

Recent research into Lesser Spotted Woodpeckers

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To many Notts Birders, the names Ken and Linda Smith will be synonymous with woodpeckers. Deeply involved with Great and Lesser Spotted during Ken's time with the RSPB, retirement has allowed them to turn to the birds almost full-time. Most readers will know that these two species have fared very differently over the last 30-40 years, both locally in Notts and nationally, with Greats increasing markedly, while Lessers have declined. Lesser Spotted is now 'red listed' since its population has fallen by over 70% across England since the 1970s, and its increasing scarcity locally was documented in our recent county avifauna.

Results from the BTO Common Birds Census and then the Breeding Bird Survey documented an increase from the 1960s to about 1980, followed by a steady decline until the bird became too scarce for accurate monitoring. The increase has been assigned to the epidemic of Dutch Elm Disease which led to substantial amounts of soft, decaying wood supporting huge populations of bark beetles and their larvae that could provide extensive food supplies throughout the year, and especially for growing chicks. Elm was known to be a popular choice of nesting tree, and the dying trees would also prove very suitable for nest excavation. However, the subsequent decline to its presently catastrophically low level (recently estimated at 600-1000 pairs) is less well understood. It is tempting to link the decline of the Lesser Spotted with the increase in Great Spots which can be significant nest predators but the story is not that straight forward.

A new paper in *Bird Study* (February 2020) by Ken and Linda (K&L) investigates possible reasons for the decline and their findings seem to be sufficiently important to bring them to the attention of members. They based their analysis on nest records from a variety of sources: 235 from the BTO Nest Record scheme (1949-2019), 33 from an RSPB study between 2006 and 2009, and 63 from the 'Woodpecker Network' – a dedicated survey involving an array of recorders across Britain and initiated by K&L in 2015. They partitioned these records into three periods (A: pre-1980; B: 1980-1999; C: 2000-2019) and examined a range of breeding parameters gleaned from their data.

Using some clever statistical analyses, they showed that the date on which the first egg was laid in each nest (FED) became later in the year through Period A, but then reversed and became progressively earlier after about 1980. This advancement of laying date has been reported for a wide range of British and Irish birds and has been ascribed loosely to 'climate change'. To examine this more closely, K&L looked at the relationship between FED and spring temperature. They chose the average temperature for April recorded by the Meteorological Office across central England, reasoning that that this probably reflected the incubation period in the 'core area' for Lesser Spotted Woodpeckers. Using the same statistical methodology, they showed that April temperature declined from the 1940s through to about 1980, with a subsequent steady increase through to the present day. When they ignored the year of record, and simply plotted FED against April temperature, there was a strong negative correlation: the birds laid eggs earlier in warmer years. Correlation is not causation, but the striking relationship implies that something is happening.

K&L found no evidence that clutch size has changed since 1940, with an annual average of just over five eggs per nest. Although within years earlier nesting attempts have larger clutches than later nests.

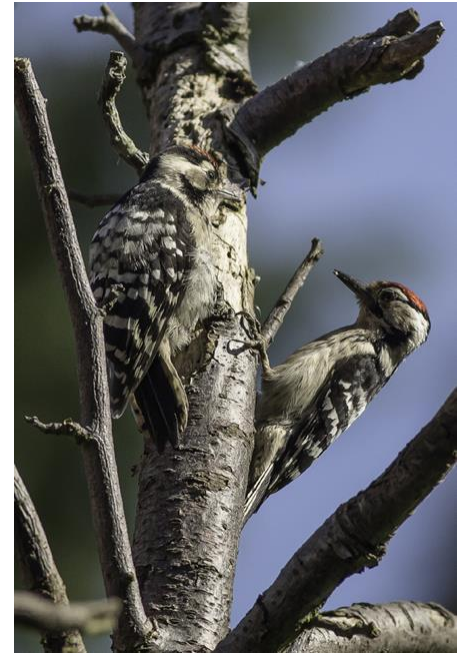


Photo Male Lesser Spots by Andy Mason

There were 135 nests for which the outcome was known. The number of chicks that fledged declined significantly from over three in 1949-1980 to less than two and a half through 1980-2019. When K&L examined nest outcome in relation to the date of egg laying, they found no relationship in the early years. However, after 2000 and within years, the number of fledged chicks declined among later nests.

So, the productivity of Lesser Spotted Woodpeckers was higher when the population was increasing (before 1980) than it is now, and it may be that this lowered productivity is the primary cause of the population decline. Although Great Spotted Woodpeckers are known to predate the nest of Lessers, there seems to be no evidence that this has increased in recent years.

The main cause of brood reduction and nest loss seems likely to be chick starvation.

So, why are the birds less able to feed their chicks now than in earlier years? Evidence from across

Europe indicates that, during the winter and early spring, adults feed on invertebrates that they excavate from dead wood or from under the bark of live trees. When they begin to feed their nestlings, they change to lepidoptera larvae and aphids that they glean from the surface of leaves. With advancing spring temperatures, the invertebrate communities are responding by emerging earlier in the season. This has been shown to lead to a disconnection between the breeding season of other insectivorous birds and their insect food supply. Earlier emergence of caterpillars could lead to a diminution of food for Lesser Spotted later in the season, with a consequent reduction in provisioning at later nests. Elsewhere in Europe, it has been shown that adult mortality is highest during the breeding season, probably because of the increased exposure to avian predators while parents are searching for food for their families. So, the populations are suffering a 'double whammy' of reduced survival of both adults and nestlings. Small wonder the bird is in decline.



Photo: Female Lesser Spot by Paul Coombes

What can be done to help? Certainly, the disconnection between chick-rearing and the availability of invertebrates is a serious problem. Especially in oak woodland, leaf-eating invertebrates reduce in abundance earlier in the summer than do those on trees such as Birch, Alder and Lime. Lessers now often nest in wet woodlands with Birch and Alder and it could well be that such sites have more invertebrates available through the breeding season compared with drier woodlands. Maybe increased plantings of these in woodlands would be a start? Supplementary feeding early in the season has been shown to advance laying in Great Spotted Woodpeckers, and earlier nests are more productive in Lessers. This might also be an option for Lesser Spots. And more data on the food being taken to individual nests are needed.

These are not really options for an amateur bird club, but members can play a part by recording the sites of all the birds they come across in early spring and any identifying nest sites and passing the information on either to the local RSPB folk at Sherwood or directly to Ken and Linda. They can make arrangements for equipment allowing observations of the nest and its contents which will add to the data on nest successes and failures in the county. It is notable that 12 of the nests included in the paper were found and reported by Notts birders. I know that some members do this already and thank you for this. I won't name names: you know who you are! – David Parkin – March 2021

Reference: Smith, K.W. & Smith, L. (2020). Long-term trends in the nest survival and productivity of the Lesser Spotted Woodpecker *Dryobates minor* in Britain. *Bird Study* **67**: 109-118.