NESTING neighbours

As we prepare to welcome House Martins back this spring, Research Ecologist **Esther Kettel** reveals some of the exciting findings from our Nest Study.

Nesting House Martins are perhaps our nearest avian neighbours and, for many, their return from their wintering grounds means spring has sprung. Sadly, this species is Amber-listed in the UK's *Birds of Conservation Concern* because of recent population declines. However, trends are not uniform throughout the UK. Declines are most prominent in England; yet in Scotland, Wales and Northern Ireland numbers have either increased or remained stable in recent decades.

House Martins are poorly surveyed by traditional methods, so we know little about why these geographical differences in population trends are occurring and what affects breeding performance (a major driver of population change). That is where BTO volunteers come in. In 2016 and 2017 we organised the House Martin Nest Study, which involved volunteers making regular observations at individual nests throughout the breeding season, collecting data about nesting activity. With this information, we hope to understand some of the factors influencing breeding performance.

We had a fantastic response to the survey, with almost 1,000 volunteers observing 9,289 House Martin nests over the two years. Coverage was spread across the UK, with most observed nests located in England (79.5%), followed by Wales (10.1%), Scotland (8.8%) and Northern Ireland (1.5%). We also thank the two volunteers who contributed from the Republic of Ireland.

Breeding performance was measured in two ways. Firstly, the number of broods attempted at each nest was determined by looking at the sequence of activities throughout the observation period. Activities included adults feeding young, visible young at the nest or young flying around the nest. The number of broods was used as a proxy for breeding effort. Secondly, we measured apparent nest success. A nesting attempt was thought to be successful if young were observed flying in and out of the nest, or if adults were seen feeding young for at least 22 days, and unsuccessful if there were any signs of failure, such as the collapse of a nest.

We were able to determine the number of broods attempted for 2,561 of the surveyed nests. Just over half of nests attempted one brood (56%) and just under half attempted two broods (43%), though this is likely to be an underestimation as pairs are likely to move on to different nests for their second brood. Excitingly, we found that a small number of pairs attempted a third brood; although triple-brooding has been reported in studies elsewhere in Europe, and anecdotally in the UK, we believe this is the first study in the UK to provide such evidence.

NESTING SUCCESS AND FAILURE

We were able to ascertain the outcome of 4,617 nesting attempts. Of these, 18.5% of attempts were thought to have failed. The most common causes of failure were due to the nest collapsing (33%) or usurpation of young by another species (26%). Failures also occurred following unknown damage to the nest, eggs

HOUSE MARTINS: DOUG WELCH/BTO

▲ Some House Martin pairs surveyed for our Nest Study attempted three broods in a season.

We did find evidence that breeding performance was higher in artificial nests compared to natural nests

or chicks (15%), eggs or young being predated (10.5%), chicks or eggs being thrown or fallen (9.5%), unintentional or intentional damage by humans (4.5%), and wind damage (1.5%).

We are still in the process of analysing the data, but preliminary results suggest that a number of variables affect breeding performance. House Martins build cup-shaped nests from mud pellets attached to buildings, and we found some evidence that the probability of producing two broods was lower when nests were built on buildings with plastic soffits compared to those made of wood or another material. This might suggest that nests are more prone to collapse when built on these smooth surfaces, but further research is required to confirm this.

Most observed House Martins nested in natural nests (86.5%), but many used artificial nests (13.5%). We do not know the number of artificial nests available to House Martins, so it is unclear whether they prefer them. However, we did find evidence that pairs were more likely to be multi-brooded in artificial nests compared to natural nests. Perhaps this is good news for those of you with plastic soffits, as installing artificial nests could potentially mitigate the negative effects of those soffits on House Martin breeding performance.

REGIONAL DIFFERENCES

House Martins started breeding earlier in the year in the south and east of the UK, which is perhaps expected due to differences in weather conditions, and birds arriving from their migration in southern parts of the UK first. However, despite the later onset of breeding in the north, the data suggest that northern pairs were more likely to be multi-brooded. Previous studies show that other insectivorous passerines that migrate to Africa in winter (e.g. Willow Warbler and Tree Pipit) have declined in England but increased in Scotland, similarly to House Martins. Perhaps differences in environmental conditions and land-use practices are driving these geographical trends? Again, further work is required before drawing any definite conclusions.

We are busy preparing a manuscript with a full description of our findings and conclusions, and expect to publish a peer-reviewed journal article later this year. We hope that the results from this study can contribute to conservation efforts to help halt future population declines. The study would not have been possible without the huge effort from all of the volunteers and we are extremely grateful to all those who took part. ■

Find out more

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LOCATION OF SURVEYED NESTS