

Dartford Warbler Surveys

Title

Dartford Warbler national surveys in the UK (SCARABBS)

Description and Summary of Results

The 2006 survey was run by the RSPB with help from BTO and in conjunction with the BTO-led Woodlark Survey. The 1974 and 1984 surveys were run entirely by RSPB, and the 1994 one by RSPB and English Nature (now Natural England) but all are included here for completeness and because all are combined as one dataset on the NBN Gateway.

In the United Kingdom, the Dartford Warbler *Sylvia undata* is mainly confined to the remaining fragments of lowland heath and, as a consequence of the interest in the flora and fauna of this much-threatened habitat, its population and ecology have been well studied. Historically, it had a much wider distribution, and was presumably more abundant, than in recent years, but during the 20th century the population went into steep decline, at least in part due to habitat loss and fragmentation. Since the early 1970s it has been well monitored, with full surveys in 1974, 1984, 1994 and 2006, with the last recording a major expansion in range and population size. Though the population in the UK is small compared with that of southern and western France and Spain, the species is considered to be of conservation concern in Europe because of losses in some of the most valuable habitats in Spain, including the Mediterranean maquis.

1974 Survey: The NBN dataset includes every recorded territory. However, in the New Forest, although 203 pairs were actually found, two large areas thought to support about 40 pairs were not recorded at all and another area was only partially covered. Also the figure for Dorset is probably no more than 90% of the real total, and it is thought unlikely that more than a few pairs nested undetected outside the known range.

The total national population was estimated to be 557 pairs, which was close to the 460 pairs estimated at the previous peak in 1960-61, but the centre of the distribution had moved further west. The species is very susceptible to cold winters, but the population was high in 1974 after a long run of mild winters. The preferred habitat was mature heather with a generous mixture of gorse of medium height. Small fragments of heath were found to be less densely occupied than larger ones.

1984 Survey: The number of territories recorded in 1984 was 423. Increases were especially noted in Surrey, which had a strong population after recovery from extinction in 1961, and Cornwall was occupied after a 40-year absence. In the centre of the range, about 10-15% of the population decline was attributed to a few colder winters which immediately preceded the 1984 survey compared with the mild winters preceding the 1974 survey. Also a loss of 75 territories was due to growth of forestry plantations, temporarily suitable in 1974 but too old (and permanently unsuitable) by 1984, and unfortunately not replaced by other new plantings. The amount of suitable habitat remained about the same in the New Forest, but declined by about 10% in Dorset. Further losses in Dorset were due to degradation of sites, and the effects of fragmentation and isolation.

The total number recorded represents the minimum number of breeding males, taken as equivalent to pairs. It is not known to what extent this might have been an underestimate, but an error greater than 10% is thought unlikely.

1994 Survey: A total of 1600-1670 territories was recorded, though it is likely that the actual population was slightly higher (1800-1890 territories), representing a near four-fold increase in population since 1984. The NBN dataset includes every territory recorded by the observers, and the observers used this to provide their best estimate of the total number of territories on each site (or 1-km grid square) during the breeding season. Some observers visited sites more than twice, but some sites were only visited once. This was shown to influence the number of territories found, and suitable corrections have been made to estimates of national totals. Although recorded in nine counties, more than three-quarters of the population was in Dorset and Hampshire, with most of the rest in Devon and Surrey. The most likely cause of the population increase was a run of mild winters, though habitat changes may have played a part. Despite such a marked increase in numbers, the species' range was still much reduced compared with that of earlier centuries, and 75% of the population was still restricted to only 24 sites.

2006 Survey: In 2006, the UK population was estimated at 3214 territories representing an increase of 70% since 1994. The NBN data represent the territories found in each 1-km square, with a correction factor applied to estimate the number of territories that may have been missed if the grid square was visited fewer than 4 times. In England there were an estimated 3142 territories, in Wales 72 territories, and in the Channel Islands 85 territories were found in eight 10-km squares. (Note that the number of territories actually found was considerably lower than the country population estimates: 2518 in England, 41 in Wales.) Dartford Warblers were recorded in 126 10-km squares in the UK in 2006, an increase of 117% since 1994. Although East Anglia was re-colonised, the main areas of range expansion were in SW England and Wales.

Methods of Data Capture

All surveys were based on visits to all possible known sites where Dartford Warblers had been recorded in the past, or other suitable habitat. Observers (volunteers and staff from RSPB, English Nature and BTO) were asked to visit each site or, in 1994 and 2006 1-km square, at least twice, once during April to mid-May, and once during mid-May to the end of June. They were asked to record the number of singing males and any other contacts separately, to estimate the total number of territories recorded on each visit and to provide their 'best estimate' of the number of territories on that site or 1-km square during the breeding season. All numeric estimates were cross-referenced to maps showing the locations of bird registrations. In order to verify records and validate the dataset, the data were mapped and thoroughly checked. Across-survey geographical checks have included comparing the distribution with that shown in the published paper and ensuring that records with the same area name are located close to each other.

1974 Survey: RSPB staff searched all the heathland in Dorset as well as areas of grassland with gorse, old sand pits and forestry plantations. The New Forest was surveyed by volunteer observers allocated 1-km squares. Local volunteers in Devon, Isle of Wight, Surrey and Sussex checked most likely sites.

1984 Survey: At least two visits were made to sites as per 1974.

1994 Survey: Observers were asked to visit each site (or 1-km grid square in the New Forest) at least twice, once from April to mid-May and once from mid-May to the end of June. Observers recorded the number of singing males and information such as whether the bird was calling or carrying nest material etc. They used this to provide their best estimate the total number of territories on each site (or 1-km grid square) during the breeding season. These figures were then used to calculate the number of territories.

2006 Survey: Coverage was based on surveying 1-km grid squares, rather than individual sites. The aim was to achieve complete coverage of a set of 'core' squares -- those occupied during the 1994 survey and subsequently -- and to survey a random selection of 'sample' squares from the area around those core squares. In addition, coverage of 'extra' squares was encouraged in a number of ways.

Purpose of Data Capture

The stated aim of all four surveys was to assess the population size and range of the Dartford Warbler in Britain.

Geographic Coverage

In all surveys all sites in UK (effectively only southern England in 1974, 1984 and 1994) with suitable habitat and known sites where Dartford Warblers had been recorded in the past. Although Dartford Warblers breed in the Channel Islands, only the 2006 survey covered the islands, and the 2006 survey also included some sites in Wales as the species had spread there.

The aim in 2006 was to achieve full coverage of all the 1-km squares ('core' squares) occupied during the survey in 1994 and subsequently, together with sample coverage of a random selection of squares from within 5km and 10km buffers around these core squares, stratified by the presence of suitable habitat.

Temporal Coverage

April to June in each of the four survey years. In 1994 and 2006 observers were explicitly asked to make one visit before mid May and the second after this.

Other Interested parties

The Royal Society for the Protection of Birds organised, ran and funded all four surveys: those for 1974 and 1984 on their own, for 1994 in conjunction with English Nature (now Natural England), and in 2006 in conjunction with BTO, Natural England and the Forestry Commission (England), all under the Statutory Conservation Agencies and RSPB Breeding Bird Scheme (SCARABBS). The 2006 survey was run in conjunction with the BTO-led Woodlark survey.

Organiser(s)

1974 and 1984: Colin Bibby;

1994: Simon Wotton;

2006: Simon Wotton for the RSPB, Greg Conway and Ian Henderson for BTO.

Current Staff Contact

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Publications

The results from each survey have been published as:

1974 survey: Bibby, C.J. & Tubbs, C.R. 1975. Status, habitats and conservation of the Dartford Warbler in England. *British Birds* 68: 177-195.

1984 survey: Robbins, M. & Bibby, C.J. 1985. Dartford Warblers in 1984 in Britain. *British Birds* 78: 269-280.

1994 survey: Gibbons, D.W. & Wotton, S. 1996. The Dartford Warbler in the United Kingdom in 1994. *British Birds* 89: 203-212.

2006 survey: Wotton, S., Conway, G., Eaton, M., Henderson, I. & Grice, P. 2009. The status of the Dartford Warbler in the UK and the Channel Islands in 2006. *British Birds* 102: 230-246.

The 2006 survey was noticed in *BTO News* numbers 256, 261, 262 and 270.

Available from NBN?

Yes, as one dataset covering all four surveys.

The dataset records the territory centres of recorded pairs in each case.

Computer data -- location

BTO Windows Network central area.

(Note that the data held by BTO are a copy of the RSPB data files.)

Computer data -- outline contents

The numbers of birds found together with the habitat etc of the survey sites in 2006.

Computer data -- description of contents

The overall data file DW data 2006 - all visits hab.xls contains details of visits, habitat, numbers of birds, other species recorded.

The precise central locations of all individual territories are stored in 3 files:

i) DW06terrcentres-final.txt; ii) DW06approxterrcentres-final.txt [only accurate to the 1km square]; iii) DW06possterrcentres-final.txt

The file DW2006-final summary.xls contains:

a summary of the number of territories per 1km square, covered, including all nil counts; all territory centres, including a six figure grid reference, County and notes on the accuracy of the locations.

Information held in BTO Archives

None. All data are held by RSPB and stored at their headquarters in Sandy.

Notes on Access and Use

The data were collected under the Statutory Conservation Agencies and RSPB Breeding Birds Scheme (SCARABBS).

Other information needed**Notes on Survey Design****Specific Issues for Analysis**