

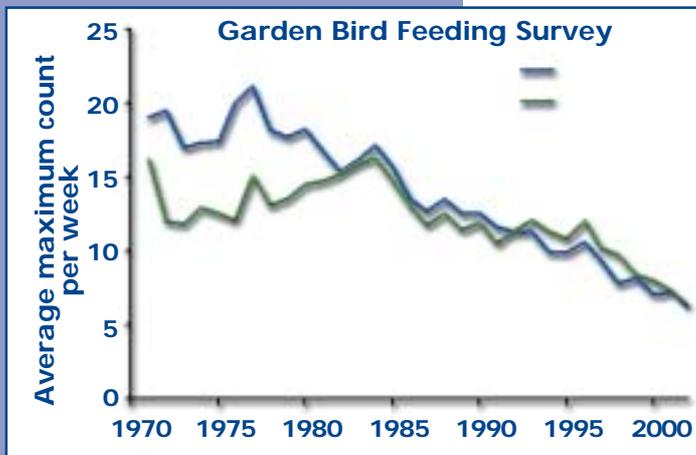
# The BTO House Sparrow Questionnaire





Photograph by John Harding

The BTO's Garden Bird Feeding Survey shows a pronounced decline in the numbers of House Sparrows using gardens since the early 1980s.



The BTO House Sparrow Project was launched in December 2002 with the appointment of Rosie Cleary, the Project Officer. Questionnaires were sent to all BTO Garden BirdWatchers and other people who expressed an interest in the work. The other component of the project, an intensive field study, is not due to be completed until autumn 2004.

## The BTO and House Sparrows

The British Trust for Ornithology (BTO) has taken the lead role in recent research into the decline of House Sparrows and has set up a House Sparrow Working Group to focus research efforts across the various organisations working on this issue. A major analysis of House Sparrow population data was recently completed by the BTO for the Department for Environment, Food and Rural Affairs. This revealed that the British breeding population of House Sparrows has fallen from about 12 million pairs in the early 1970s to between six and seven million pairs now.

The decline in House Sparrow populations can also be seen from the BTO's Garden Bird Feeding Survey (GBFS), which shows a pronounced decline in the numbers of House Sparrows using gardens since the early 1980s. Information from other BTO studies suggests that the declines began earlier in farmland habitats than in gardens and towns. We also know, from various BTO studies including Garden BirdWatch, that the patterns of population change are not consistent across the whole of Britain and Ireland. For example, declines in London and the southeast have been more pronounced than those in Wales and Scotland. One of the main aims of the BTO House Sparrow Project is to examine this regional variation and to use it to help find out what is behind the decline of House Sparrows.

## The House Sparrow Questionnaire

The BTO House Sparrow Questionnaire was sent out to all BTO/CJ Garden BirdWatchers and to any other people interested in contributing their observations to the survey. The results presented in this article come from some preliminary analyses carried out by Dr Alex Banks and Dr Dan Chamberlain of the BTO. Not every person who replied answered every question but the findings presented here are based on information gathered from 11,269 gardens scattered across Britain and, to a lesser extent, Ireland. The map (left) shows the location of these gardens within Britain (it was not possible to derive grid references for the Irish sites from postcode information). The questionnaire was divided into sections dealing with the different factors that may have a bearing on House Sparrow populations.

### Section One: Buildings

Some 56% of respondents lived in detached properties, 31% lived in semi-detached properties and 12% lived in terrace housing. The remainder lived in other sorts of accommodation, such as flats. Virtually everyone had a garden. The age of the property was found to have an effect on the occurrence of House Sparrows but these patterns were not clear and are probably influenced by other factors such as habitat and location. However, House Sparrows were more likely to occur at sites where there were gaps in the roof. Since House Sparrows usually nest in cavities (they will also build nests in thick bushes and climbers) the association with gaps in the roof may be expected. What is of concern is that just over a quarter of respondents reported that they had had such gaps blocked, many within the last ten years, and 7% within the last year. Work on a roof, including the addition of loft insulation (90% of lofts were known to be insulated) may also influence House Sparrows.



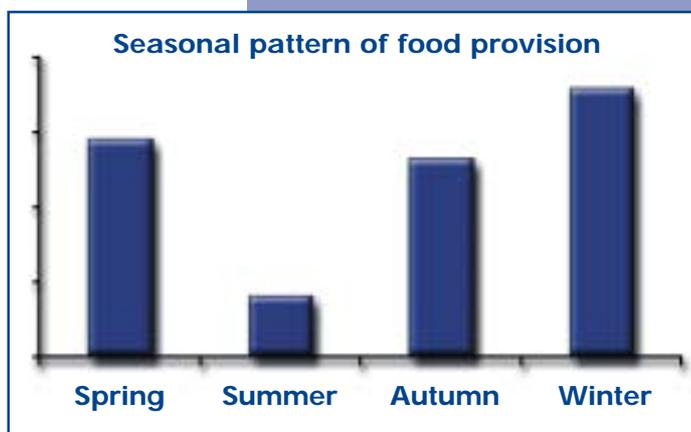
## Section Two: Gardens

Features within individual gardens were found to have little effect on whether or not sparrows were present in a garden, suggesting perhaps that it is the wider environment that will ultimately determine the presence or absence of House Sparrows. Being birds, House Sparrows are not tied to a single site but have the opportunity to move elsewhere in search of food or nesting opportunities. This is supported by the findings from analyses looking at the wider environment (see overleaf). Interestingly, garden size was found to have a significant effect on whether sparrows were present in a garden, with small gardens more strongly associated with the presence of House Sparrows than medium-sized gardens, which in turn had a greater influence than large gardens. This is probably a reflection of the use of urban and suburban gardens by House Sparrows – urban and suburban gardens are on average smaller than those in more rural localities. It also matches the pattern seen in the questionnaire returns where House Sparrows are most likely to occur in semi-detached and terrace properties (again typical of urban areas) and less likely to occur in detached properties.

Not surprisingly, House Sparrows were more likely to occur at those sites where food was provided all-year round than at those where feeding only took place occasionally or not at all. Garden BirdWatch analyses have already highlighted the importance of food provision on the occurrence within gardens of a wide range of bird species. The seasonal pattern of feeding (see graph) shows that summer feeding is still not widespread. However, summer is a time of the year when food demands may be high, with birds busy looking for a mate, producing eggs and rearing young. One of the more subtle differences to come out of an examination of food provided in gardens was that House Sparrows were more likely to occur where mixed seed and scraps were provided but were less likely to occur where peanuts were available. Many Garden BirdWatchers have reduced the quantity of peanuts that they feed and, because of the availability of other high energy foods like seed mixes and sunflower hearts, some species seem to use peanuts less than they used to. House Sparrows may make greater use of gardens where the new high energy foods are available or it may be that peanuts have a negative effect on House Sparrows – we need to look at this. The presence of different types and heights of vegetation (evergreen versus deciduous) appears to have no effect on the presence of House Sparrows in a garden but may have an effect on flock size or breeding and we also need to look at this in greater detail.



House Sparrows were more likely to occur where mixed seed and scraps were provided but were less likely to occur where peanuts were available. Photograph by Tommy Holden.



Provision of food in gardens is lower in summer than at other times of year but birds may still have big demands for food during the breeding season.

## Possible reasons for House Sparrow decline in urban areas

A range of factors has been suggested as being behind the urban declines witnessed in House Sparrow populations. Such factors include:

**Reduced food availability** – This may be caused by the loss of brownfield sites which are important sources of seeds and invertebrates, the increased use of pesticides in many gardens or increased competition with other species like Collared Doves, Feral Pigeons and gulls.

**Lack of suitable nest sites** – House Sparrows show a preference for nesting in holes and it has been suggested that homes built since the 1970s lack the cavities favoured by House Sparrows. For example, new designs of roofing tiles and uPVC barge-boards restrict access to the roofspace and offer fewer nesting opportunities.

**Predation** – It has been suggested that increases in the populations of cats, Sparrowhawks and Magpies may have had an impact on House Sparrows. Because the House Sparrow is a cavity-nester it is unlikely that Magpies will have had any real impact.

**Pollution** – The potential for increased pollutant levels in many of our urban areas may have influenced House Sparrow populations. In particular, it has been suggested that the use of unleaded petrol may be important because unleaded petrol contains a number of unstable, and potentially dangerous, compounds. However, such pollution should affect other species in addition to the House Sparrow, something that is not apparent from BTO data.



Photograph by Tommy Holden

### Acknowledgements

The BTO House Sparrow Project would not have been possible without the generosity of those who supported our appeal, or put time and effort into filling in questionnaires or walking the streets to record House Sparrows. Then there were the many local coordinators who helped find people to take part in the survey work or promoted the House Sparrow questionnaire. All of these people deserve special mention and our heartfelt thanks.

### Need a Gift?

Help to keep our House Sparrow surveys going by buying a copy of *Spud Finds a Home*, an ideal present for a two to six year-old friend. It's the story of one Sparrow's search for somewhere to nest. Each book costs £5. Phone Sandra on 01842 750050.



### Section Three: The wider landscape

Some 16 variables describing the landscape outside a garden (such as the presence of allotments, arable land, pasture, schools, parks and wasteground) were significantly associated with the presence of House Sparrows in gardens. In broad terms these associations suggest that House Sparrows occur with higher frequency where sites are close to farmland or where they are close to suburban features like schools, parks or waste ground. When we looked just at sites in urban and suburban areas, where House Sparrow decline has been most pronounced, we found a similar pattern.

### Section Four: Predators, competitors and mortality

There were a number of significant associations with other species and House Sparrows were more likely to occur in gardens where cats, gulls, and Collared Doves were present. Since these species are most commonly reported from suburban and urban gardens, the association may simply reflect the habitat preferences of the species concerned. House Sparrows were also more likely to occur in gardens where Sparrowhawks were present than in those where Sparrowhawks were absent. This is probably related to the provision of food, since Sparrowhawks are attracted to gardens where small birds gather at feeding stations. However, House Sparrows were less likely to occur where Magpies, Carrion Crows, Woodpigeons and Grey Squirrels occurred. These are all species which are most commonly reported from rural Garden BirdWatch gardens so, again, it might be a habitat link rather than any evidence of predation or competition.

Dead or dying House Sparrows were recorded at 6.4% of the sites where this part of the questionnaire was answered. The likelihood of finding a dead sparrow was similar across rural, suburban and urban gardens but there was an interesting association between dead sparrows and the volume of traffic recorded outside the house, with dead sparrows more likely to be found at sites near busier roads.

### What next?

Before we can say for certain which factors are behind the House Sparrow decline, we will also need to examine the results from the intensive fieldwork currently being carried out in our 1,500 House Sparrow Project survey squares. Detailed analyses of the habitats used within our towns and cities and of the distribution of predators and competitors, will complement the work carried out so far. This preliminary analysis has shown how complex the interactions are between the different factors that may influence House Sparrow populations. It has also highlighted aspects that need further study, such as the effect of traffic densities, nest site availability and the use of waste ground within urban areas. There is a huge amount of very valuable information within the questionnaire responses and we need to tease out further findings, by asking specific questions and then testing them with your observations.

The information from these analyses will be written up as a full report and will be used alongside that gathered through other sources and projects, to enable others to plan effective conservation strategies for House Sparrows. We will also be able to use the weekly counts from Garden BirdWatch gardens, together with the information gathered on your Garden Birdwatch site registration forms, to look at regional patterns and explain why the declines differ in their magnitude between different parts of Britain and Ireland.

The House Sparrow has a long association with Man and the declines we are seeing may well result from changes in the way in which we use our urban and suburban areas. As such, it is important for us to find out why the species is in decline and to work out how to help its populations recover to former levels.

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