

THE SPOTTED FLYCATCHER SURVEY 2002

by Richard Bashford

INTRODUCTION

The Spotted Flycatcher *Muscicapa striata* has always been a favourite with many birdwatchers and, indeed, a pair nesting in the author's garden in Sandy in the late 1970s stimulated his interest in birdwatching. In recent years, despite good coverage, there have been relatively few records collected in the county each year, with only 10–15 breeding pairs reported annually. It had often been difficult to come across Spotted Flycatchers in the course of 'normal' birdwatching, and in habitats that birdwatchers typically visit during the breeding season. Now Red Listed (greater than 50% decline over the last 25 years), Spotted Flycatchers have been undergoing rapid long-term decline (1970–1999: based on BTO data). As the species has declined, it has retreated away from the more usual and expected breeding areas, such as woodland and gardens, to more optimal habitats such as churchyards and large mature gardens. Only small numbers are still to be found in woodland.

METHOD

Spontaneous enthusiasm late in the season led to a concerted effort to look for this species in these optimal habitats in the county. This selective census was co-ordinated via the BedsBirds email Group, which provided the advantage of instant communication. With around 130 members at that time, and following the rush of emails following a similar request for information regarding Little Owl records, the request for all Spotted Flycatcher records was made on 26th June 2002. Dates and the number of birds seen (to help ascertain breeding), and the six-figure grid reference was requested. There was no time for an announcement in *The Hobby*, but the Bird Club's Research and Records Committee also gave support to this fieldwork, since Spotted Flycatcher was one of four species for which they required more information.

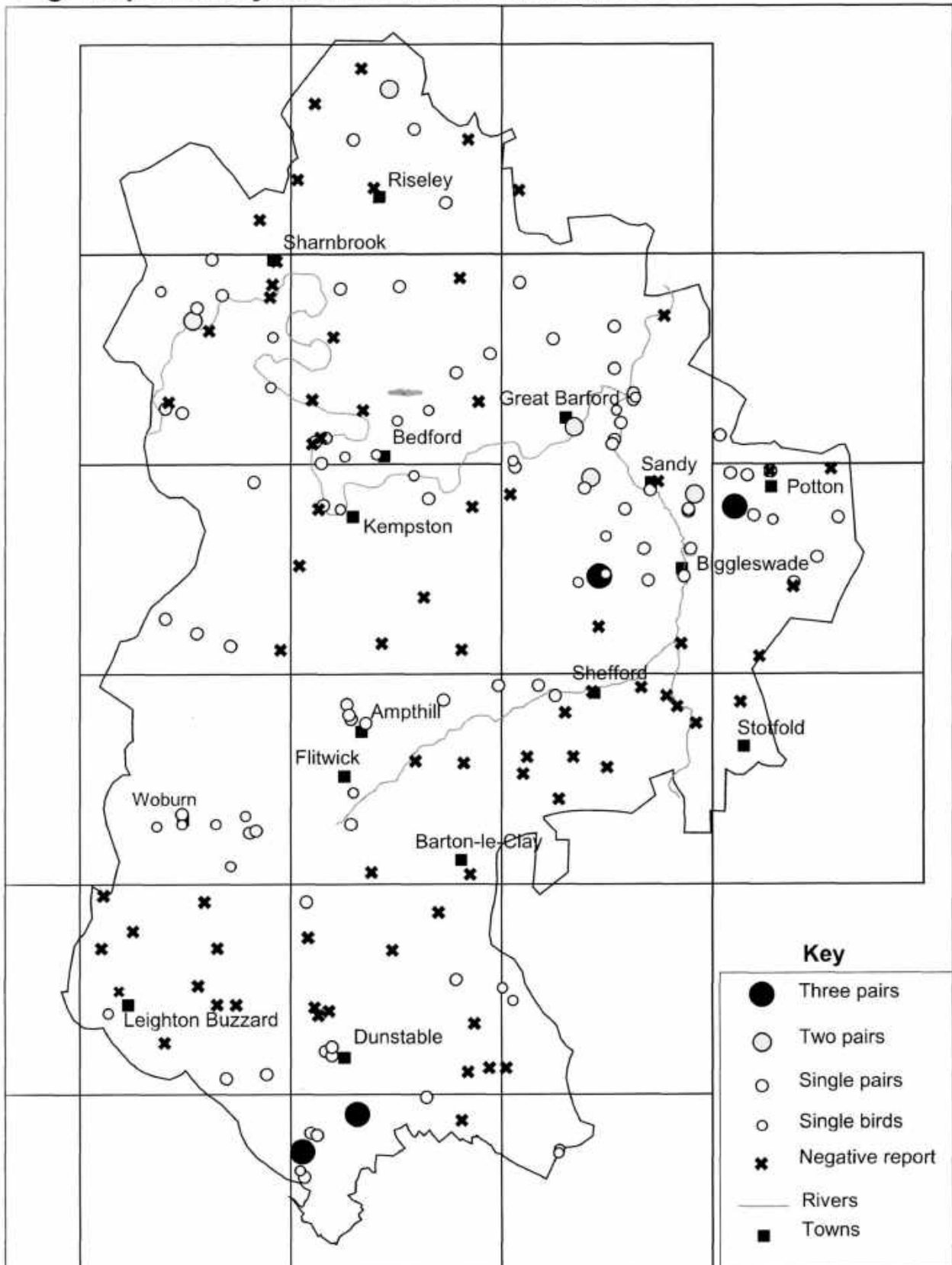
Despite the first four replies being negative, two observers started to collect a few records from churchyards, and this developed into a co-ordinated search of north and east Bedfordshire churchyards over the first few days of July. By 9th July, more people began to contribute and by the middle of the month, there were many people searching and sending in records. By this time, in order to be more proactive, a spreadsheet of all the county's churchyards was created. Strategically placed birdwatchers were asked to check specific churchyards, and were requested to comment on the suitability of each churchyard for Spotted Flycatchers. Two observers each checked over 20 sites – some more than once – and found around 15 pairs. By the end of July it was estimated that birdwatchers had visited at least 90% of the county's churchyards, as well as numerous woodland and garden sites.

It soon became clear that, when the same churchyard was visited on different days by different observers, there could be conflicting results. A single visit was clearly not enough to confirm absence. Recent RSPB fieldwork on this species had suggested that as few as one visit in three detects the presence of a pair. By 27th July, 70–80 pairs had been located and an updated map was posted onto the BedsBirds website.

A few more records came to light in emails during August and via the Bird Club website, where a request for records had been placed. At this stage, a request for all

Spotted Flycatcher records was also placed in *The Hobby*. At the end of the year, when record cards had been returned, more 'non email' records were added to the database. Finally, more pairs were confirmed through the Bird Club's garden bird survey.

Fig. 1 Spotted Flycatchers in Bedfordshire 2002



RESULTS

As a result of the request, 122 email records were received. Records were requested of all birds seen in 2002 and negative records from sites where they were recorded in 2001. Despite the worrying start to the survey, only eight sites fell into the latter category. The map (Figure 1) shows confirmed pairs (94), including five sites with two pairs and four sites with three pairs. In addition, there were 28 sites where only single birds were recorded. Most of these were from suitable breeding areas so, given more time, it is likely that more breeding pairs would have been confirmed.

To provide an indication of the breadth of coverage, the 74 sites that were searched (90% of which were churchyards) but where no birds were found have been included on the map. It is worth noting that not all these churchyards would be suitable for Spotted Flycatchers: at least 18 were regarded by the surveyor as unsuitable (though at least 40 were regarded as suitable).

SUMMARY AND CONCLUSION

A simple and immediate request for records for a particular species via email provided the county with a truer picture of Spotted Flycatcher distribution than the previous casual reporting. While the species has declined sharply across the UK in recent years, and retreated to its optimal habitat (and away from the more usual sites visited by birdwatchers), a co-ordinated effort to visit suitable areas resulted in a huge increase in the number of breeding pairs recorded (from around 15 pairs to 94 pairs). A repeat survey of churchyards, using the same methods, in five to ten years' time would show the trend in the local population of this species. In addition, the relative ease, and speed, of organising the survey suggested that surveys for other species could be organised using the same communication and data-gathering method.

ACKNOWLEDGEMENTS

Many thanks go to all the county's birdwatchers who contributed to this survey, some of whom generously checked several sites. In particular I should like to thank Tim Sharrock for his early encouragement and advice, Peter Almond who also personally checked over 20 sites, and Steve Blain for creating the map.

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THE BREEDING ECOLOGY OF SPOTTED FLYCATCHERS

An RSPB study edited by Richard Bashford

Introduction

In 2002, a Spotted Flycatcher *Muscicapa striata* survey carried out by the Bedsbirds email group subscribers, and members of the Bedfordshire Bird Club identified around 94 pairs in the county (see *The Bedf. Nat.* 57 (Part 2) 78–80). The RSPB were looking for suitable areas for a pilot study into the breeding ecology of Spotted Flycatchers, and so they approached the Bird Club to see if the data collected in 2002 could be used for their project. The 2002 dataset was supplied to the RSPB who identified a suitable study area in north-east Bedfordshire. The results of this study by Will Kirby, Katrina Black, Sarah Pratt and Richard Bradbury are summarised below.



Summary

The project was based largely in north-east Bedfordshire and set out to trial research methods and to provide information on how Spotted Flycatchers could best be studied in more detail in the future. The project focused on adult territory and nest monitoring, chick growth and survival, invertebrate prey and habitat assessment. Standard research methods were found to be largely applicable in terms of territory and nest monitoring, although locating territories without prior knowledge proved difficult due to the cryptic behaviour of the species. Colour ringing of nestlings was found to be feasible and re-sighting was relatively simple, due to perching behaviour. Adult colour ringing for future studies should be possible and would be highly advantageous. Malaise trapping was found to adequately sample their favoured prey (diptera), but was time consuming in terms of trap erection and subsequent sample analysis. Focal area counts of insect activity

were quick, simple and repeatable in a variety of habitats, but could not be correlated to simultaneous Malaise trap results. Novel measures of habitat variation proved workable and results suggested that they may provide a key insight into habitat requirements. Spotted Flycatchers began nesting shortly after arrival on territory, and results from this study showed early season nests to be more successful than later ones. There was a suggestion that nests on buildings were more successful than those on trees.

Study sites

Information gathered by members of Bedfordshire Bird Club in 2002 provided the basis of study site selection. As part of a survey, members were asked to record sightings of Spotted Flycatchers in their local area; churchyards were suggested as good potential sites.

With the species located from over 80 sites in Bedfordshire in 2002, around 25 of the sites in the north-east of the county were chosen for re-survey in 2003. Other sites were added where cold-searching potentially suitable areas found this species, or where information was received following requests to various interest groups. In all, 14 of the 39 sites searched in Bedfordshire were occupied and were followed throughout the season, along with a similar number of unoccupied sites to be used for habitat comparison purposes. Reports of a small number of Spotted Flycatchers in wholly woodland habitats were received, but were not located despite numerous visits, hence the study focused largely on churchyard and rural garden sites.

This study has proved that the techniques investigated were generally suitable for further study of the Spotted Flycatcher. Indeed, even within the scope of the pilot, some interesting results became apparent. A few data sets collected remain to be fully analysed; these include forage watches, nestling faecal samples and video recordings from two nests. It is anticipated that further examination of these will be carried out as part of future study.

An extremely wide variety of sites were used for nest placement, ranging from holes or platforms in walls and trees, through creepers on walls and trees to open nests on boughs and disused nests of other species. Height of nests ranged from 1.3 to 10m. Given that virtually all the potential territories contain at least some of the above, it seems extremely unlikely that the Spotted Flycatcher is nest-site limited. There was a suggestion (albeit non-significant) from the results obtained that those nesting on trees were more likely to fail than those nesting on or in buildings. If this is the case, the most likely explanation is that predation risk is increased for tree nesters. It is known that numbers of some potential nest predators (e.g. corvids, grey squirrel) are increasing and it is likely that these may predate tree nests more readily than those on buildings, due to ease of access. Although there is no evidence from nest record data that nest success rates are declining *per se*, further investigation of the data to include nest site may be worthwhile. The greater success rate of higher placed nests in this study would also suggest predation (from ground based predators) as the causal factor, although again there is no evidence from nest records, without further investigation, that predation incidents are increasing.

In terms of habitat, there was a difference between occupied and un-occupied churchyards in that sites with greater variation of habitat were more likely to contain breeding Spotted Flycatchers. This could be due to a simple preference for specific foraging habitat types, or it may be linked to increased invertebrate abundance within a more varied habitat. It is known that farmland has become more homogenous over recent decades with a move away from mixed farming, with a greater loss of hedgerows

and increased crop specialisation. Trends in woodland, parks and gardens are less well documented but it would certainly seem unlikely that variation of habitat has increased. The suggestion that big (mature) trees may be an important factor influencing territory selection could provide possible mechanisms for decline in parts of the UK where Dutch Elm Disease has greatly reduced the number of these since the early 1970s. Twenty million trees have been lost nationwide (Arboricultural Information Exchange) and this loss has been a suggested factor in the decline of a number of other species, including mention in the Biodiversity Action Plan for Tree Sparrow *Passer montanus*.

A healthy and available supply of invertebrate food is an obvious requirement for successful breeding of this obligate insectivore. They have a marked preference for larger invertebrates and favour diptera as prey, particularly when feeding chicks (Davies 1977). Although there is evidence of widespread declines in invertebrate abundance on farmland (e.g. Benton *et al.* 2002), trends in woodland and garden habitats are not well understood. Malaise trap samples from this study suggested that the *proportion* of large and small diptera in the samples were not very different from those obtained by Davies in the mid 1970s; however, overall numbers have not been compared, and indeed annual and site differences would render such comparisons inconclusive. There was little substantive evidence from this study that lack of food was impeding breeding success. Breeding started rapidly after arrival of adult birds on territory, suggesting that adult condition was not a limiting factor. There were only three known cases of brood reduction out of the 20 nests that went on to fledge at least one chick, another indication that food shortage was not particularly apparent.

Of the eleven failed nests (Cambridgeshire and Bedfordshire), three were known second nesting attempts after successful first broods; all three of these failures were due to abandonment (two at egg stage and one at nestling stage). All coincided with periods of bad weather. The other eight failed nests were assumed predated, although it was possible that predation occurred subsequent to death of the chicks. Despite the observed failures, a calculated nest success rate of over 50% was high for an open nesting passerine species, and would suggest that, given the ability to re-lay, pairs should manage to raise at least one brood.

From this study and other sources (e.g. Snow and Perrins 1998) a proportion of breeding pairs could manage to raise two, even occasionally three, broods in a season. Summers-Smith (1952) estimated from early nest record data that around 20% were double brooded. The amount of pairs achieving this level of production is likely to have a large effect on future populations. If most pairs (as suggested from this study) have only one successful brood, fledging an average of 3.1 chicks, the annual survival rate would have to be high (for a small trans-Saharan migrant passerine) for the population to be maintained. There are many possible causes that could lead to a reduction in the number of breeding attempts per season, including shortening of the breeding season due to climate change and shortage of food leading to reduced adult fitness. From current available information, it is not possible to say whether there has been any change in the number of pairs fledging more than one brood, but elucidating this is considered a primary concern for future research.

One outstanding question that needs to be addressed alongside the detailed breeding ecology of the Spotted Flycatcher, before effective conservation measures can be prescribed, is to establish the primary habitat of the species, which may vary across the UK. It is known that it breeds in woodland, farmland and both rural and urban parks and

gardens, but it is not apparent from the current literature which, if any of these habitats is of primary importance. Each habitat is however fundamentally different, and it is unlikely that any future prescriptions could be developed that would span all habitats. It is also likely that if the recent declines are connected with problems on the breeding grounds, rather than in wintering areas or on migration, there are probably different factors involved in the different habitats. A multi-faceted approach to future research is deemed essential.

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