

Birds choose spring neighbors based on winter 'friendships'

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Tagged bird on twig. Credit: Molly Harwood

Great tits pick their spring breeding sites to be near their winter

flockmates, according to new research into the social networks of birds from the University of Oxford.

The study shows that as mated pairs of [great tits](#) settle down to breed in the spring, they establish their homes in locations close to their winter flockmates. They also arrange their territory boundaries so that their most-preferred winter 'friends' are their neighbours.

The findings give new insights into the [social behaviour](#) of birds and demonstrate how social interactions can shape other aspects of wild animals' lives, such as the environmental conditions they will experience based on their choice of home location.

The research is published in the journal *Ecology Letters*.

Lead author Dr Josh Firth, of the University of Oxford's Department of Zoology, said: 'The great tits we study are a good general model for many other bird species. They form large flocks in the winter, when they're searching for food, and then each pair chooses a single set breeding site where they will be located throughout the spring as they build a nest and raise their chicks.

'We show that they appear to choose their spring breeding sites to stay close to their winter flockmates. Not only do they nest closest to the birds they held the strongest winter social bonds with, they also appear to arrange their territories so that they share home boundaries with those birds.'

Dr Firth added: 'As well as telling us about the birds' social behaviour, this also has interesting implications for other aspects of biology. For instance, where an animal's "home" is determines the environmental factors they experience, such as weather conditions. Therefore, as they appear to base their location choices around their social bonds, this

indicates that their previous social associations can underpin the environment and conditions they will be subjected to in future.'

The study focused on the radio-frequency identification (RFID)-tagged wild great tit population in Wytham Woods, the University of Oxford's research woodland near the city. Using data gathered from equipping thousands of birds with these tags to record their winter social interactions and spring nesting box choices over a three-year period, the researchers were able to determine which birds were flockmates during the [winter](#) and, subsequently, where they settled in relation to each other in the spring.

Dr Firth added: 'There may be benefits of choosing breeding locations based on previous social associations. For instance, we know that familiar [birds](#) are more likely to cooperate in fending off predators, and it may also reduce the amount of energy expended on competitive interactions, if individuals display less aggressive behaviour towards familiar neighbours.'

More information: 'Social carry-over effects underpin trans-seasonally linked structure in a wild bird population' *Ecology Letters*. [DOI: 10.1111/ele.12669](https://doi.org/10.1111/ele.12669)

Provided by University of Oxford

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