

# Woodlark 1997

## Title

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## Description and Summary of Results

The Woodlark *Lullula arborea* is a rare breeding species and partial migrant in Britain, where it is mainly confined to southern England. It is a species of high to moderate conservation concern and subject to a national Biodiversity Action Plan (BAP).

In the UK, the Woodlark was widespread across much of southern Britain during the middle of 20th Century, probably peaking in the early 1950s. Subsequently, it underwent a dramatic decline in numbers and contraction in range to an estimate of 200-450 pairs at the time of the 1968-1972 Breeding Atlas. This remained at least until the first full national survey in 1986 which found that the population had declined to a minimum of 241 pairs. Since then, data from the Rare Breeding Birds Panel (RBBP) have shown that the population has been increasing. The 1988-1991 Breeding Atlas produced an estimate of 350 territories and by 1995 there were up to 730 territories in Britain. Some local increases were documented but a complete survey was required to bring knowledge of Woodlark status and distribution up to date.

There is little quantitative information on range prior to the 1960s. The 1968-1972 Breeding Atlas found it in 196 10-km squares, but by 1986 only 35 10-km squares were occupied. In 1988-1991 it had expanded to occupy 73 10-km squares.

During the 1997 survey between 1426 and 1552 Woodlark territories were located in Britain. (1552 territory locations were recorded but it is not certain that more than 1426 became breeding territories.) This represents an approximately 6-fold increase since 1986. The range also expanded with birds recorded in 90 10-km squares. The five regions of population that were apparent in 1986 all showed major increases, in particular in Breckland and the Suffolk Sandlings.

Over 85% of all territories occurred on heathland or within forest plantations, but the ratio varied between regions: plantations were more commonly used in the north and east, whereas more birds utilised heathland in the south. Woodlarks in Devon bred almost exclusively on farmland. More than three-quarters of the forest population was found in young plantations, particularly in stands of two and three year old trees. Most territories were located on sandy soils, with nearly 70% noted specifically as on acid sandy soils.

As surveyed sites were primarily chosen on the basis of being previously known sites for the time, it is likely that some occupied territories will have been overlooked especially in outlying areas, and particularly in such as SW England, where the population is thinly scattered. Furthermore, the species can be difficult to census effectively when abundance is low; and it was noted that this too may have been a particular problem in the southwest. The Dorset population in particular may have been underestimated, since considerably more Woodlarks were reported in 1991 and 1992 than in 1997.

The survey was however widely publicized in order to attract as many 'casual' records as possible, and despite some differences in survey technique between this and the other surveys, they are considered to be comparable.

### **Methods of Data Capture**

Observers were asked to visit all sites where Woodlarks bred between 1986 and 1996, and other sites with suitable habitat in areas surrounding the known breeding range. They were asked to visit each site three times: 15 February to 21 March, 22 March to 25 April, 26 April to 1 June. Almost 40% of the sites were actually visited more than three times, and in such circumstances observers noted the actual number of visits made. It was asked that all visits should be made on clear, dry mornings with little wind, and all areas of suitable habitat on each site were searched to within 100m where possible.

Observers recorded the number of singing males and other territorial contacts located during each visit by marking them on a map (1:10000 or 1:12500) using the BTO standard territory mapping symbols, and observers estimated the number of territories for the site (minimum and maximum) at the end of their fieldwork.

Compared to 1986, by the time of the 1997 survey much more was known about the biology of Woodlarks in Britain. So, to avoid potential problems with separating territories after completion of the first brood, the survey stopped before June. Subsequently central territory locations were plotted in GIS, taken from original survey maps.

Habitat selection at the territory level was described in detail in the 1986 survey, and it was decided that little would be gained by repeating this. Therefore only information on site land-use and habitat around the territory was collected in 1997. Sites were classified as one of the following land-use types: plantation; agriculture (pasture, arable etc); set-aside; horticulture; tree nursery; orchard; grazed heathland; ungrazed heathland; grazed semi-natural grassland; ungrazed semi-natural grassland; mine/spoil/slag heap; golf course; unmanaged woodland; coppiced woodland; quarry; parkland. Where a site comprised more than one land-use category, the predominant category was used.

Second, one of the following habitat categories was assigned to each territory: improved grassland; unimproved grassland; grass-dominated heath; heather-dominated heath; bracken-dominated heath; bare ground (natural); bare ground (burnt); conifer plantation; broadleaf plantation; mixed plantation; conifer woodland; broadleaf woodland; mixed woodland; crop (cereal, fruit, vegetables etc.); sand dune; chalk downland. A territory was defined as the habitat within about a 50m radius centred on the first contact of each singing male (or other initial territorial contact).

For the heathland categories, dominance was defined as greater than 50% coverage by grasses, heather or bracken. Plantation and woodland were defined as mixed if both conifers and broadleaf trees comprised more than 10% of the area.

### **Purpose of Data Capture**

The stated aim was to provide an accurate assessment of the population and distribution of Woodlarks in Britain in 1997 and how these had changed since the survey in 1986.

### **Geographic Coverage**

Sites were selected in southern and eastern England which were known to contain or to have contained the species within the previous 10 years or so, as well as sites with suitable habitat in areas surrounding the known breeding range. Suitable habitat was defined as forestry plantations that contained either recently cleared compartments or those replanted in the last seven years, and other areas of open space within forests, such as heathland and rides. In SW England, where Woodlarks breed almost entirely on farmland it was impossible to define suitable sites for coverage.

In practice the main areas were East Anglia, the heaths of Surrey, Hampshire and Dorset and some areas of Nottinghamshire. For details of how the specific sites were chosen see Notes on Survey Design (below). In Devon and Cornwall all tetrads (2-km squares) that had ever held a breeding Woodlark were surveyed. For other counties where small numbers of Woodlarks occurred or where there were historical breeding records, sites were visited on an *ad hoc* basis.

### **Temporal Coverage**

February to June 1997. Observers were asked to visit each site three times, with visits falling within the following time periods: 15 February to 21 March, 22 March to 25 April, 26 April to 1 June.

### **Other Interested parties**

The survey was organised and run by BTO in partnership with the Royal Society for the Protection of Birds, the Joint Nature Conservation Committee (who paid for Simon Gillings's work on the survey) and English Nature (now Natural England). It was funded by RSPB and English Nature.

### **Organiser(s)**

Simon Gillings

### **Current Staff Contact**

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### **Publications**

The main report of the survey is:

Wotton, S.R. & Gillings, S. 2000. The status of breeding Woodlarks *Lullula arborea* in Britain in 1997. *Bird Study* 47: 212-224.

It was also noticed in *BTO News* numbers 207 and 216/7.

### **Available from NBN?**

Yes.

The dataset contains the geographical location of the centre of territories as determined by GIS from the results of the 1986, 1997 and 2006 surveys.

#### **Computer data -- location**

BTO Windows Network central space.

#### **Computer data -- outline contents**

A data file containing locations and numbers of birds, another containing habitat details.

#### **Computer data -- description of contents**

Spreadsheets contain the basic information needed, ie number of birds seen at each location (1-km square); and the main habitat present at each similarly.

#### **Information held in BTO Archives**

#### **Notes on Access and Use**

Full disclosure of breeding locations to the public might lead to environmental harm. Users are requested to exercise appropriate care when publicising or publishing any results.

#### **Other information needed**

#### **Notes on Survey Design**

The results of the 1997 survey are comparable to those of the 1986 survey even though some changes were made in the methods between the two years. Both surveys aimed to search all sites that contained Woodlark records in the preceding 10 years. In 1986, observations were recorded by 1-km square within each 10-km square covered. The 1997 survey was site-based. A list of potentially suitable sites for coverage was drawn up before the study and each survey form referred to a particular site, or part of a site.

The known breeding range was determined by obtaining a list of all occupied sites from 1986 to 1996 using information collated from the 1986 national survey, data from the Rare Breeding Birds Panel and county bird reports. A list of suitable heathland sites (>1 ha of dry heath) from within the 10-km square breeding range was obtained primarily from the RSPB/EN Heathland Inventory. Details of plantation forests containing suitable habitat for Woodlarks were obtained from the Forestry Commission District Offices. Suitable forests were defined as plantations that contained either recently cleared compartments or those replanted in the last seven years. Other areas of open space within forests, such as heathland and rides, were also surveyed.

Full coverage of suitable sites in the known breeding range was centred on six discrete regions, which form the core areas for Woodlarks in Britain. Five regions were apparent

from the results of the 1986 survey: Devon/Cornwall; Dorset/New Forest/SW Hampshire; NE Hampshire/Surrey border; Breckland; and the Suffolk Sandlings. Since 1986 the NE Hampshire/Surrey population has extended into Berkshire and West Sussex, populations have developed in Lincolnshire and Nottinghamshire and the Devon/Cornwall population has contracted almost entirely to within Devon. Therefore, in 1997 the following regions were defined: Devon; Dorset/New Forest/SW Hampshire; NE Hampshire/Surrey/Berkshire/West Sussex; Breckland; the Suffolk Sandlings; Lincolnshire/Nottinghamshire. With the exception of Devon, all suitable heathland and forest sites in 10-km squares bordering occupied 10-km squares were also surveyed.

In SW England, Woodlarks breed almost entirely on farmland so it was impossible to define suitable sites for coverage. All tetrads were therefore surveyed in Devon and Cornwall that contained breeding records from 1986 to 1996 (71 in Devon, 1 in Cornwall), and 12 where breeding took place pre-1986 (9 in Devon and 3 in Cornwall). For other counties with small numbers of Woodlarks and counties with historical (pre-1986) records with a high likelihood of recolonization, known sites and potentially suitable sites were surveyed on an *ad hoc* basis.

Restricting the survey to sites known to have held Woodlarks recently risked missing undiscovered or unreported populations in outlying areas. The survey was publicized in bird and wildlife magazines, and county bird recorders and forest staff were made aware of the survey (eg in Wales) in order to attract as many extra casual records as possible.

Forest stock maps were obtained from Forest District Offices and were used to produce site maps on the recording forms. Information on the age of plantations and other habitats used by Woodlarks was extracted from these maps.

### **Specific Issues for Analysis**