

Female blue tits sing in the face of danger

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Approaching predators cause the female blue tit to sing and not to fall quiet.
Credit: Katharina Mahr/Vetmeduni Vienna

Birdsong has long been associated with courtship or competitive behaviour. And males were often considered to be a more active singing

partner than females. A team of researchers from the Vetmeduni Vienna now shows that female singing behaviour is in fact much more common than had been previously assumed. The researchers have for the first time demonstrated a connection between the song of female blue tits and the presence of a predator. This singing appears to be about their own defence and not that of their nest. The study was published in the Journal of Ornithology.

Until now, the [singing](#) behaviour of songbirds had been mainly associated with competitive behaviour and the search for a partner. Moreover, males had long been considered to be the more active singer. Females were compared to the behaviour of the males and were seen as relatively "lazy" with regard to singing.

These assumptions had also been applied to one of the most prominent local songbirds, namely, the blue tit. But female [blue tits](#), like males, also display a variety of vocal patterns. This suggests that vocalization is not limited exclusively to courtship or competition.

When female blue tits sing

Herbert Hoi and Katharina Mahr of the Konrad Lorenz Institute of Ethology at Vetmeduni Vienna have demonstrated for the first time that female blue tits sing in the presence of a predator.

Vocalization did not serve as an alarm, however, nor was it limited to females. The researchers used stuffed dummies of two predatory types in order to provoke a reaction from the birds. "We presented the nest of blue tits either with a stuffed sparrow hawk, a bird of prey, or an Aesculapian snake and analysed the reactions mainly of female blue tits. We already knew that songbird males sometimes respond to threats by singing," said Hoi.

Blue tits sing for themselves when their life is in danger

The team from Vetmeduni Vienna, together with Carlo Seifert of the University of South Bohemia, for the first time documented vocalizations of female songbirds in danger situations. Their song strongly resembled that of the males also present in the simulated predation event. Both sexes, however, reacted only to the threat from the bird of prey and not the snake. The sparrow hawk is considered to be a danger to adults, while the snake is a threat to nestlings that can be more easily driven from the nest.

It is interesting that the blue tits react to the threat by singing. One would assume that singing attracts more attention. "The animals may be indicating a heightened ability to escape. They show the predator that they have seen it and can flee at any time", Hoi says.

Song could also be a sign of physiological stress or encouragement

Hoi believes there could be another, for people easily understandable, explanation. The presence of a predator is very stressful. The singing behaviour could therefore simply be an endocrinological response of the body or, to quote Konrad Lorenz, a "displacement activity".

The researchers were able to exclude the possibility that the females were sending a distress call. In several cases, the male was present during the event. And both would then sing together. The researchers see the joint singing as a way for the pair to encourage each other and to strengthen the pair bond.

Need for more research into singing behaviour

The scientists still see the need for future research in order to better understand the singing behaviour of songbirds. "Our work confirms the assumption that females use their singing in more ways than just choosing their partner or defending their territory. But more studies will be needed in order to better interpret the different vocalization patterns," Hoi believes.

More information: Katharina Mahr et al. Female and male Blue Tits (*Cyanistes caeruleus*) sing in response to experimental predator exposition, *Journal of Ornithology* (2016). [DOI: 10.1007/s10336-016-1345-3](https://doi.org/10.1007/s10336-016-1345-3)

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