

BRITISH BIRDS

The spread of Cetti's Warbler in north-west Europe

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Seventy years ago Cetti's Warbler *Cettia cetti* was practically confined in Europe to the Mediterranean littoral, being found in France only in Provence and the department of Pyrénées Atlantiques (Yeatman 1971). It was considered to be essentially sedentary. A northward progression in western France began to make itself noticed during the 1920's: by 1924 the species had reached Anjou and by 1927 the Loire basin in southern Brittany (Douaud 1945). Similarly, in eastern France it appeared to be pushing farther and farther up the Rhône valley. This paper summarises its spectacular progress since that time and provides a background to the recent account by Hollyer (1975) of the small population which has established itself in Kent since 1971.

There has also been a noticeable expansion of range in south-east France and Switzerland, but we consider this beyond the scope of the present paper.

France and Channel Islands

Boutinot (1964) and Ferguson-Lees (1964) described the extension of the range in France from the 1930's up to about 1961. Boutinot quoted Mayaud (1929) to the effect that in the late 1920's Cetti's Warbler was widespread only south of a sinuous line extending from the department of Charente through Indre and Allier to Rhône and Ain. Mayaud had also stated that it appeared to nest in Vendée and Deux Sèvres and in the south of Loire-Inférieure (= Loire Atlantique) and Maine et Loire (see figs 1 and 2). It is clear that a rapid northward expansion was already taking place in the central

Loire basin: breeding was confirmed in Deux Sèvres in 1930, near Saumur (Maine et Loire) in 1932, in Vienne and Indre et Loire in 1934, in central Loire Atlantique and in Loir et Cher by 1936, near Meung-sur-Loire (Loiret) in 1937, and at two other localities in this area in 1939. In September 1932 a Cetti's Warbler was found at Chartrette, near Fontainebleau (Seine et Marne), the first evidence of its penetration of the Seine valley, a not inconsiderable milestone in the advance; breeding was eventually proved in this area in 1946 and clearly a flourishing population had become established (Blot 1952). During the 1940's and early 1950's there were apparently few significant extensions of range, and thus by

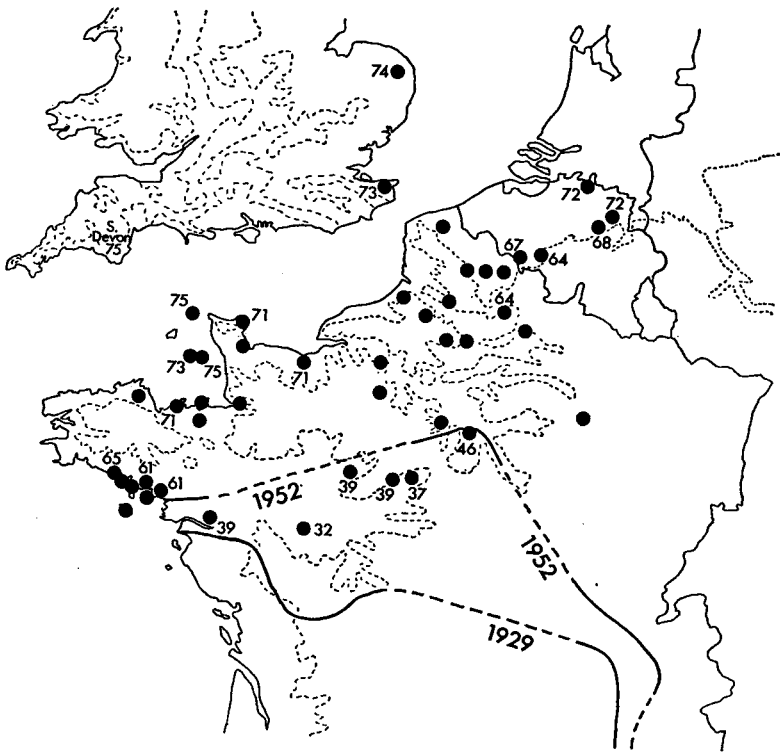


Fig. 1. Proved breeding areas of Cetti's Warbler *Cettia cetti* known to the authors in north-west Europe up to 1972 (north France), 1973 (Belgium) and 1975 (Channel Islands and Britain), with years when breeding was first proved. Undated dots are from work for the French *Atlas Ornithologique* in 1970-73. The heavy lines show roughly the northernmost limits of the breeding range in 1929 and 1952 (hypothetical where broken); the light broken line is an indication of the 100-metre contour. One dot may cover several localities in the immediate area

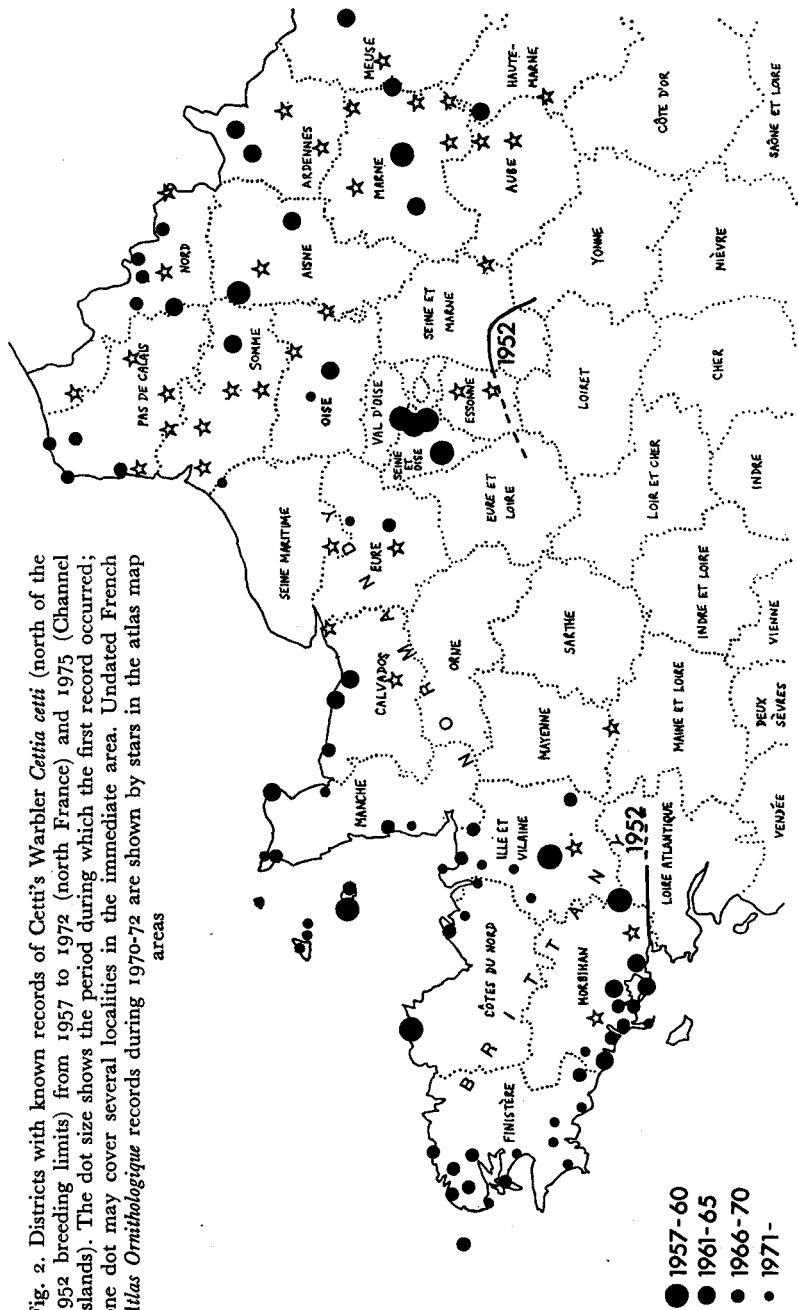
1952 the northern limits were still in Loire Atlantique, Seine et Marne and Saône et Loire (fig. 1) (Mayaud 1953).

Following this temporary hiatus, the spread began to accelerate once more, having now split into two distinct arms. In the west the species continued to advance slowly north through the low-lying, marshy plain of the Loire: not surprisingly, Ille et Vilaine was being colonised by 1957-58 and Morbihan by 1961. The north coast had been reached by spring 1960 when birds were found possibly breeding at Penvénan (Côtes du Nord); this dynamic phase was also vividly marked by the first records for the Channel Islands (Jersey) in autumn 1960 and for England (Hampshire) in spring 1961 (see below). In the east the Seine valley above Paris became the nucleus, and during 1959-63 Cetti's Warblers dispersed north-west into Seine et Oise; north into Oise, Somme and Aisne, perhaps reaching the Douai region in the south of Nord/Pas de Calais (Kérautret 1969); north-east into Ardennes, Marne and Meuse; and even east into Haute-Marne (fig. 2). As in the west, there were also more distant records, from Belgium and (most surprising of all) from Germany; details are given below under the respective country headings.

This, then, was the situation summarised by Boutinot (1964) and Ferguson-Lees (1964). Since that time Cetti's Warbler has spread into practically all the low-lying parts of northern and western France. The expansion along the south coast of Brittany has been slow, though a substantial population has built up in Morbihan. Farther west, in Finistère, there have been many records of migrants and probable breeders, including one on the islet of Keller, north of Ushant, on 26th July 1968 and one trapped on Ushant on 28th October 1969, though breeding had not been proved up to at least 1974. Côtes du Nord and Ille et Vilaine both hold established breeding populations. To give some idea of abundance, Brien (1973) estimated that in 1971 there were 2,500-10,000 breeding pairs in the whole of Brittany (Loire Atlantique and the four departments already mentioned); while Guermeur *et al.* (1975) received no fewer than 96 records of the species in Brittany between 16th March and 15th July 1973 (42 of them from new localities), compared with, for example, 18 of Savi's Warbler *Locustella luscinioides*, 44 of Melodious *Hippolais polyglotta*, 58 of Dartford *Sylvia undata* and 54 of Fan-tailed *Cisticola juncidis*. Monnat (1971) provided a full summary of the expansion in Brittany up to that time, and discussed possible factors affecting the spread.

Normandy (Manche and Orne to Seine Maritime) consists very largely of high ground, which tends to be avoided by Cetti's Warblers in western Europe; also many suitable localities have not been covered, owing to a lack of observers in this region. The first

Fig. 2. Districts with known records of Cetti's Warbler *Cettia cetti* (north of the 1952 breeding limits) from 1957 to 1972 (north France) and 1975 (Channel Islands). The dot size shows the period during which the first record occurred; one dot may cover several localities in the immediate area. Undated French *Atlas Ornithologique* records during 1970-72 are shown by stars in the atlas map areas

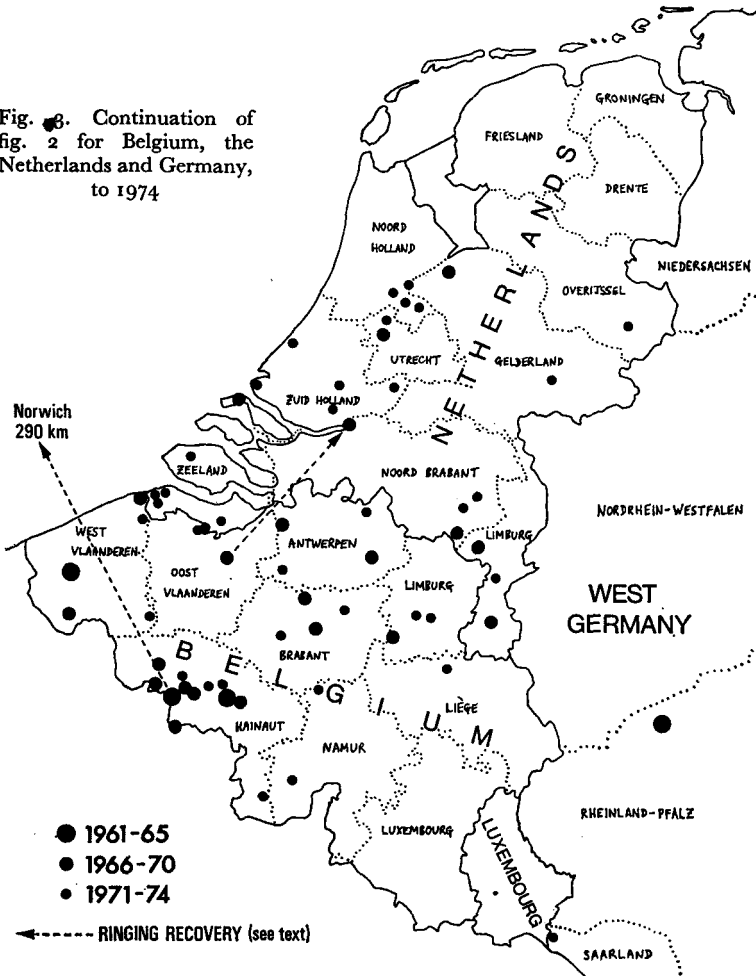


records were not until 1965 when song was heard at Ver (Calvados) in March and near Barfleur (Manche) in May and two were trapped near the River Orne at Amfréville (Calvados) in September. There were no more until 1968 when a further three birds were found in coastal localities in the spring. No marked increase was noted until autumn 1971 when no fewer than twelve were trapped at the feed-beds at Amfréville between 25th September and 13th November; 27 were ringed in Normandy that year, compared with eleven during 1965-70. The following autumn 20 were ringed in the Orne reed-beds. Breeding has been proved in these low-lying coastal parts of Manche and Calvados, and also inland in the lower Seine valley in Eure (where the species was first found in 1969 near Evreux).

Farther east in France there has been much expansion and consolidation, especially in the numerous valleys north and east of Paris (the Marne, Aisne, Oise and Somme), and it is very probably these birds that have colonised Belgium and the Netherlands during the last ten years. A strong NNE dispersion in the early 1960's led in 1964 to the establishment of breeding in the north-west of Aisne and over the Belgian border in Hainaut, and by then the species had become common in the Sensée marshes south of Douai. There were non-breeding records from four places in the north of Pas de Calais (including Cap Gris Nez and Calais itself) during 1966-68, and from four in Nord in 1967. The species is now widespread in both departments (see the POSTSCRIPT on page 405).

In Jersey regular observations have been made for many years at the bird observatory in St Ouen's Bay and more recently at Grouville Marsh in the east of the island (Société Jersiaise 1961-75). The first record of Cetti's Warbler dates from 16th October 1960 when one was trapped at the bird observatory. There were four more records there during 1961-67 before the first birds were found at Grouville in 1968; since then occurrences have been annual and 34 full-grown birds had been ringed in the Channel Islands up to the end of 1974, mostly juveniles in autumn. Breeding was not proved until 1973 when a pair reared three young near St Ouen's Pond; this pair nested again in 1974 at the same site. A number of birds have been retrapped where ringed: the most interesting sequence involved a first-year female ringed at Grouville on 8th November 1970 and retrapped on 22nd November and 13th December that year; it was not seen again until it was twice more retrapped where ringed on 7th and 28th November 1971. On Sark, a Cetti's Warbler was ringed on 21st September 1971 and another on 2nd May 1972 (Rountree 1974); there have been several subsequent records on the island. The monthly distribution of the full-grown birds ringed in Jersey and Sark is given in table 2, and some 1975 developments are summarised on page 406.

Fig. 3. Continuation of fig. 2 for Belgium, the Netherlands and Germany, to 1974



Belgium

The first record of Cetti's Warbler in Belgium was of one at St-Denis (Hainaut) on 8th May 1962, during a dynamic phase of expansion in central northern France. This was soon followed by the first proved breeding at St-Denis in 1964, when five young hatched, though none survived. In 1965 there were records of single birds from two new localities, Harchies (also Hainaut) in May and Woumen (West Vlaanderen) in November. In 1966 two juveniles

were trapped, in July and September, at Brasschaat, Ekeren (Antwerpen), a mere 10 km from the Dutch border, a considerable advance. Breeding was proved in 1967 at Harchies-Hensies, where the species was increasing fast, and in 1968 at a new locality, St-Trond (Limburg). The latter year, too, saw the first record from the Belgian coast—one trapped at Zwin in May—and the first Dutch record (see below). Since then Cetti's Warbler has been found in at least 28 other localities (fig. 3) and proved to breed in at least two of these—Ravels (Antwerpen) and Genk (Limburg) (fig. 1). By the end of 1973 no fewer than 104 had been ringed at Harchies, and a survey there in spring 1974 revealed 38 singing males (Société d'Études Ornithologiques Aves 1975). The Norwich ringing recovery (see below) was of a bird ringed at Harchies in 1970; and a juvenile ringed at Lokeren (Oost Vlaanderen) on 16th July 1973 was recovered 90 km north-east in the Biesbosch polders (Noord Brabant), Netherlands, on 28th October of the same year (Tekke 1974, 1975).

Netherlands

The Dutch spread, summarised by Tekke (1974, 1975 and *in litt.*), has been simply a continuation of the Belgian. The first record was on 6th October 1968 at Budel (Noord Brabant), very near the Belgian border, and up to the end of 1974 the species had been found at 27 other places (fig. 3). Breeding has not been proved, though it is surely only a matter of time before a breeding population is established. The monthly pattern of the records is given in table 2. A ringing recovery has already been mentioned under Belgium.

West Germany

The first record is of a singing male near Bad Kripp, Ahrweiler (Rheinland-Pfalz), from 30th April to 14th May 1961, trapped on 1st May (Kräuter 1962). This quite remarkable record (which predates any in Belgium) occurred during the pronounced north to north-east expansion from the Seine basin described above, but if the bird had flown straight from or via the Aisne-Ardenne region of France it must have crossed a plateau well over 500 metres high. Next, less unexpected, was a bird near Nennig (Saarland) from 24th March to 4th April 1971 (Heyne 1973), and that was all until the events of May 1975 described in the POSTSCRIPT.

England, Wales and Ireland

Until 1961 there was no acceptable record of Cetti's Warbler in Britain and Ireland. The species featured in *The Handbook* (2: 27-29) only as a result of three records among the Hastings Rarities

which were later rejected (Nicholson and Ferguson-Lees 1962). The first two English records were of a singing male at Titchfield Haven (Hampshire) from 4th March to at least 8th April 1961 (trapped on 19th March), and of one trapped near Eastbourne (East Sussex) on 9th October 1962 (Suffern and Ferguson-Lees 1964, Harber 1964). In retrospect these two records, though surprising at the time, may be seen merely as further extensions of the marked northerly advance occurring in France at this period.

Table 1. Annual totals of Cetti's Warblers *Cettia cetti* in Britain and Ireland, 1961-74, including fledged nestlings

The figures here do not allow for possible duplication of records from place to place, so that three birds at one site in spring, two of which move to another locality in autumn, are counted as five; nothing is known about movements within Britain. The table does, however, reflect the very rapid increase since 1971

	61	62	63	64	65	66	67	68	69	70	71	72	73	74
Kent	—	—	—	—	—	—	—	1	—	—	3-4	10+	18+	24+
Elsewhere	1	1	—	—	—	—	1	3	—	—	2	6	12+	24+
TOTALS	1	1	—	—	—	—	1	4	—	—	5-6	16+	30+	48+

There were no more until 1967, when a Cetti's Warbler was found to be resident at an undisclosed locality in southern England during the summer. Next year single birds were trapped in Kent, East Sussex and Somerset, and one was identified on Cape Clear Island (Co. Cork) on 24th August, still the only Irish record and perhaps the most extraordinary of all, being some 600 km north-west of the nearest known breeding site. (Interestingly, this Irish bird turned up only four weeks after the discovery of the Cetti's Warbler on Keller, Ushant, already mentioned; Keller is on exactly the same line from the Morbihan coast.) Another gap followed, and then in 1971 began the present phase of vigorous expansion in Britain, with a singing male at Minsmere (Suffolk) from March to June and birds overwintering into 1972 at Stodmarsh in the Stour valley east of Canterbury (Kent) and well inland at Thatcham Marsh, Newbury (Berkshire). In 1972 there was strong (though not conclusive) evidence of breeding by single pairs at two sites in the Stodmarsh area, and a male was singing in April and May in a gravel pit area near Chilham, west of Canterbury; at a third Kentish site, near Deal, one was singing in late May and among autumn records two were trapped on 19th November. New localities with records of single birds in autumn 1972 were Radipole Lake (Dorset), Farling-

ton Marshes and Timsbury (Hampshire) and Hornsea (Humber-side), the last being the most northerly point yet reached in Europe.

In 1973 came the first (and so far only) indisputable evidence of the origin of British immigrants, when a bird was found dead in Norwich (Norfolk) on 28th June wearing a Belgian ring, having been ringed as a juvenile at Harchies-Hensies on 23rd August 1970. At two sites in the eastern part of the Stour valley, up to twelve birds were counted, including three fledged juveniles (from one pair), and it was clear that this area of flooded reed-marsh in an old coalmining subsidence was becoming another focus comparable with Harchies-Hensies in Belgium. West of Canterbury four were singing at two sites, and there were singles at two places near Deal and at one near Maidstone. As well as the Norfolk bird, there were two other distant occurrences—a singing male at Par (Cornwall) in spring and one on Bardsey (Gwynedd) in late October—and it seemed that Minsmere was harbouring a small resident population, though there was no evidence of breeding. There was a further major advance in 1974, when four singing males were found in spring at three sites in the Yare valley (Norfolk) and four young were raised at one. In Kent there were over 20 birds at six sites in the Stour valley, including three or more breeding pairs, and one singing near Ashford; the two sites near Deal occupied in 1973 had apparently been deserted. Elsewhere a total of 15 birds

Table 2. Numbers of full-grown Cetti's Warblers *Cettia cetti* newly discovered each month in Britain and Ireland, the Channel Islands and the Netherlands, 1960-74, excluding those in the Stour valley, Kent, during 1972-74

The same comments regarding duplication apply as for table 1. The Channel Islands figures cover only birds ringed

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Britain and Ireland	—	2	5	3	4	1	1	1	6	15	6	1
Channel Islands	3	—	1	4	1	—	—	2	4	6	5	8
Netherlands	—	—	5	5	7	2	—	2	4	14	—	1
TOTALS	3	2	11	12	12	3	1	5	14	35	11	10

were found at eleven localities, in Cornwall, Devon (three), Dorset, Hampshire, East Sussex (two), Suffolk (two) and Norfolk. Table 1 shows the annual totals in Britain and Ireland during 1961-74, table 2 the monthly distribution, and table 3 the totals of singing males holding breeding season territories in Kent since 1972. Fig. 4 plots the British and Irish records, from the annual reports of the Rarities Committee and (for Kent) from Hollyer (1975) and P. J. Grant (*in litt.*); see the POSTSCRIPT for important 1975 data.

Table 3. Singing male Cetti's Warblers *Cettia cetti* holding breeding season territories in Kent during 1972-75

	1972	1973	1974	1975
Stour valley east (Canterbury to Grove Ferry)	3	8	13-15	47-49
Stour valley west (Chilham to Chartham)	1	4	1	9
Between Deal and Eastry	1	1	—	—
Near Maidstone	—	1	—	—
Near Ashford	—	—	1	—
TOTALS	5	14	15-17	56-58

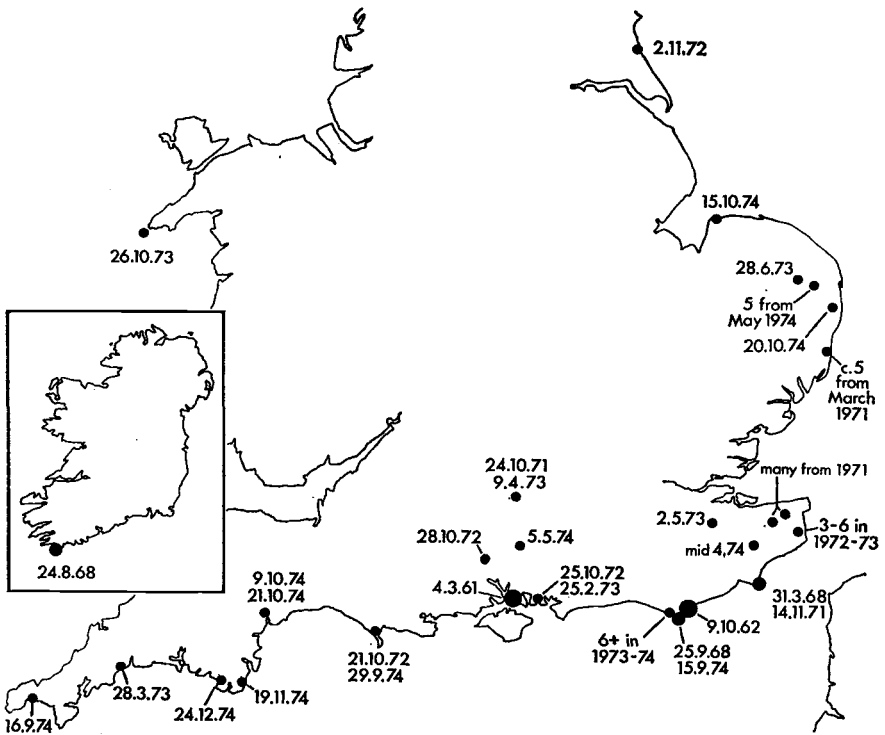


Fig. 4. Continuation of fig. 2 for Britain and Ireland, to 1974. There are also records from 'southern England' in 1967 and from Somerset in 1968 for which the localities have not been published

DISCUSSION

Unless obviously linked with external factors, such as climate or habitat, range expansions and contractions of essentially non-migratory species are still a mystery. Genetic changes have been suggested to account for the spread of the Collared Dove *Streptopelia decaocto* (Mayr 1952) and Serin *Serinus serinus* (Olsson 1971), but we remain ignorant of their nature. It is possible, however, to draw conclusions and to speculate about the mechanism of the spread.

The Collared Dove and Serin have already been mentioned as examples of colonising species; two others are the Fan-tailed Warbler *Cisticola juncidis* (Sharrock 1972) and Penduline Tit *Remiz pendulinus* (Tricot 1967, I. J. Ferguson-Lees in Raines and Bell 1967). The main directions of colonisation in recent decades have been north to NNE for Cetti's Warbler, north-west for the Collared Dove, NNE to north-east for the Serin, and west or even WSW for the Penduline Tit; that for the Fan-tailed Warbler is difficult to judge, since the range is so broken. The nearest parallel with Cetti's Warbler seems to be the Serin, though of course the Serin's range in Europe is vastly wider. In both cases movement is mainly in early spring and autumn. Table 2 shows that 70% of all new records of Cetti's Warblers in Britain and Ireland, the Channel Islands and the Netherlands have been in September-October and March-May, in each case followed by a fall-off. Cetti's Warbler is a skulking species often discovered by its song, which is uttered throughout the year but most often from February to June and in September and October (Ferguson-Lees 1970, Hollyer 1975). This may suggest that these peaks are apparent rather than real, but this is refuted by evidence from regular ringing stations where song is not normally a factor in discovery: a glance at the monthly pattern of ringing dates in the Channel Islands (table 2) shows this, and it is confirmed by evidence from several ringing stations in Britain and on the Continent. Similarly, 62% of all Serin records in Britain and Ireland up to 1970 were during April-May and October-November, in each case followed by a rapid decrease (fig. 3 in Olsson 1971), though in this case there were a few more spring records than autumn ones. The autumn movements thus occur on average roughly a month later than those of Cetti's Warbler, and one may speculate whether this is because Cetti's fledge up to early July (Ferguson-Lees 1970) whereas young Serins do so up to early August (Olsson 1971).

Although we are aware of when Cetti's Warblers move, it is still hard to define the nature of the movements. The only ringing recoveries we have traced are the two already quoted in Norfolk and Noord Brabant (Netherlands). The first was after an interval of three years and is inconclusive, the second was a straightforward

case of post-juvenile dispersal north-east. This probably accounts for a great part of the spread of Cetti's Warbler, though the evidence is incomplete and deserves further study. It is logical to conclude from the records that many juveniles (and some adults?) disperse in the autumn in a basically northerly direction and seek out lowland riverain habitats where they may or may not succeed in overwintering. Some, at least, do not return to their natal area, but there appear to be definite spring movements which may involve first-year birds or adults, or both. These are on a far smaller scale than the autumn dispersal; unfortunately, our knowledge of them is obscured by the likelihood of first-year birds overwintering in new sites undetected. The net result is that new concentrations build up in the most favourable habitats during periods of mild winters and, in time, breeding colonies evolve in these places. Dispersal thence

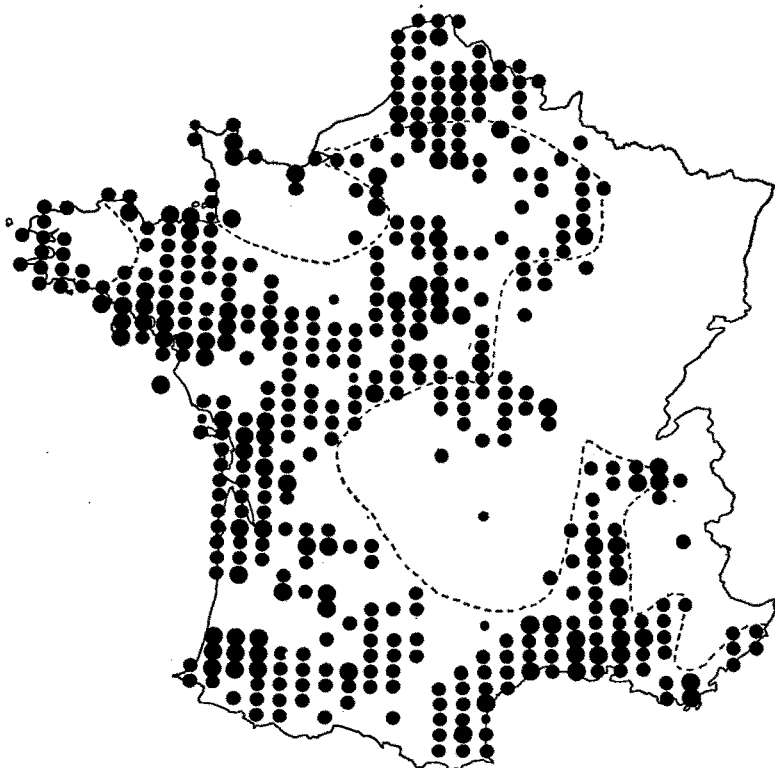


Fig. 5. Distribution of Cetti's Warbler *Cettia cetti* in the breeding season in France during 1970-74, from the *Atlas Ornithologique*. The largest dot shows proved breeding, the next size probable and the smallest possible. The broken line shows what was considered to be the probable limit of the breeding range in 1962

takes birds yet farther and so the progression continues in a series of waves.

Monnat (1971) and others have discussed the effect of hard winters, such as those of 1939/40, 1946/47 and 1962/63. These seem to have merely held up the advance for a few years by causing heavy mortality among the pioneers (see, e.g., L. Loarer in Lucas 1963, Thiollay 1963) while having less effect on established breeding populations (Yeatman 1971). Certainly the most rapid advances have occurred after a run of mild winters, such as during the 1930's, late 1950's up to 1961, and from about 1967 to the present; these are reflected in the British records as well as those on the Continent. Cetti's Warbler is well able to withstand moderate winter cold: Hollyer (1975) stated that recent observations in Kent suggest that it can survive short periods of frost with temperatures down to -3°C . Hard winters have not almost wiped out the northern French population (as has sometimes been claimed); they have thinned it out somewhat and prevented it from expanding for a few years.

Olsson (1971) said of the Serin that 'post-juvenile dispersal in late summer has been proved on several occasions', but also listed overshooting, abbreviated spring migration and drift as causes of its advance north and east; the scatter of distant records is far wider in this very mobile species than in Cetti's Warbler and it seems that its spread is more complex. He wrote: 'During its initial occupation of any new region, the Serin seems particular in selecting its habitat: hence colonisation has often been characterised by sudden appearances in good localities at advanced and isolated points, followed by a more gradual filling of intervening and presumably less attractive areas. Lowlands and river valleys have made the spread easier; open seas and highlands have slowed it down. The limits of a species expanding in this way are difficult to define and it is probably best to treat the edge of the range as a 'border zone' . . . For a decade or two up to that time [1960] the rate of expansion seemed to have slowed down: on the whole front from the French coast to the Baltic the advance was surprisingly moderate. Towards the end of the 1950's, however, and above all in the 1960's, the situation altered considerably.' Many of these words could apply equally to Cetti's Warbler.

POSTSCRIPT—1975

No systematic attempt has been made to include 1975 data in this paper, but the following deserve mention. (It is perhaps significant that the winter of 1974/75 was one of the mildest on record.)

One pair has bred in south Devon, where four birds were trapped in autumn 1974. A thorough census of the Stour valley in Kent, by

C. Bignal, M. Davenport, W. G. Harvey and D. B. Rosair, revealed 56-58 singing males in spring 1975, eleven of which were in dry sites where the ground is never normally under water. In Jersey there were four or five breeding pairs at St Ouen's and at least one at Grouville; elsewhere in the Channel Islands an adult male and a newly fledged juvenile were ringed on Alderney on 16th July, and single birds were found on Guernsey and Herm in early spring. Counts by P. J. Grant and others in eight areas from Amiens (Somme) to Calais where Cetti's Warbler has become established produced a total of 29 singing males; PJG estimates that there may have been 65-140 occupied territories in all the suitable habitat at these places. In West Germany a male and a female were ringed near Blickweiler (Saarland) and one bird near Hameln (Niedersachsen) in May; and a pair raised two broods in the latter province some 40 km south-east of Hannover—the first German breeding record, 350 km ENE of Limburg. Clearly the expansion is still in full swing.

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SUMMARY

In western Europe since the turn of the century, Cetti's Warbler *Cettia cetti* has spread from its original Mediterranean range northwards through France and into Belgium, the Netherlands and England. It reached Anjou by 1924, southern Brittany by 1927 and the Seine basin by 1932, and during the 1940's and 1950's became widespread and numerous in the Loire valley. The north coast of Brittany and the Channel Islands were reached in 1960, England in 1961, Belgium in 1962, and the Netherlands in 1968. Breeding was first proved in Picardy and Belgium in 1964 and in England in 1973. It is now resident in suitable habitat all over northern France, has been recorded at 35 places in Belgium and 28 places in the Netherlands, and in England has bred at least in Devon, Kent and Norfolk; in Kent there were 56-58 singing males in the Stour valley in 1975. There are also records of single birds in Ireland in 1968 and Wales in 1973. In West Germany there were singles in 1961 and 1971 and several records in 1975, with a first case of breeding, as far north as the Hannover region. There have been two ringing recoveries: a bird ringed as a juvenile in Belgium in August 1970 was found dead in Norfolk in June 1973; and another juvenile ringed in Belgium in July 1973 was retrapped 90 km north-east in the Netherlands in the October of the same year.

The general direction of the advance appears to have been north to NNE, and the greatest progress has been made during a run of mild winters. Seventy percent of new records occur in September-October and March-May, in each case followed by a substantial fall-off. Forty percent of new records are in September and October, and it is suggested that these result largely from post-juvenile

dispersal from established breeding areas. Barring really severe winters, which take a toll of these pioneers, the displaced birds become concentrated in the most favourable new sites (lowland river valleys with lush vegetation). There they eventually breed, providing a staging-post for further advances; intervening and less attractive sites are colonised more gradually. Parallels are drawn with the spread of the Serin *Serinus serinus* across Europe.

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