing list proving particularly useful. Other information came from contacts established during the research, an effort being made to check data with a local contact wherever possible. The extensive range of sources is indicated in the acknowledgments list.

Bullfinch distribution and taxonomy

Bullfinch is the only widespread species of the genus *Pyrrhula*, which includes five other, Asian species. Sometimes known as Eurasian or Common Bullfinch, it breeds principally in woodland in the boreal zone of the Palearctic, although it may be found farther south in Europe, where it breeds to sea level in scrub and

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Fig. 1. Breeding range of Bullfinch *Pyrrhula pyrrhula* based on Clement *et al.* (1993). The exact range of the easternmost races is particularly uncertain.

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1 & 2. 'Northern Bullfinches' *Pyrrhula p. pyrrhula*, Terschelling, Friesland, The Netherlands, December 2004. These birds, known to be 'trumpet-callers', were photographed during the autumn 2004 invasion; hopes that they might show distinctive plumage features as well as having the distinctive call have not been upheld by research to date.

woodland in temperate areas, as well as in mountains as far south as northern Iberia, Italy and the Balkans. There are also southerly populations in the Caucasus Mountains, southwest Asia and Japan.

Clement *et al.* (1993) recognised ten races (fig. 1), three of which are sometimes separated as distinct species: male 'Baikal' or 'Grey Bullfinch' *P. (p.) cineracea* has grey underparts and lacks pink on the cheeks; male 'Japanese Bullfinch' *P. (p.) griseiventris* (including '*rosacea*' and '*kurilensis*', usually considered synonymous with *griseiventris*) has pink cheeks, with the rest of the underparts grey or faintly tinged pink; while 'Azores Bullfinch' *P. (p.) murina* shows no sexual dimorphism, and both sexes have a buffish rump. The remaining six races are extremely similar and variation is slight, involving mainly size and subtle tones of plumage. The nominate race breeds over the great majority of the species' range but there are three other races in western Europe: *iberiae* in northern Iberia, *pileata* in Britain and Ireland and *europoea* in western continental Europe. Two other races, '*coccinea*' and '*germanica*' are usually subsumed within *europoea* and *pyrrhula* respectively, but they are indicative of the fact that there is no clear division between *europoea* and the nominate race. In southwest Asia, *rossikowi* (including '*paphlagoniae*') breeds in northern Turkey and the Caucasus and *caspica* is found in northern Iran. The only pink-breasted eastern race is *cassinii*, which breeds in far-eastern Siberia.

Hugh Harrop

3. Male 'Northern Bullfinch' *Pyrrhula p. pyrrhula*, Lerwick, Shetland, October 2004.

Movements of Bullfinches

Bullfinches may be found in breeding areas in western Europe throughout the year, but several races are migratory. In the eastern Palearctic, *cineracea*, *cassinii* and *griseiventris* are all migrants and, for example, *cassinii* has been recorded in Japan and Alaska, while *cineracea* has wandered as far as Korea (Clement *et al.* 1993). In western Europe, there are two fairly sedentary races: *iberiae* in northern Iberia is believed to undertake mainly altitudinal movements, and *pileata* in Britain and Ireland is thought to be highly sedentary as most British-ringed birds have been recovered within 20 km of where they were ringed (Summers 1979; Wernham *et al.* 2002). There have been some longer-distance recoveries of *pileata*, however, nearly all in the 1960s when the population level was high. These included five movements to or from the Continent, some of which could have involved the western European race *europoea* (which is not officially on the British List) and which is thought to be largely sedentary but may undertake movements of up to 500 km (Cramp & Perrins 1994).

The most migratory subspecies is the nominate, colloquially known as 'Northern Bullfinch' in Britain. The northernmost breeding areas of this race are abandoned in winter, when the range expands southwards, especially in central Asia. Northern Bullfinches are also eruptive and invasions are recorded regularly in Scandinavia, although whether these involve birds from within Fennoscandia or beyond is not always clear. Ringing data suggest that relatively few leave Fennoscandia and most long-distance movements established from ringing have been to/from central Europe (Cramp & Perrins 1994; Niklas Lindberg pers. comm.). There was only one ringing recovery linking Britain and Scandinavia prior to 2004: a bird ringed in Scotland in 1994 and recovered in Sweden in 1997 (Wernham *et al.* 2002). In Denmark, generally regarded as being on the boundary of the breeding range of Northern Bullfinch, sporadic irruptions occur fairly regularly, the most recent being in 1977, 1980, 1981, 1986, 1990, 1994 and 1996 (Lausten & Lyngs in Bønløkke-Pedersen *et al.* in prep.).

Irruptions of Northern Bullfinches have been recorded in western Europe since the nineteenth century: on Helgoland, Germany, from 1847 (Gätke 1895), in Orkney since 1809 (Booth *et al.* 1984) and Shetland since 1863 (Pennington *et al.* 2004). Although these early British irruptions were not confirmed as involving the nominate race, subsequent observations would suggest that this was highly likely. The first British specimens of Northern Bullfinch were obtained from Lothian in 1884 (Baxter & Rintoul 1953) and Yorkshire in 1894

(Saunders & Clarke 1927). In recent years, Northern Bullfinches have been recorded in Britain almost annually, but the great majority have been in Shetland or Orkney. In Shetland, for example, records have been annual since the 1960s with the largest influxes including a 'remarkable visitation' in 1910, 'flocks' in 1934, a large influx in 1968, and invasions of between 80 and 150 individuals in 1988, 1999 and 2001 (Pennington *et al.* 2004). The largest numbers recorded in Britain prior to 2004 were in 1994, when there were about 1,000 in Britain, almost half of which were in Shetland (Riddington & Ward 1998). It is interesting to note that the 1994 invasion was the only one to coincide with those recorded recently in Denmark (see above). However, in areas of Britain where the race *pileata* breeds, there is still considerable caution about identifying Northern Bullfinches, and several counties accept only biometric evidence. A bird trapped near Oxford in January 1964 is one of the few accepted records from inland England before the 2004 invasion (Newton 1972) and some recent assessments of its status have been extremely cautious (e.g. Wernham *et al.* 2002).

Occasionally, Bullfinches may be seen well outside their range and there are records from Iceland, Gibraltar, Morocco, Tunisia, Malta and Sicily (Clement *et al.* 1993). It might be assumed that these involve Northern Bullfinches, but Wardlaw-Ramsay (1923) referred the African records to the race *europoea*, while there were records of apparent *iberiae* on the move in 2004 (see below).

Identification of Northern Bullfinch

Northern Bullfinches may seem distinctively 'large and bright' when encountered on a remote offshore island, but it is not always easy to be confident about such subjective features. This has led to a whole suite of characters being suggested but, unfortunately, none seems to be diagnostic. The following section discusses identification in comparison with British *pileata*, but similar conclusions have been drawn in The Netherlands in comparison with *europoea* (Neijts 2005). As *europoea* is intermediate between nominate *pyrrhula* and *pileata*, it follows that separating *europoea* from British birds would be even more difficult.

Ageing and sexing

Once moulted out of juvenile plumage, all European races of Bullfinch can be sexed on breast colour. First-winters of all races closely resemble adults and can be aged only by retained juvenile feathers, usually the carpal covert and alula coverts, but occasionally by other feathers, including the greater coverts. These have ill-defined greyish-brown tips, compared with the greyish-white tips and outer edges of adult feathers (Svensson 1992). Retained juvenile greater coverts are relatively easy to see in the field but are not present on all first-winters.

Size

There is marked geographical variation in size in Bullfinches in Europe. For both sexes there is virtually no overlap in measurements between nominate *pyrrhula* and the smaller races, and

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4. Males of two 'Northern Bullfinches' *Pyrrhula p. pyrrhula* (top) and two British Bullfinches *P. p. pileata* (below). The larger size, 'cleaner' plumage and more extensive white areas on Northern Bullfinch are all good pointers, but these features (especially plumage characters) can be rather subjective when used in the field.

Martin Garner © NHM, Tring

5. Females of two British Bullfinches *Pyrrhula p. pileata* (top) and two 'Northern Bullfinches' *P. p. pyrrhula* (below). Size is the clearest differentiating feature, but although the northern birds are slightly greyer, the camera flash has probably made the colour differences less noticeable, a reminder of how light conditions can affect colour perception.

wing length is diagnostic (Cramp & Perrins 1994). On average, Northern Bullfinch is 25–40% heavier and about 10–12% longer in wing and tail compared with *pileata*. Northern Bullfinch is clearly a big bird and, while the difficulty of establishing this in the field should not be underestimated, size is often the first thing that strikes an observer; several of those who reported Northern Bullfinches in Britain in this influx compared their size with Hawfinch *Coccothraustes coccothraustes* or Waxwing *Bombycilla garrulus*! While these camparisons may be exaggerated, Northern Bullfinch does have 'presence'.

Bill size is often said to be distinctive, with the bigger bill of Northern Bullfinch 'set into' the head, rather than 'stuck on' as on British birds; furthermore, the bill is wide, covering two-thirds of the breadth of the head. These differences seem subtle, however, and measurements overlap (Cramp & Perrins 1994).

Colour of males

Geographical variation in colour is less obvious and subject to individual variation, while the vagaries of describing subtle differences in colour tone, the variation in light conditions, and the different methods of taking, processing and publishing photographs all add to the difficulties. Male Northern Bullfinches are typically described as being brighter, purer pink on the breast: a bright candy- or 'Andrex toilet roll'-pink. The mantle is a pure, slightly bluish grey, the boundary between the pink cheeks and grey mantle is sharply defined, and the pink cheeks may be more extensive (although this seems to vary according to posture). In 2004, some observers believed that at least some males were a slightly brighter, sharper red than those seen in previous irruptions but others trapped in Shetland had a more salmony-orange colour (caused by buffish edges to some breast feathers). In comparison, British birds are often slightly discoloured on the breast, with an orange tone to the pink, while the back is brownish-grey and the boundary between the grey back and pink cheek is frequently less well defined. None of these differences seem to be consistent, however, and British birds become brighter and cleaner in spring owing to wear. That Northern Bullfinches do have different coloration from *pileata* is confirmed by the experiences of two colour-blind observers (one of these being ERM), who stated that they were often unable to sex British Bullfinches, but who had no problems with sexing Northern Bullfinches in the 2004 invasion.

Colour of females

Female Northerns are much more distinctive in their coloration than males. Whereas British birds are rather grubby, muddy-brown above and tan-brown below, Northern females are more delicate shades of brownish-grey, often with a lavender wash to the underparts, but

Arnoud B. van den Berg

6. Male 'Northern Bullfinch' *Pyrrhula p. pyrrhula* (left) and male Central European Bullfinch *P. p. europoea* (right), The Netherlands, November 2004. This photograph emphasises the marked difference in size. The large white primary patch of Northern Bullfinch looks distinctive here but the feature is variable and white can be seen in the primaries of the other bird, even though it is in shadow. In Europe, *pyrrhula* and *europoea* grade into each other, although in the west they are closer in appearance to British birds.

with little contrast between the upperparts and underparts. On both races, the nape may be greyish, but this seems to be more distinct on Northern birds. Some female Northerns are almost ghostly grey and, while it has been suggested that this may be age-related, this seems unlikely given what is known about moult of other finches.

Extent of white vent and belly

Many observers comment on the extensive white belly of Northern Bullfinch, but comparing the extent of the white with the position of the legs does not seem to show any measurable difference between the races. The illusion is, perhaps, due to the large size of the bird, which means that the area of white is physically larger, or the fact that the white is slightly cleaner and so contrasts more noticeably with the rest of the plumage.

Extent of white rump

Northern Bullfinches are also said to have a larger white rump than British birds (e.g. Hayman & Hume 2002). Northern Bullfinches do have the habit of fluffing up their feathers at rest, which can make the white rump seem very extensive. In other postures, however, comparing the extent of white against the tertials does not produce any consistent difference.

White in primaries

There are obvious white edges to the primaries of Northern Bullfinches but, while it seems that this feature may be apparently absent on some individuals of the races *pileata* and *europoea*, others can show as much white as Northern Bullfinches, even as juveniles. Numbering primaries ascendantly (from the outside), the leading edge of P2 is white, although this is often hard to see as it is the outer edge of the wing (since P1 is vestigial). Examination of a small sample of Northern Bullfinches on Fair Isle, Shetland, showed that white or off-white was also present around the top of the emargination on at least P4–5, but also on P3 on most males and some females, and on P6 on some males (Deryk Shaw pers. comm.).

White in tail

Several observers noted that some Northern Bullfinches seen in 2004 had white areas in the tail. This added to speculation that they were from a 'different population', because Svensson (1992) referred to it as a feature of 'eastern races'. The white or pale area is usually an oval on the inner web of the outermost tail feather, occasionally on the outer web as well, and most obvious from below. In fact, it is already established that white in the tail is within the known variation of Northern Bullfinches; a study found that 18% of males and 26% of females in Sweden and Finland showed some white in the tail (Cramp & Perrins 1994). In another study, north of Lillehammer, central Norway, 17–20% of a sample of over 1,100 Bullfinches ringed between 1995 and 2003 had some white or pale brown in the tail, and this proportion did not

Deryk Shaw

7. Primary feathers of first-year female 'Northern Bullfinch' *Pyrrhula p. pyrrhula*, Fair Isle, Shetland, October 2004. Note the white leading edge to the outermost feather and the clear white extending to the sixth outermost primary (the first primary is minute and not visible in the photograph). Although often more distinct in Northern Bullfinch, this feature may be shown by all races, in Europe at least.

David Tipling, Windrush

8. 'Northern Bullfinch' *Pyrrhula p. pyrrhula*, Oulu, Finland, February 2004. Even some observers in Scandinavia were surprised to see white in the tail of some Bullfinches, but this is within the known variation of the species.

Micky Maher

9. Male 'Northern Bullfinch' *Pyrrhula p. pyrrhula*, Unst, Shetland, November 2004. Although Northern Bullfinches typically have a markedly broad white wing-bar, this individual demonstrates just how variable the feature can be.

vary according to age or sex, or from year to year (Dag Fjelstad pers. comm.). Examination of specimens in the NHM, Tring, showed that the feature was also present in British *pileata*, although in just two out of 30 specimens (Martin Garner pers. comm.).

Wing-bars

Northern Bullfinches usually have highly conspicuous white wing-bars on the tips of the greater coverts, up to 1 cm in width (Cramp & Perrins 1994). Although these are usually broader and whiter than on British birds, the colour and width of the greater-covert tips may vary individually (Svensson 1992). Some British Bullfinches may have very broad wing-bars and, conversely, Northern Bullfinches may have narrow wing-bars: one male on Unst, Shetland, in 2004 had wing-bars no more than 2 mm wide. Both races may also show a greyish wash to the wing-bar. Another feature that initially seemed useful in identifying Northern Bullfinches is the shape of the white on the greater-covert tips. Whereas most British Bullfinches show a more or less straight boundary between the (inner edge of the) white and the rest of the feather, on many Northern Bullfinches it is more 'U'-shaped, extending up the edges of the feather. This tends to give the upper edge of the wing-bar a 'saw-toothed' shape. An examination of specimens in the National Museums of Scotland found that this

Deryk Shaw

10. Female 'Northern Bullfinch' *Pyrrhula p. pyrrhula*, Fair Isle, Shetland, October 2004. As well as showing the typically clean, greyish tones of the female, this bird also demonstrates the 'fluffed-up' posture often adopted by Northern Bullfinch, which can make the white rump seem unusually extensive.

feature was reasonably consistent and the only specimen with this feature that was not labelled as nominate *pyrrhula* was a specimen of '*coccinea*', which is currently subsumed under *europoea*. In the NHM collection, however, many nominate *pyrrhula* did *not* show the saw-toothed shape; and this character was most marked in eastern Siberian specimens (Martin

Garner pers. comm.). An apparent British juvenile is depicted in Newton (1972) with a 'saw-tooth' wing-bar. Although this feature may deserve further investigation, the preliminary findings are not promising.

Behaviour

In mainland Britain, observers have often noted that Northern Bullfinches encountered at coastal stations are remarkably tame and approachable, unlike native birds, and were often observed feeding on berries, such as those of Rowan, whitebeam *Sorbus* or Elder *Sambucus nigra*, or on seeds of Sycamore *Acer pseudoplatanus* or birch *Betula*. These are typical food sources in Scandinavia, but unusual in Britain, where seeds of tall herbs are preferred in autumn (Newton 1972). The tameness may be due simply to being in a strange habitat. At Whitburn, Durham, for example, it was noted that Northern Bullfinches in 2004 were difficult to find in areas with plenty of cover (Brian Unwin pers. comm.), while the paucity of inland sightings, even in 2004, suggests that Northern Bullfinches are no tamer than British birds in woodland.

Calls

It is important to stress that the unfamiliar 'trumpet' call heard from many Northern Bullfinches in 2004 is not a definitive identification feature, and is not typical of all Northern Bullfinches. The typical call given by Scandinavian birds is similar to the soft, pure, whistled 'peeu' or 'phew' given by British birds; but slightly louder, more insistent, slightly deeper-pitched and more clipped (Catley 1994; Garner 2004), and usually transcribed as 'dyuh' (Jonsson 1992, 2004) or, by one British observer, as 'phoep' (Newsome 1995). Northern Bullfinches recorded in Britain in the past have usually given this call. To most ears the differences between these calls and those of British birds are extremely subtle and they are most likely to be noticed by observers familiar with calls of both races.

In describing the 'trumpet' call heard in 2004 as a 'toot' rather than a 'peeu', birders naturally sought for comparisons with other species, Trumpeter Finch *Bucanetes githagineus*, Two-barred Crossbill *Loxia leucoptera* and even Red-breasted Nuthatch *Sitta canadensis* being those usually mentioned. Comparisons were also made with man-made sounds such as a 'toy trumpet', a 'phone ringtone', a 'far-away train horn' or a 'rather electronic version of a car horn'. In The Netherlands, observers began referring to the two calls as 'flute' and 'trumpet'. The unfamiliar call was probably best described as a short and discordant 'toot', rather like the sound produced by a cheap, plastic toy harmonica, with a distinct timbre, variously

Richard Brooks/Windrush

11. Male British Bullfinch *Pyrrhula p. pileata*, Norfolk, December 1996. The slightly less 'pure' pink breast, fairly indistinct boundary between the pink and grey at the rear of the cheeks, small 'stuck-on' bill and straight upper edge to the greater-covert bar are the best pointers to the racial identity of this individual, but none of these features are diagnostic.

Alan Petty/Windrush

12. Female British Bullfinch *Pyrrhula p. pileata*, Kent, April. This individual shows characteristic contrast between the greyish-brown upperparts and pinkish-brown underparts, which can be even more obvious in some British individuals. Note, also, that this British bird does show an obvious white patch in the primaries.

described as 'nasal', 'reedy' or 'tinny', but the wide range of descriptions and comparisons used by observers only served to emphasise the variations in human perception. John Furse, a birder who is also a musician, described the call as being 'sadder' than the normal call, its unusual quality being due to the fact that 'it consists of two notes, roughly a major 3rd apart'. One Finnish recording was transcribed by John Furse as A flat/C while two Finnish, three Dutch and a British were A/C sharp. The discordancy audible to humans occurs because the notes are not exactly a third apart, with the lower note often slightly sharp, giving an interval which is not a true major third.

Northern Bullfinches in Shetland in 2004 were also heard giving two other calls. One was a continuous soft piping given by feeding flocks. When such a flock was disturbed and they gave flight, this call rose to a crescendo, when it sounded uncannily like the call of male Eurasian Teal *Anas crecca*! This call is so loud that it was suggested as diagnostic of Northern Bullfinch, but it is clearly a slightly louder and more insistent version of the 'bit' short call (no. 2 in the voice section in Cramp & Perrins 1994), which would seem to be part of the repertoire of all races. The other call heard in 2004 was a short, harsh 'kyaah' when reacting to other Bullfinches; this is one of the interactive and aggressive calls given in Cramp & Perrins (1994).

Summary of the 2004 influx in Europe

Fennoscandia and the Baltic States

The earliest signs of Bullfinches on the move were in mid September, when small numbers began to appear around the shores of the Gulf of Bothnia, in both Finland and Sweden. The first large movements were reported from the Finnish coast and, on 23rd September, there were already impressive numbers reported from sites south of Oulu, in northern Finland, with 2,840 passing Pyhajoki and 2,500 at Kalajoki (Jyrki Normaja pers. comm.).

In southwest Finland, record numbers began

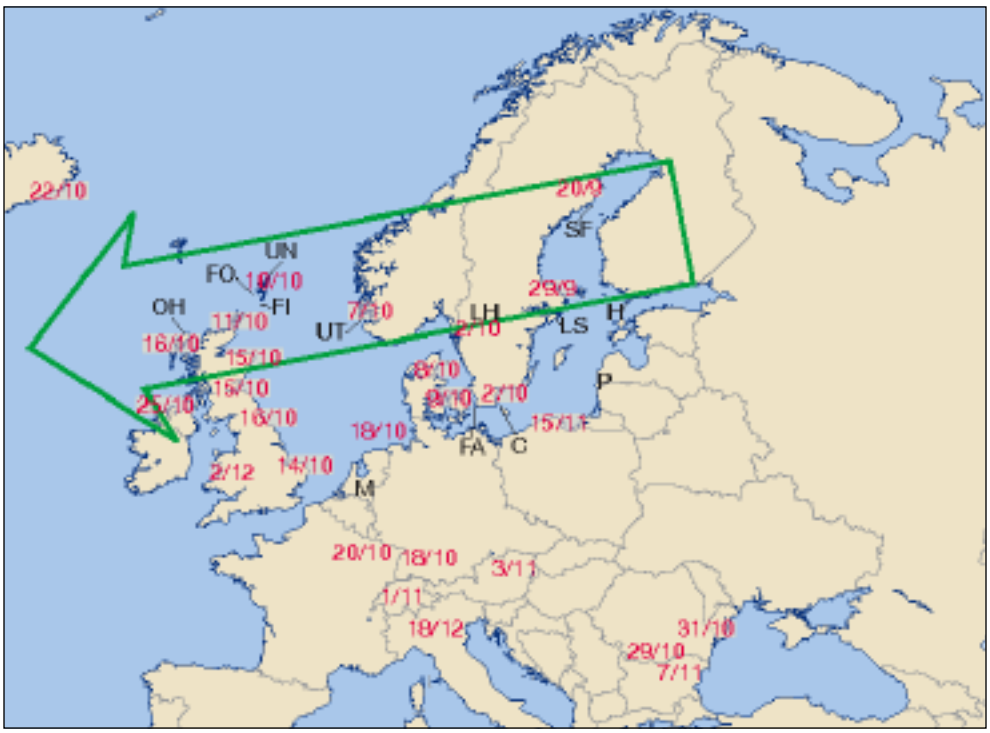

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Fig. 2. Map of Europe showing main sites mentioned in text. Red figures give dates of first sightings of Northern Bullfinches *Pyrrhula p. pyrrhula* at selected sites. The green arrow shows the direction of the initial movements in October, and most sites within this arrow recorded record totals. A later movement seems to have gone through southern Scandinavia and then south or even southeast. The main sites mentioned in the text and figs. 3–15 are marked; H = Hanko (Finland), SF = Stora Fjäderägg, LS = Landsort, LH = Ladholmen, FA = Falsterbo (all Sweden), C = Christiansø (Denmark), U = Utsira (Norway), P = Pape (Latvia), M = Mulderskop (The Netherlands), UN = Unst, FI = Fair Isle, FO = Foula (all Shetland), OH = Outer Hebrides.

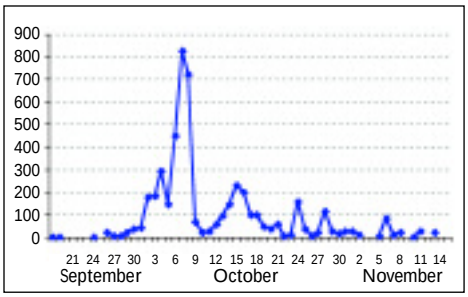

Fig. 3. Daily counts of Northern Bullfinches *Pyrrhula p. pyrrhula* at Hanko Bird Observatory, Finland, in autumn 2004. Data courtesy of Hanko Bird Observatory.

to arrive in late September and built up to a peak around about 7th–9th October. At Hanko Bird Observatory, situated on the peninsula which forms the southernmost part of Finland, peak passage was on 7th October when 827 birds were recorded (fig. 3). Several other migration watchpoints recorded between 400 and 1,200 birds per day and there was a record count of 2,250 birds at Uusikaupunki on 9th October, with a record inland total of 766 recorded at one site in just over three hours (Jyrki Normaja pers. comm.). In comparison, in previous years in southwest Finland, the highest daily counts have only rarely exceeded 300 and the previous one-day record was of 2,000 in 1995 (Lehikoinen *et al*. 2003). The migration in southwest Finland was much earlier than usual as, in most years, only a few stragglers have arrived at the bird observatories at Jurmo and Hanko by the end of September, and the main passage rarely starts before the second week of October.

In Sweden, the web-based record system (http://www.artportalen.se) showed that large numbers had already begun to reach the east coast by the end of September. At Stora Fjäderägg Bird Observatory, an island offshore from Umeå, in northern Sweden, the first birds had arrived by 20th September (fig. 4); 200 were seen and no fewer than 70 were ringed on 27th. Stora Fjäderägg was one of several northern and central Swedish sites which accumulated record totals during the autumn; the annual ringing total of 919 there was nine times the average since 1984 and compared with a previous record of 248 in 1993 (Niklas Lindberg pers. comm.). In late September, several observers on the east coast were reporting birds arriving from the east; 1,000 flew SW and 173 were ringed on the island of Svenska Högarna, just

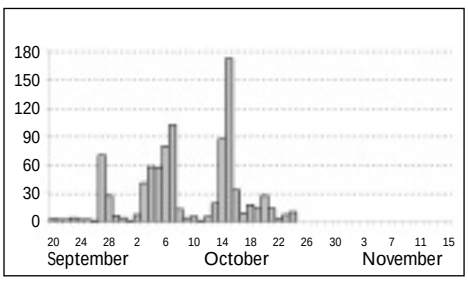

Fig. 4. Ringing totals of Northern Bullfinches *Pyrrhula p. pyrrhula* at Stora Fjäderägg Bird Observatory, Sweden, in autumn 2004. The site was unmanned from late October. Data courtesy of Stora Fjäderägg Bird Observatory.

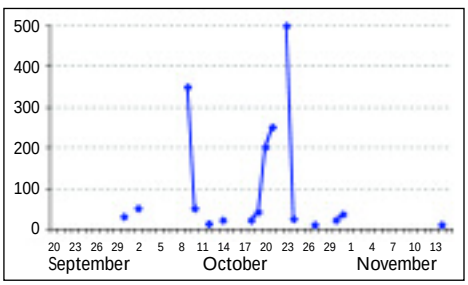

Fig. 5. Daily counts of Northern Bullfinches *Pyrrhula p. pyrrhula* at Landsort Bird Observatory, Sweden, in autumn 2004. The site was largely unmanned from late October. Data from http://www.artportalen.se

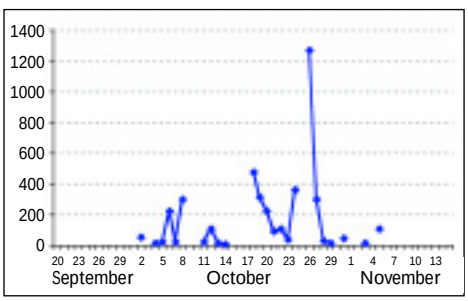

Fig. 6. Daily counts of Northern Bullfinches *Pyrrhula p. pyrrhula* at Ladholmen, Sweden, in autumn 2004. Data from http://www.artportalen.se

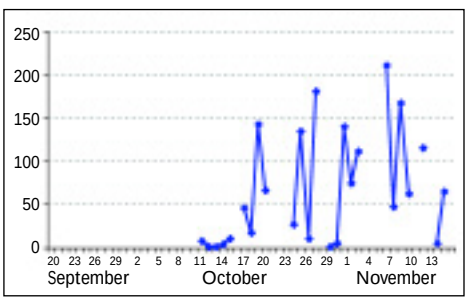

Fig. 7. Daily counts of Northern Bullfinches *Pyrrhula p. pyrrhula* at Falsterbo, Sweden, in autumn 2004. Data from http://www.artportalen.se

northeast of Stockholm, on 30th September.

Large numbers arrived in eastern Sweden in early October, at the same time as numbers peaked in southern Finland. Over 1,000, possibly as many as 2,000, passed SW over the tiny island of Bjorn, northeast of Uppsala, on 6th October (Ulrik Lotberg pers. comm.), on which date 500 were also recorded at Eggegrund Bird Observatory; 1,500 were counted over Norrköping, southwest of Stockholm, on 7th October, while data from Stora Fjäderägg and Landsort Bird Observatories show a clear peak between 7th and 9th (figs. 4 & 5). Birds moved inland quickly and there were 300 at Ladholmen, a peninsula on Lake Vänern in central Sweden, on 8th (fig. 6). This distinctly westerly movement, through central Sweden, was noted by several observers, who often remarked that birds were moving in a more westerly or southwesterly direction than usual.

Another wave moved through Sweden from mid October, as can be seen from figs. 4–7, although data from Hanko Observatory in Finland shows only a slight peak at this time (fig. 3). In eastern Sweden, there was another distinct peak at Stora Fjäderägg on 14th–15th, although the peak at Landsort was a week later and at inland sites, such at Ladholmen, the peak was a few days later again, with 1,300 counted there on 27th October.

In southern Sweden there was a different pattern of occurrence. Bullfinches in the vanguard arrived there in late September with strange-calling birds reported from the islands of Gotland and Öland by the end of the month, but the numbers reported subsequently, including those at Ottenby Bird Observatory, were unexceptional. In Skåne, the southernmost province of Sweden, there was an arrival from 9th October but, again, numbers were unexceptional and it was the calls that drew most attention. At Falsterbo, the first wave which moved through Sweden was barely registered, but there was a series of further waves from late October, with the highest numbers of the autumn not until early November; the final total for the autumn was below average, however (fig. 7).

At Christiansø Bird Observatory, on an island between Bornholm and southern Sweden (but actually part of Denmark), the pattern of occurrence was similar to that at Falsterbo, although the total there was the highest ever, beating the previous record, in 1994. Few were recorded before a large wave on 18th–19th October, with another large passage observed on 1st November, but the observatory was closed by the time the next wave passed through nearby Falsterbo (fig. 8).

Birds arrived in Norway in early October. They reached the island of Utsira, northwest of Stavanger, on 7th October and were seen in high numbers there from 10th. The largest wave passed through on 15th, when there were 500 on the island, while no less than 130 were ringed on 19th October alone. These large numbers soon moved on, however, and although there were a few small peaks before the end of the month, there was no obvious further immigration and the last was seen on 22nd November (fig. 9). Utsira Bird Observatory ringed a record total of 463 Bullfinches in 2004, compared with a previous best of just 24. In the rest of southern Norway, the pattern of occurrence was similar, with numbers peaking in mid October (almost 800 were reported at Jomfruland, in eastern Norway, on 18th October; Vegard Bunes pers. comm.), but numbers declined quickly and most had left by late November. The movement through Norway was restricted to the south of the country with,

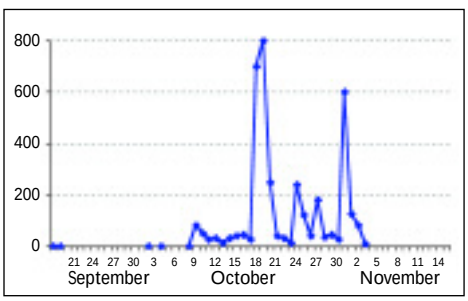

Fig. 8. Daily counts of Northern Bullfinches *Pyrrhula p. pyrrhula* at Christiansø Bird Observatory, Denmark, in autumn 2004. The site was unmanned from early November. Data from http://www.chnf.dk

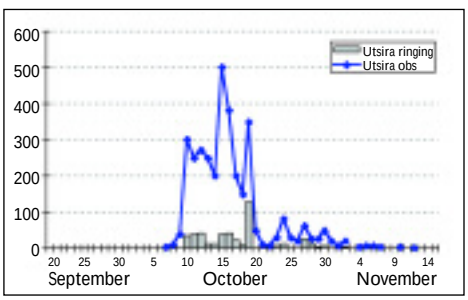

Fig. 9. Daily counts and ringing totals of Northern Bullfinches *Pyrrhula p. pyrrhula* at Utsira Bird Observatory, Norway, in autumn 2004. Data courtesy of Utsira Bird Observatory.

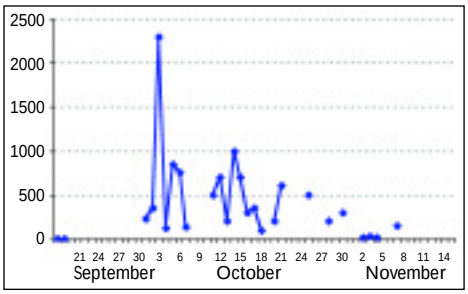

Fig. 10. Daily counts of 'Northern Bullfinches' *Pyrrhula p. pyrrhula* at Pape Bird Observatory, Latvia, in autumn 2004. Data courtesy of Pape Bird Observatory.

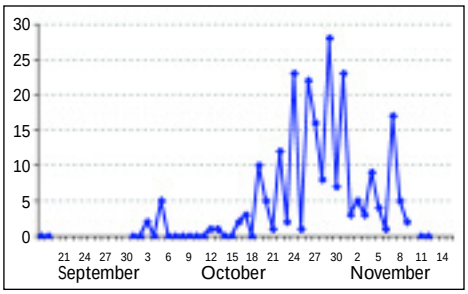

Fig. 11. Daily counts of Bullfinches *Pyrrhula pyrrhula* (all races) migrating over Mulderskop, The Netherlands, in autumn 2004. Data from www.trektellen.nl

for example, none recorded at Tromsø in the far north (Wim Vader pers. comm.).

The situation in the Baltic States is a little unclear. Several observers agreed that passage was earlier than normal, beginning in mid to late September whereas early October would be more normal, but numbers were not exceptional. For example, at Pape Bird Observatory in Latvia, although thousands moved through during the autumn, with a peak of 2,300 on 3rd October (fig. 10), these numbers were not exceptional; the total of just over 10,000 compares with totals of over 33,000 at the same site in 2000 and 43,000 in 1998 (Janis Baumanis pers. comm.).

In Iceland, the first Northern Bullfinches, which were giving 'trumpet' calls, were seen on 22nd October and a total of about 26 was recorded during the autumn, the second-largest influx on record but still much lower than the c. 100 recorded in the winter of 1994/95 (Yann Kolbeinsson pers. comm.).

In Fennoscandia, several sites reported that 'trumpeter' birds predominated in the first arrivals, but the proportion decreased as the autumn progressed, possibly because local populations from within Fennoscandia began moving as the autumn progressed. The pattern was complex, however, and at one site at Lake Vänern in central Sweden observers reported that only 50% of birds were 'trumpeters' in early October but that the proportion increased to 75% at the end of the month. Many 'trumpeter' birds remained in at least southern and central Sweden during the winter, leading to speculation that they might stay and breed, but they nearly all moved on in early spring. In one area northeast of Stockholm they were reported to have disappeared almost overnight on 4th April 2005 but a presumed family party was found in August (Hans-Georg Wallentinus pers. comm.).

Continental Europe

The first few Northern Bullfinches reached mainland Denmark on 8th October (although some were recorded earlier on islands, e.g. Christiansø as discussed above) and birds were widespread and common in Denmark for the rest of the month. In Poland, the first noticeable arrivals on the Baltic coast were not until 16th–18th October when about 25 were recorded at Jastarnia on the Hel peninsula, and a few others were recorded near the Belorussian border at about the same time, suggesting that they had arrived via the Baltic States. Some observers in Poland commented on the atypical calls (Tadeusz Stawarczyk pers. comm.).

None was recorded from Helgoland, Germany, until 18th October when there was an arrival of 37, but over the next three weeks migrating Bullfinches were widely recorded from coastal areas of the southern North Sea, from Denmark to Belgium. Several groups of up to 100 were recorded from coastal sites in Belgium and The Netherlands and many of these were 'trumpeters', although birds giving more normal calls were also heard (these possibly including birds of the local race *europoea*). There were also inland movements, as can be seen from the data from Mulderskop, a Dutch inland migration site near Nijmegen (fig. 11), where calls of both types, normal and trumpet, were heard from birds flying over. Although some birds were moving along the coast in Belgium, this westward movement largely ceased in France, where the first arrivals were in Alsace on 20th October and none was recorded farther west than Pas-de-Calais (Crouzier 2005).

In November and December, groups of 'trumpeter' Bullfinches began to be recorded widely inland in the Low Countries and eastern France. In Belgium, it was noted that larger numbers seemed to be in the east of the country (Xavier Vandevyvre pers. comm.). In France, all reports came from the east of the country, peaking in mid December (Crouzier 2005).

In southern Germany, birds had reached Stuttgart by 18th October and trumpet calls were heard during the last few days of the month as birds passed over Forschungsstation Randecker Maar, an observatory on the northern slopes of the Swabian Alp; others were seen at the Bodensee and at other localities on the Germany/Switzerland border in late October and the first few days of November; and a flock of at least 16 was at the Altmühlsee in Bayern on 24th November. The first 'trumpeters' reached Switzerland on 1st November and a survey by the Swiss Ornithological Institute collated more than 200 records, in groups of up to 20 or more, which peaked in December (Bernard Volet pers. comm.). Swiss records were concentrated north of the Alps and very few penetrated the Alps themselves, although some had reached the Vicenza area of northeast Italy by 18th December (Giancarlo Fracasso pers. comm.).

Farther east, flocks of Bullfinches with 'strange' calls were watched moving south over the River March in the easternmost part of Austria on 3rd November. Also in early November, observers in Hungary reported their biggest-ever irruption, with thousands of birds 'calling differently from the well-known call' being found not only in the mountains and hills but also in the Carpathian lowlands, for example in the Hortobágy. A big invasion was also noted in Slovakia. In Romania, the unusual calls first attracted attention as five or six flocks totalling 70 birds moved south over the Black Sea coast near Constanta on 31st October; 25 were also seen here the following day. Most other records were in Transylvania from late October, with ten at Odorheiu Secuiesc on 5th November, but two had already reached Dragasani, to the south of the Carpathians, by 29th October. Even farther south, in Bulgaria, a 'trumpeter' was seen on 7th November near the town of Shumen in the northeast, the first Bullfinch ever recorded in that area, while two were also seen near Nevsha, to the east, on 16th November and three were seen on 22nd, again at Shumen. The dates of these sightings suggest that many of the birds in central and eastern Europe were part of the final wave of immigrants which passed southwards through southern Scandinavia, as noted at Falsterbo (see above), and after the initial westerly movements earlier in the autumn.

Many 'trumpeter' Bullfinches remained in Continental Europe over the winter, although many of those in northern Germany and The Netherlands moved on once the weather became colder. Interestingly, peak numbers were recorded in both France and Switzerland, at the southwestern limits of the invasion, in December, but where they moved after this is unknown. Many areas reported Bullfinches lingering into March 2005, with, for example, the last in France on 29th March 2005 (Crouzier 2005), but a few others stayed much later. For example, one trumpet-caller was reported in Slovakia, at Prakovce, as late as 17th April 2005 (Phil Palmer pers. comm.).

Summary of the 2004 influx in Britain and Ireland

Records for this section were compiled from as many sources as possible. This may mean that some unauthenticated records are included, and also that some records may have been missed; however, we believe that the broad patterns of occurrence as described in the paper are accurate. It is also worth emphasising that although the first arrivals were nearly all trumpet-callers, not all Northern Bullfinches recorded in Britain gave these calls, although in Shetland it was about two weeks into the influx before any birds giving the normal call were heard.

Autumn (October–November)

The first Northern Bullfinch in Britain was seen on Shetland Mainland on 10th October, on the same day that Utsira received its first large influx. The pattern of occurrence in Shetland is shown quite well by the data from north Unst (fig. 12), with numbers building up from 15th October to a peak on 18th–20th before tailing off. There were at least 125 in north Unst on 20th October and similarly impressive numbers elsewhere in Shetland, including about 100 around Cunningsburgh, south Mainland, on 19th October. The Fair Isle data show a similar pattern, except that the first wave there was followed by another, even larger, wave during 25th–29th October, peaking at 140 on 27th (fig.

13). Although this arrival was noted elsewhere in Shetland (see fig. 12), the short day-length in late October contributed to more limited observer coverage during this midweek period, so counts were relatively low. One bird caught on Fair Isle on 18th October had been ringed at Stora Fjäderägg on 22nd September, one of the first wave of migrants recorded there and the first Swedish-ringed Bullfinch to be recovered in Britain. On Foula, there was a different pattern of observations, with only a small peak in mid month and the highest total being 70 on 24th, just ahead of the next arrival on Fair Isle (fig. 14). It seems likely that this peak marked an exodus of birds from the Shetland Mainland.

In Orkney, the first birds appeared on 11th October, when one was on North Ronaldsay and four were on Eday. A few more appeared on 15th–16th then, on 17th, a total of 43 was recorded, including 25 trapped on North Ronaldsay. Numbers remained high, with 170 bird-days recorded between 18th and 20th, and some suggestion of new influxes on 26th and 30th, tying in closely with observations in Shetland. Eight were present on North Ronaldsay on 3rd November, from which five new birds were trapped, but thereafter there was no arrival of more than one or two at that locality. Elsewhere in Orkney, however, and especially on the Mainland, numbers remained high, probably reflecting better feeding conditions here compared with Shetland or North Ronaldsay, and up to 22 per day were still being recorded throughout November.

Apart from the Northern Isles, the other area to receive large numbers of Northern Bullfinches was the Outer Hebrides. The first arrivals there were on 16th October, with at least 85 in flocks of up to 12-strong the following day, mainly on Lewis, the northernmost island. Good numbers were seen in the Outer Hebrides through October (fig. 15), but the birds gradually filtered southwards through the islands, and by 23rd October there were 35 on Barra, at the southern end of the archipelago. A few other birds also reached western Scotland, where there were records from Coll, Tiree and Islay (all Argyll) and on the Ardnamurchan peninsula, on the west coast of Highland, in late October and early November, with up to eight seen on Coll.

In the rest of Britain, there was an early arrival in Norfolk, on 14th October, then singles in Aberdeen and on the Isle of May, Fife, on 15th October, the same day as the main arrival in Shetland. These were followed by up to 20 at

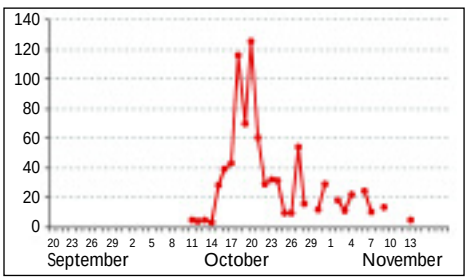

Fig. 12. Daily counts of Northern Bullfinches *Pyrrhula p. pyrrhula* in north Unst, Shetland, in autumn 2004. Data from Unst observers.

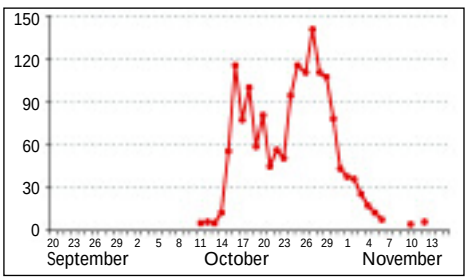

Fig. 13. Daily counts of Northern Bullfinches *Pyrrhula p. pyrrhula* on Fair Isle, Shetland, in autumn 2004. Data courtesy of Fair Isle Bird Observatory.

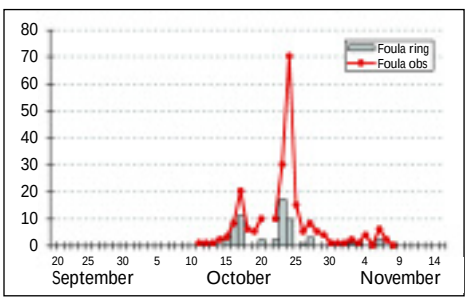

Fig. 14. Daily counts and ringing totals of Northern Bullfinches *Pyrrhula p. pyrrhula* on Foula, Shetland, in autumn 2004. Data courtesy of Tony Mainwood.

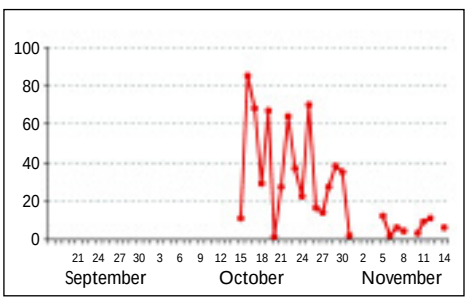

Fig. 15. Daily counts of Northern Bullfinches *Pyrrhula p. pyrrhula* in the Outer Hebrides in autumn 2004. Data courtesy of Andrew Stevenson.

Wick, Caithness, on 16th–18th, the first records in Northumberland and Co. Durham on 16th October and a wider arrival on 17th, which included 22 at Flamborough Head, Yorkshire, and birds as far south as Norfolk (although an unidentified migrant Bullfinch was also seen flying over the Isle of Grain, Kent). The largest numbers on the British mainland were recorded from northeast England, especially Northumberland where most records came from the Farne Islands and Holy Island, there being at least ten at the latter site on 21st October. Nearly all these initial records were on the coast.

In Ireland, the first record came from Tory Island, Co. Donegal, on 25th October, two days after the peak on Barra in the Outer Hebrides, and another 14 were recorded from islands or headlands in the northwest over the following two weeks, many of them being 'trumpeters'. Elsewhere, there were few, with three silent birds in Belfast on 26th October and two trumpeters at Tacumshin, Co. Wexford, on 31st. There has been just one previously accepted Northern Bullfinch from Ireland, a male trapped in Co. Galway in February 1964 (Hutchinson 1989).

Winter (December–February)

Autumn records came mainly from regions with no local-breeding Bullfinches, making their identification relatively straightforward, but many winter records came from inland areas. We are aware that some records included here have, unfortunately, not been submitted to local committees, while others will not be acceptable without biometric data, and that the identity of some individuals was disputed, but we have included all records as possible indicators of the extent of the influx.

There were actually few signs of arrivals after the middle of November. In the Scottish islands, only small numbers remained; in December, about 40 individuals were reported in Shetland, up to nine per day were seen in Orkney, and a few were seen in the Outer Hebrides, including up to 18 in Stornoway woods. In all three areas numbers gradually declined during the winter but a few successfully overwintered.

It would appear that fairly large numbers wintered in mainland Scotland, as suggested by the occasional and often fortuitous location of several flocks in both native woodland and plantations. Some of the largest groups reported included 20 at Kingussie and 15 at Balvraid (both Highland) in December; 12 at Montreath (Angus & Dundee) and 20 at Marybank (Highland) in January; and up to 25 at Aberlour (Moray & Nairn) in January and February. There were also 19 at Roseisle (Moray & Nairn) in November and 11 at Ordhill Forest (Highland) in March. These flocks were probably present throughout the winter period.

In England, there were three main areas where birds seemed to be wintering, with flocks of up to 12 reported at five sites in Cumbria, several flocks of up to 17 reported in the Home Counties (mainly Buckinghamshire and Essex), while in February up to 10 were reported from the Suffolk coastal heaths. Nevertheless, despite the distinctive calls, which surprised almost everyone who heard them and which might have been expected to draw attention, there were remarkably few inland records. There were, eventually, records from most of the counties on or east of a line from the Mersey to the Thames, most notably from Staffordshire where there were 14 records of up to three between late October and late March, many of these heard calling. It was noticeable that very few reached the west coast, with none at all in

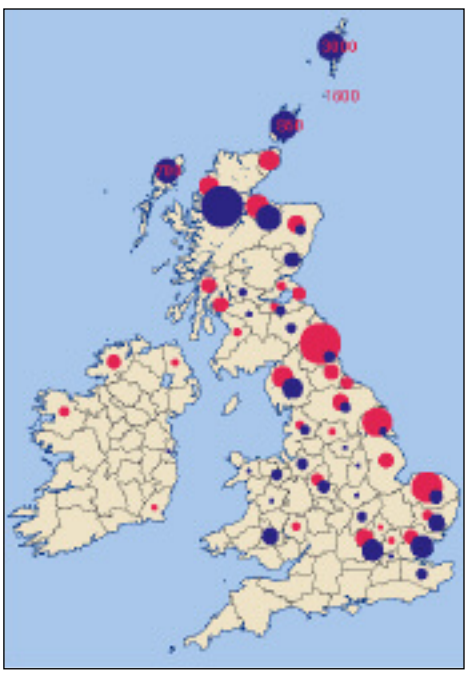

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Fig. 16. Distribution of Northern Bullfinches *Pyrrhula p. pyrrhula* reported in Britain and Ireland during October–November 2004 (red) and from December 2004 to February 2005 (blue). Figures are bird-day totals, circles show estimates of number of individuals.

Mike Pennington

13. Male 'Northern Bullfinch' *Pyrrhula p. pyrrhula*, Unst, Shetland, October 2004. The record influx brought spectacular numbers to Shetland in autumn 2004; this male was part of a flock of at least 70 feeding on a sacrificial oat crop.

southwest England. The most westerly British records came from Wales, where the first were two at Ruthin (Clwyd) on 2nd December and there were up to six at another site in Clwyd in late December, up to seven at three sites in Brecon in December and January, one on Bardsey (Caernarfonshire) on 19th December and one in Montgomeryshire in February. In Ireland, the only winter report was of one in Dublin on 4th December.

Spring (March–May)

Most wintering birds seemed to move on in March 2005, as they did in Continental Europe, and very few appeared on the coast as they left. In Shetland, for example, only about 15 individuals were seen between late March and early May. One unusually late record came from Bardsey on 14th May 2005.

Number of individuals involved

It is difficult to come up with a total of birds recorded in Britain in the 2004 irruption. Summing day-counts for the areas with most records gives bird-day totals of about 3,000 for Shetland, 1,600 for Fair Isle, 850 for Orkney and 700 for the Outer Hebrides. Clearly, some individuals will be included in these totals many times over as some flocks remained for several days, although ringing data from Fair Isle and Foula suggest that turnover was high, as there were just three individuals retrapped out of 240 birds ringed at these two sites. Many others will have gone unrecorded, however, as almost every householder in Shetland reported birds in their garden if questioned. Over 700 individuals were seen in the rest of Britain and, in most cases, the county totals broke existing records. If the bird-day totals are halved, which may well be conservative, then it would suggest that about 4,000 individuals arrived in autumn 2004, four times the size of the previous largest influx, in 1994 (Riddington & Ward 1998).

Age, sex and biometrics of birds in Britain

Age and biometric data were taken only from trapped birds, but sex was calculated from trapped birds and all specific sightings. The only large samples of trapped birds were from sites in Shetland, Orkney and the Outer Hebrides.

The majority of birds were aged as first-winters, but the overall proportion of 83% is heavily biased by the largest sample, from Fair Isle (table 1). It would appear that adults travelled farther, as the proportion of adults recorded increased farther west.

Females were more frequent than males with a very consistent proportion of 60% (table 2). There were few data from outside Shetland but, in Orkney and the Outer Hebrides, the overall sex ratio was closely similar to the overall figure from Shetland. Comparative data were available for Utsira. Most birds there were unaged but

Table 1. Ages of 'Northern Bullfinches' *Pyrrhula p. pyrrhula* trapped at four sites in Britain in 2004.

	n	unaged	first-winter	adult	% adult
Shetland	85	2	75	8	9.4
Fair Isle	177	5	145	27	15.3
Orkney	126	5	95	26	20.6
Outer Hebrides	39	0	29	10	25.6
Total	427				16.6

Table 2. Sexes of 'Northern Bullfinches' *Pyrrhula p. pyrrhula* sighted or trapped in three areas of Britain in 2004.

	n	male (%)	female (%)
Shetland	776	40	60
Orkney	241	44	56
Outer Hebrides	118	41	59

57% were sexed as females, a similar proportion to that found in Britain. Although some observers were of the opinion that females were more frequent earlier in the influx rather than later, this was not borne out by the data. In Shetland (including Fair Isle), where there were enough data to examine the variation in the sex ratio over three time periods (11th–20th October, 21st–31st October and 1st–10th November), the proportion of females declined only slightly, from 63% to 58%.

In 1994, the proportion of first-winters was lower, at 68% (Riddington & Ward 1998). Although the overall sex ratio in 1994 was similar, with 55% sexed as female, there was large variation among areas as females seemed to travel further. In 1994, almost 80% of those seen on mainland Shetland were males, with this proportion dropping to just 33% on the Orkney Mainland (Riddington & Ward 1998).

Biometric data collected in 2004 are consistent with published information for Northern Bullfinches from Fennoscandia and with the biometrics of birds in previous influxes in Britain (table 3), and refute suggestions that those birds in the 2004 arrival were larger than usual (and thus perhaps of different origin). In addition, data from Fair Isle and Foula were plotted against date, to see whether there was any variation in wing length and weight over time. There was no evidence of any variation in wing length at either site but weight increased slightly during the sample period, suggesting that later arrivals were in better condition than the earlier arrivals.

Movements of other races of Bullfinches in autumn 2004

Although we did not request data on other races, some interesting observations were received. In Britain, there were some early signs of Bullfinches on the move well ahead of the arrival of Northern Bullfinches, all presumably relating to the British race *pileata*. In the Outer Hebrides, a male was seen on South Uist on 15th September and there were three on North Uist on 9th October, a week ahead of the arrivals of the nominate race (Brian Rabbits pers. comm.); presumed *pileata* have occasionally strayed to the Outer Hebrides before. At Flamborough Head, up to three *pileata* were seen in October and there were peak counts of eight on 14th November and six on 20th. Birds

Table 3. Biometrics of 'Northern Bullfinches' *Pyrrhula p. pyrrhula* trapped at four sites in Britain in 2004. Although there are likely to be differences between first-winters and adults, these data are not separated in the table, partly because of the small sample of adults. Data for 1994 from Riddington & Ward (1998).

	wing (mm)				*weight (g)*			
	male		*female*		*male*		*female*	
	n	mean	n	mean	n	mean	n	mean
Foula	25	95.2	37	92.8	25	29.9	37	28.4
Fair Isle	64	94.8	97	92.7	51	30.5	84	30.1
Orkney	53	94.2	65	92.3	53	31.3	65	30.5
Outer Hebrides	9	94.4	30	92.6	9	28.8	26	29.0
Total	151	94.6	229	92.6	138	30.6	212	29.8
Orkney & Shetland 1994	61	94.9	76	92.4	61	29.7	76	28.9
Norway & Sweden (*BWP*)	21	93.8	13	91.8				
Fennoscandia (*BWP*)	36	92.5	14	90.5				
Norway (Nov–Mar) (*BWP*)					61	33.1	38	33.2

of the British race were also reported on the move at sites in coastal Suffolk in October and November (Colin Carter, James Cracknell pers. comm.). At Steps Hill, at the southern end of the Chilterns, in Buckinghamshire, regular observations of visible migration by Mike Wallen included 20 Bullfinches on 1st October and 15 on 9th October, while on the latter date one also flew west at Baitings Reservoir in West Yorkshire (Alastair Forsyth pers. comm.), still over a week before arrivals of Northern Bullfinches on the east coast; both these sites also recorded Northern Bullfinches later in the month. At Heysham, Lancashire, where regular visible migration observations over the last two decades have never recorded Bullfinches, one was seen on 18th October and four dropped out of the sky to spend a few minutes resting before continuing south on 20th October (Pete Marsh pers. comm.); these could have been Northern Bullfinches but they were ahead of the main wave. Two Bullfinches also appeared on Bardsey on 23rd October.

Observations from The Netherlands and Belgium suggest that small numbers of the Continental race *europoea* were also on the move ahead of the arrival of Northern Bullfinches in 2004, while birds giving the normal call, which presumably included *europoea*, were moving through along with the northern birds.

In Portugal, over 20 Bullfinches passed over Sagres in the southwest Algarve on 26th October, with reports of flocks near Lagos, Lisboa, on the same day, while two were at Cape Espichel on 8th November (Gonçalo Elias pers. comm.). The species is rather uncommon on the coast in Portugal and the dates were fairly early. Also on 8th November, eight were trapped at Gibraltar, where there are only six previous records (*Birding World* 17: 464). Descriptions and measurements suggest that they were of the race *iberiae*, as presumably were the Portuguese records.

Discussion

Perhaps the most fascinating aspect of the 2004 Northern Bullfinch irruption has been the debate engendered by their trumpet call, a call that many observers considered they had never heard before. Not only was it different from the calls of *europoea* and *pileata*, the races familiar to birders in western Europe, it was also unfamiliar to many birders in Fennoscandia and eastern Europe, where the nominate subspecies breeds. Here, respected observers such as Tommy Eriksson, Eric Hirschfeld and Dan Zetterström all commented on the peculiar call. Others, however, were of the opinion that birds with this call had occurred in previous years, especially during irruptions. Christian Cederroth noted that he had first heard it in Sweden

Richard Porter

14. Female 'Northern Bullfinch' *Pyrrhula p. pyrrhula*, Blakeney Point, Norfolk, October 2004. Female Northern Bullfinches are more distinctive than males in coloration, with hardly any contrast between the upperparts and underparts, although there is usually a greyer 'shawl'. This female Northern, seen on 17th October 2004, was the first record of Bullfinch, of any race, for Blakeney Point; it was joined by a second bird, a male the following day.

in the 1970s and in some years in the 1980s. Since moving to the Baltic island of Öland in 1994, he had heard it three times but not in the seven years prior to 2004. At Falsterbo, Matthias Ullman opined that trumpet calls were heard frequently, at least in invasion years. In Finland, Jyrki Normaja stated that 'trumpeting' Bullfinches are heard in most autumns, but never as frequently as in 2004. In the Baltic States, several observers were of the opinion that trumpet calls were not unusual, at least during invasions.

Arnoud van den Berg and Magnus Robb both commented that they had heard the call on previous occasions in The Netherlands, for example in 2001, when it was sound-recorded. In Britain, no observer in Orkney and Shetland had heard the trumpet call before, despite the fact that Northern Bullfinches are recorded annually in the Northern Isles and many observers have been resident for decades. Some other British observers claimed to have heard trumpet calls during influxes in 1988 and 1994. As Northern Bullfinches do have a slightly different call from British breeding birds, however, this may be what was being recorded as a different call; but, for example, when Graham Catley heard trumpet-callers in Scotland in early 2005, he was amazed by how different they sounded. Nonetheless, David Jardine, who heard trumpet calls in the winter of 2004/05, had heard the call occasionally in woodland in Scotland following previous influxes.

Some comments were made on the reactions of trumpeting Bullfinches to the calls or recordings of the local Bullfinches among which they found themselves. At the Randecker Maar bird migration station, southeast of Stuttgart, the resident *europoea* showed no reaction to the trumpeting calls (Michael Fischer pers. comm.) while, in Belgium, ringers found the visitors difficult to catch as they did not respond to tapes of the resident race. Ringers in The Netherlands disagreed, however, and caught trumpet birds using their normal tape lures.

Some observers considered that individual Bullfinches were able to make both 'normal' and 'trumpet' calls, but in most, if not all, cases observers could not prove that it was the same individual making both calls, merely that birds giving both calls were in the same flock. Given that the 'trumpet' call is clearly a variation of the main contact call, it is perhaps surprising that birds should give both calls; a study in eastern Germany showed that although contact calls varied slightly, individually the differences were believed to be consistent, probably to allow individual recognition (Schubert 1976). It has also been suggested that both calls are part of the song repertoire of some birds (Hans-Georg Wallentinus pers. comm.). Further investigations are required as, in 2004, several observers, in Germany in particular, were sure that some birds gave both calls, although this did not concur with observations in Orkney and Shetland, where no birds were ever confirmed to give both calls.

Theories abounded on the significance of the trumpet call and why some observers were familiar with the call while others were not. It has been suggested that the trumpet call is part of the normal repertoire of all Northern Bullfinches, but the evidence seems to suggest otherwise, especially as so many Scandinavian observers were unfamiliar with the call. Maarten Lantsheer from The Netherlands suggested that *pyrrhula* may not, in fact, be the dominant subspecies in southern Scandinavia where most birders in that region are based, and that the 'trumpet' call may well be characteristic of truly 'northern' Bullfinches and thus really not familiar to most Scandinavian observers. Biometric data do not support this theory as they uphold the existing boundary between Northern Bullfinches and the smaller races. Some observers have suggested that there might be a cline in the calls, with Finnish birds sounding unfamiliar to many British observers, although this does not really explain why Finnish observers were so unfamiliar with the 'trumpet' call. Arnoud van den Berg suggested that either trumpeters recorded in The Netherlands in the past had not passed through Scandinavia, or they had occurred regularly in Scandinavia in the past but the call had somehow gone unnoticed until 2004. It is clear, however, that observers, at least around the Baltic, had heard the call before, especially during invasions. Some observers in Sweden believed that the 'trumpet' call was a flight call given only on migration, as they heard it from flying birds during visible migration counts at coastal sites. Others suggested that the call had been widely confused with the calls of Two-barred Crossbill in the past. Observations in 2004 proved that the call is not merely a flight call, but is a contact call; however, 'trumpet' callers do appear to have moved quickly

through Scandinavia in many years, which might explain why so many observers were unfamiliar with the call.

There was also a lot of speculation that trumpet-callers might be of an 'eastern' race, although the only candidate is *cassinii*, which almost certainly breeds too far east. One suggestion discussed on the internet, and which even got into print in some countries, was that birds originated from the Caucasus and were of the race *rossikowi*. Apparently, recordings of this race, which we have not heard, sound very like the trumpet call. The likelihood of such huge numbers of any species moving from the Caucasus region to northern Europe is extremely remote and the recorded movements just do not fit the theory. The westerly vector in the initial movements is extremely clear. Record totals came from southwest Finland, central Sweden, southern Norway, Shetland, Orkney, the Outer Hebrides and Ireland but outside these areas, totals were usually either large but not record-breaking, as they were in Iceland, or below average, as they were in southern Sweden and the Baltic States. The exception to this rule was in the record totals from central and eastern Europe, which seem to have originated from a final wave which moved south through Scandinavia and not west, as already discussed.

A more likely origin of the trumpet-callers was in Russia or Siberia. Irruptive boreal species which occur in Britain often originate from farther east than many birders realise with, for example, invasions of Nutcrackers *Nucifraga caryocatactes* (of the race *macrorhynchos*), Two-barred Crossbill and Pine Grosbeak *Pinicola enucleator* all likely to have originated in Russia, while a Siberian element in some irruptions is suspected, but still largely unproven (*BWP*). The 2004 Bullfinch irruption occurred at the same time as an irruption of Pine Grosbeaks and a record influx of Waxwings *Bombycilla garrulus* into western Europe. It was speculated that these Waxwings had originated from farther east than usual and the potential for extreme movements in this species has already been established by the past (but presumably exceptional) recovery in Poland of a bird ringed 5,500 km to the east, in eastern Siberia (*BWP*).

Jari Peltomäki

15. Two male 'Northern Bullfinches' *Pyrrhula p. pyrrhula* in Finland, disputing the pecking order! Bullfinches are hardy birds which can overwinter in harsh conditions and it is not clear what triggers the species' periodic eruptions.

However, Siberian origin for the 'trumpet' Bullfinches began to look unlikely when reports came back from two Russian contacts. In the Omsk area of western Siberia, Sergei Soloviev reported that local Bullfinches of the nominate race give normal whistled calls. Recordings sent by Vadim Ivushkin from Irkutsk in eastern Siberia

showed that Bullfinches there, still part of the nominate race, had a loud, piercing version of the normal whistle, quite unlike the trumpet call. Reports from even farther east suggested that the races occurring in Korea and Japan, while differing in plumage, still gave calls which were similar to those given by birds in western Europe. This makes it even more unusual that there is apparently a population somewhere in the middle of this vast range which gives a quite different call.

Alternative origins for the trumpet Bullfinches were soon suggested, however, and they were closer to home than many had expected. Antero Lindholm was able to make the most significant contribution to this debate when he posted recordings of Bullfinches with trumpeting calls made during the breeding season in the Komi Republic in northeastern European Russia on the internet. Jari Peltomäki also reported having heard such calls, on the White Sea island of Sovoletsk in July 2004. This confirmed suspicions that the trumpeting birds had an eastern origin. Reports also came in of such calls being heard in summer in localities much farther west, for example at Utsjoki in Finnish Lapland in June 2002 (Mark Constantine pers. comm.), at Kuusamo, eastern Finland, in April 2002 and 2003 (Pete Marsh pers. comm.), 100 km north of Helsinki in June 2004 (James Lidster pers. comm.); however, the fact that Finnish birders have not reported 'trumpeters' in these areas is strange – perhaps there is a cline which makes the calls of Finnish birds sound unfamiliar to British ears? Most unusually, 'trumpet' calls were heard from a pair at the Altmühlsee, southern Germany, in June 2004 (Christoph Völlm pers. comm.).

The most parsimonious explanation of the whole phenomenon would appear to be that Northern Bullfinches from parts of their range to the east of Finland, but apparently not in Siberia, have a 'trumpet' call-type that they give commonly, mainly as a contact call, and that forms a large part of their repertoire. They also seem capable of giving the familiar 'peeu' call-type, although unequivocal confirmation of this is still required. The Komi Republic recordings supported this hypothetical origin, but the scatter of breeding-season records farther west in Finland, or even Germany, ensured that any explanation was not straightforward. These last records are few, however, and they presumably refer to birds that have originated farther east in a previous irruption and have simply stayed on to breed or spend the summer outside their normal range.

Ultimately, there are still many questions remaining about the 2004 influx. How could such a distinctive call be so unfamiliar to so many observers when it has clearly been heard and recorded in western Europe before? If these 'trumpeters' do pass through northern Europe in large numbers in many irruption years, as suggested by some observers around the Baltic, where do they all disappear to in winter? Is the call simply a local variation, part of the normal repertoire that can be given by some or all birds, a call that can be learned as suggested by Magnus Robb, or does it have any deeper implications in terms of incipient speciation, as in crossbills *Loxia*? If the call is a local variation, why is it apparently restricted to a small area in the middle of the range of the nominate race in European Russia? Only further study on the breeding grounds of these trumpet-callers and, perhaps, genetic analysis will begin to answer these questions. (A selection of sound files, including some of birds from the 2004 influx, are available at www.britishbirds.co.uk/sounds)

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