

Covering nest boxes with wire mesh reduces great spotted woodpecker *Dendrocopos major* predation of blue tit *Cyanistes caeruleus* nestlings, Lancashire, England

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SUMMARY

Great spotted woodpeckers *Dendrocopos major* predated nestlings from 14 out of 57 blue tit *Cyanistes caeruleus* broods by pecking through the sides of wooden nest boxes in 2005. Therefore, 31 nest boxes were covered with wire mesh prior to the 2006 breeding season. This action was largely successful, as nestlings from only 1 out of 48 broods of blue tits were predated in the 2006 breeding season. Therefore, covering nest boxes of this type with wire mesh appeared to be a simple and effective method of reducing woodpecker predation rates upon nest box breeding birds.

BACKGROUND

Nest boxes are routinely used to attract breeding birds to areas where nest sites might be scarce, or where access to nests might be needed for research purposes. As part of a long-term study of blue tit *Cyanistes caeruleus* breeding behaviour, we provided wooden nest boxes in woodland around the city of Lancaster, northwest England (see Leech *et al.* 2001 for details). All of the nest boxes were constructed from 22 mm thick, sawn wooden planks and measured approximately 150 mm x 200 mm x 150 mm, and were fixed to tree trunks at a height of 2 m above the ground. Within woods, boxes were positioned in a grid-like pattern at intervals of approximately 50 metres, with the majority facing either in a southerly or easterly direction to provide shelter from the prevailing winds, although there was some local variation due to local topographical features. Each box had a metal plate fixed around the 25 mm diameter entrance hole, primarily to prevent predators of eggs and nestlings enlarging the entrance hole and gaining access. Potential predators included great spotted woodpeckers *Dendrocopos major* and grey squirrels *Sciurus carolinensis*, which are both common in the study area.

Between 1996 and 2004, occurrences of natural predation were rare but, in 2005, great spotted woodpeckers created holes through the sides of almost 25% of the nest boxes and predated nestlings from 14 out of 57 blue tit broods (Fig. 1). It appeared that clusters of nest boxes surrounding active woodpecker nests were attacked most often. It was decided that measures should be taken to attempt to reduce woodpecker predation in the subsequent breeding season.



Figure 1. A nest box where a great spotted woodpecker has pecked a hole through the side to prey upon blue tit nestlings.

ACTION

Study area: The nest boxes were located in deciduous and mixed woodland areas around the city of Lancaster, Lancashire, northwest England.

Nest box protection: In January 2006, prior to the blue tit breeding season, 31 nest boxes that were close to (within 300 m) great spotted woodpecker nests in 2005, were fitted externally with galvanised wire mesh sheets (13 x 13 mm square mesh). First, mesh was secured to the upper-most side of the nest box lid with staples (Fig. 2), and second, a continuous piece of wire mesh was secured to both sides and the base of the nest box, again secured using staples (Fig. 3). It seemed particularly important to have a continuous piece of mesh at the joins between the base and each of the two sides because those places seemed prone to attack from woodpeckers. The front of the nest boxes were left unaltered as the metal plates around the entrance holes seemed effective in preventing predators enlarging the entrance holes.



Figure 2. Nest box lid covered with wire mesh.



Figure 3. Nest box sides and base covered in wire mesh.

CONSEQUENCES

Covering the wooden nest boxes with wire mesh substantially reduced predation by woodpeckers during the 2006 breeding season; blue tit nestlings from only 1 brood out of 48 were predated in 2006, compared to 14 out of 57 in 2005, when no mesh was used. In the single case of predation in 2006, the woodpeckers managed to peck a hole in the side of the nest box, despite the presence of the protection, and pulled nestlings through the mesh. Therefore, using finer scale mesh may further increase the effectiveness of this method. It should also be noted that, none of the nest boxes that were left without a mesh covering were predated by woodpeckers. However, these boxes were all located further away from (at least 300 m) active woodpecker nests.

Whilst the predation seemed to generally occur at nest boxes around active great spotted woodpecker nests, not all woodpecker pairs within the study area appeared to target the nest boxes within their territory. Despite this, the use of mesh protection will be extended to all nest boxes as insurance against individual woodpeckers learning how to access nest boxes and predate nestlings within them.

Conclusions: In this study, covering typical tit nest boxes with wire mesh proved to be a simple and effective way to reduce great spotted woodpecker predation of blue tit nestlings. Whilst blue tits are not a species of conservation concern, this method may well be useful in the protection of other nest box breeding passerines which are of conservation concern, such as tree sparrows *Passer montanus* or crested tits *Lophophanes cristatus*.

REFERENCES

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