

Great tits join forces to defend neighbours' nests

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Nest-boxes with great tit chicks in the Wytham Woods.

Great tits appear to have what might be described as their own neighbourhood watch scheme, the latest research suggests.

Scientists have found that they'll readily join their neighbours when defending their [nests](#) against predators, but only the ones they know well. If they're not on such friendly terms – because the neighbours are very new to the area – they're much less likely to budge an inch.

This is the first time scientists have shown a conclusive link between familiarity among individuals and their propensity to join in mobbing predators. The findings may ultimately give clues about how cooperation and sociability evolved.

'The [birds](#) respond when they've had a longer relationship with their

neighbour. This drives their inclination to join in mobbing,' says Ada Graboswka-Zhang from the University of Oxford, lead author of the report, published in *Biology Letters*.

Graboswka-Zhang and her colleagues analysed birds in Wytham Woods, Oxfordshire in the UK. Wytham Woods is owned by the University of Oxford and is probably the most heavily-studied woodland in the UK; all birds are fitted with British Trust for Ornithology rings to help identify them.

Great tits live in fairly dense woodland. Rather than recognising each other by sight, they're more likely to know each other's calls.

Their chicks are preyed upon by a whole range of predators. Great spotted woodpeckers pull them from nest boxes, and weasels can get into boxes to pilfer eggs and the tiniest chicks.

'Eight out of ten of these birds die in their first year, and half die between their first and second years,' says Graboswka-Zhang.

The birds do their best to defend their nests by mobbing predators. This involves repeatedly making alarm calls, swivelling on their perches, frequently hopping between perches, and sometimes making exaggerated flights.

But the more individuals that get involved in mobbing, the more likely they are to deter predators. Indeed, scientists noticed long ago that great tit neighbours unite to drive away predators. But exactly why neighbouring birds choose to risk their necks is the subject of heated debate.

Recent studies have led them to wonder if neighbouring birds get involved with mobbing because they know their neighbours will

reciprocate when they themselves get into a sticky situation.

If this was true, then you'd expect long-term neighbours that have built a reputation for always being there to defend other birds' nests against [predators](#) to benefit.

Previous research led by Graboswka-Zhang showed that great tits that know their neighbours well tend to do better at raising their chicks.

'Joining in defending others' nests may be one of the mechanisms underlying the success of these [great tits](#),' she says.

So Graboswka-Zhang and colleagues at the University of Oxford set out to test the idea that long-term familiarity between neighbours determines whether or not they cooperate.

They also wanted to know if the distance between nests affect neighbours' tendency to join in. Not just that, but does familiarity affect how much mobbing they're prepared to do?

They found that in the nests where the birds had been neighbours the year before, at least one neighbouring great tit joined the mob in 12 out of 16 trials. But in nests where birds hadn't been [neighbours](#) before, the birds didn't mob anywhere near as often - only two out of 16 trials.

They also found that even neighbouring birds whose nests are some distance away still come and join in the mobbing. And the degree of familiarity has no bearing on the intensity of mobbing behaviour.

'They might join in, because they know they won't be left to defend their nests alone when they're in need. On the other hand, the birds could be helping, because their nest might be the next one to be targeted,' she adds. 'They may themselves feel threatened.'

It's hard to say which explanation is right. 'Helping is an emotive word and suggests they're behaving altruistically, which they may not be doing at all. It might just be that they're joining the mobbing crowd for entirely selfish reasons,' explains Graboswka-Zhang.

'The next task is to look at the mechanism to see if we can tease these possible differences apart,' she adds.

More information: M. Grabowska-Zhang, B. C. Sheldon and C. A. Hinde, Long-term familiarity promotes joining in neighbour nest defence, *Biology Letters*, Published online before print April 25, 2012, [doi: 10.1098/rsbl.2012.0183](https://doi.org/10.1098/rsbl.2012.0183)

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