Songbird dads vary their 'catering' duties according to circumstances

July 6 2016

Expecting songbird dads do not always work themselves into frenzy to provide food to their partners sitting on the nest. They take breaks on warmer days, when food is more readily available or if their partner is older and more experienced in successfully hatching eggs. This is according to a study of blue tit birds led by Seyed Mehdi Amininasab of the University of Groningen in The Netherlands and Behbahan Khatam Alanbia University of Technology in Iran. The findings are published in Springer's journal *Behavioral Ecology and Sociobiology*.

Amininasab's team observed the nesting behavior of a population of blue tits (*Cyanistes caeruleus*) living in a forest of deciduous and conifer trees near Groningen in the Netherlands during the 2014 breeding season. More than 200 nest boxes designed with these songbirds in mind are set out in the area, and have been monitored since 2001. For the purposes of the present study, data loggers were placed in 92 of the nests to record temperature shifts during the incubation process. The researchers also captured the feeding behavior of males visiting 63 of these nests by using infra-red cameras. The results provide new insights into the effort that birds make to successfully incubate and hatch their eggs.

In many bird species, including the blue tit, only the female incubates the eggs during breeding season. Her male partner is responsible for bringing her food, so that she does not have to leave the nest unnecessarily. His active involvement therefore helps to ensure that the incubating eggs are constantly kept warm enough to allow the embryos to develop and the eggs to hatch successfully.

Amininasab's team found that blue tit males feed their partners on average almost twice per hour. This rate drops whenever the daytime temperature rises. It also depends on how many fruit-bearing deciduous trees are located close to the nest box.

Amininasab explains that an increase in ambient temperature results in a higher nest temperature. This allows an incubating blue tit female more freedom to leave her nest for short excursions, without fear of incubation being interrupted. In the process, the female can fend for herself, and is not solely reliant on the meals provided by her partner. Furthermore, when a nest is located quite close to or in fruit-bearing deciduous trees, food-finding trips are easier for females because nourishment is close at hand.

Male blue tits were found to be more attentive towards younger, more inexperienced partners, and did so by feeding them more often. Amininasab speculates that this is probably done to improve the incubation efficiency of the novices, whose nests tend to also have lower temperatures.

"Favorable circumstances such as a higher ambient temperature and food availability allow incubating blue tit females to increase the time they spend off the nest to improve self-maintenance. In the process males can feed them less," he says, summarizing the findings.

More information: Seyed Mehdi Amininasab et al, The effect of ambient temperature, habitat quality and individual age on incubation behaviour and incubation feeding in a socially monogamous songbird, *Behavioral Ecology and Sociobiology* (2016). DOI: 10.1007/s00265-016-2167-2

Provided by Springer