

Calling in the night

The Tawny Owl Calling Survey, held last winter, was a flexible, mass-participation survey for volunteers to monitor Tawny Owls near their homes. Research Ecologist **Hugh Hanmer** takes a look at the results.



As anyone who has ever been kept awake by their hooting and 'kee-wick' calls will know, Tawny Owls are easily detected and often live near our homes, making them an excellent candidate for a dedicated citizen science survey. The Tawny Owl Calling Survey (TOCS) was designed to explore the factors influencing the presence of Tawny Owls (occupancy) and the likelihood of hearing them (detectability).

TOCS took place during winter 2018/19 (as part of BTO's Project Owl) largely following the methodology of an earlier survey in 2005/06. In the 13 years that elapsed between the two surveys, the Tawny Owl's conservation status slipped from Green to Amber because of recent declines in abundance and range. In each survey, volunteers listened out for Tawny Owls at a chosen location (usually their garden) for 20 minutes, one evening a week between sunset and midnight, for as many weeks as possible between the end of September and the end of March.

Around 9,500 volunteers took part in TOCS (compared to 3,500 in the survey of 2005/06). In total our TOCS volunteers monitored Tawny Owls at almost 11,000

sites and submitted a fantastic 130,000 20-minute survey visits! There was a high level of engagement among our volunteers, with many taking to social media to tell us what they had found, helping spread the word to new participants, many of whom were previously unknown to BTO.

#HEARDANOWL

Volunteers heard a Tawny Owl at least once at 87% and 84% of sites in 2005/06 and 2018/19 respectively. There was some regional variation, with apparent occupancy and detectability generally higher in the west and south, and lower in the east and north. When we allow for imperfect detection (just because an owl is not heard does not mean it is not present), the percentage of sites with owls increases to approximately 87.5% across both surveys. Owls were not heard on every survey and the overall detection probability at an occupied site on a given evening was 43% in 2005/06 compared to 46% in 2018/19. This suggests little change in overall occupancy over this 13-year period, although we must remember that, because volunteers could choose their own sites, changes in occupancy

were not what the TOCS was designed to investigate. That was the job of the Tawny Owl Point Survey (*BTO News* 332), which ran in parallel that autumn. The small increase in detectability between time periods was statistically significant, suggesting that Tawny Owls might have become more detectable over recent years.

Regarding habitats, Tawny Owls were more likely to be present in areas with high levels of broadleaf woodland, their preferred habitat, and were less likely to be present with increasing urbanisation. In particular, light pollution had a strong negative influence on Tawny Owl occupancy. This is likely due to the adverse

If you want to find a Tawny Owl, head out on a dry, moonlit autumn evening, soon after sunset, and you should have a 90% chance of hearing one



▲ Broadleaf woodland is a preferred habitat of Tawny Owls in Britain.

effects of artificial light on their small mammal prey, making less food available.

Over the course of the survey season, there was evidence for a general decline in Tawny Owl detectability with a slight rise towards the end, fitting with the idea that Tawny Owls are most vocal in the autumn when juveniles disperse, are relatively quiet during winter itself and then more vocal again as the breeding season approaches. On a daily scale, Tawny Owl detectability tended to drop over the course of the evening with a peak just after sunset. There was some evidence of an increase again towards midnight, suggesting that (as many volunteers noted) activity may pick up again after the end of the official survey period. The reason we did not allow recording past midnight in TOCS was because sunset to midnight was the time period used in 2005/06, but it does suggest that we did not capture an activity peak in the middle of the night. Tawny Owls were more detectable on bright moonlit nights and those with little cloud cover, presumably due to birds taking advantage of favourable light conditions to hunt. Owls were also more active on warmer nights and less so during periods of wet

weather. If you want to find a Tawny Owl, head out on a dry, moonlit autumn evening, soon after sunset, and you should have a 90% chance of hearing one (if indeed one is present).

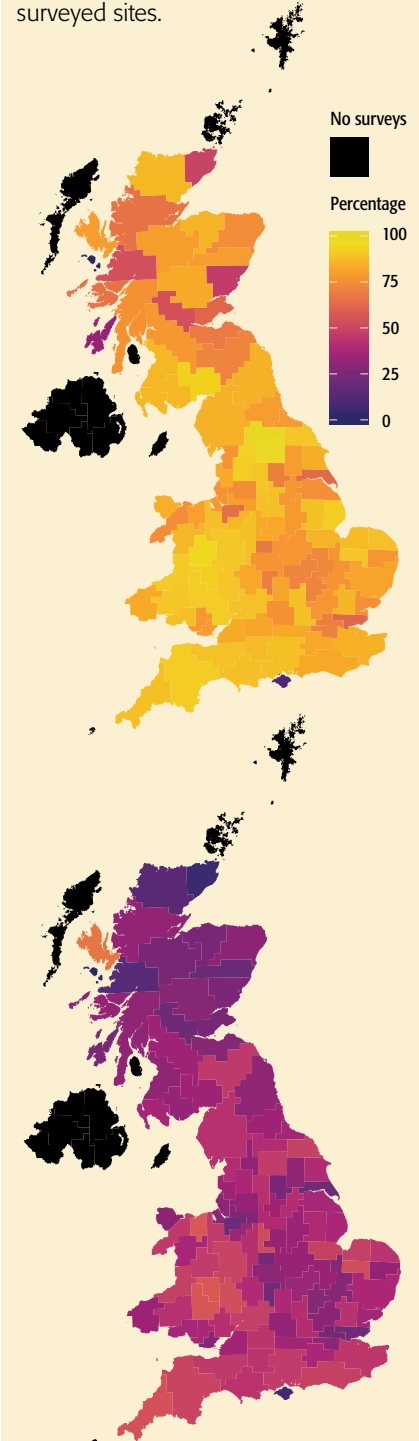
We are preparing a paper about TOCS for a peer-reviewed journal. Although none of the results is particularly unexpected it is perhaps the first time that many of the factors we explored have been brought together in one study. Not only will this allow us to better design future surveys for Tawny Owls to monitor their apparently changing population, it also highlights the potentially important negative effect that artificial light at night can have on our wild birds. A further benefit of this survey has been to engage thousands of current and new volunteers BTO research and ornithological surveys. With these findings we can better understand the changing status of Tawny Owls in Britain. ■

Find out more

Sign up for our monthly BTO enews for the latest on our Tawny Owl publication: www.bto.org/enews

REGIONAL TAWNY OWL OCCUPANCY AND DETECTION (WINTER 2018/19)

Regional summary results for the Tawny Owl Calling Survey during the 2018/19 survey period by BTO region for (top) the total percentage of sites occupied by Tawny Owls and (bottom) the average weekly detection rate of Tawny Owls at surveyed sites.



Credits

Thank you to all the volunteers who took part and everyone who generously supported Project Owl.