High maximum daily ambient temperatures correlate with a reduced parental brood visit rate in wild zebra finches (Taeniopygia castanotis)

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Abstract

As a result of a warming global climate, understanding how organisms adjust their behaviour to environmental thermal conditions has become an increasingly important question in animal biology. Temperature-driven adjustments in parental care are potentially important due to their repercussions on offspring size, quality and survival. In 2015 and 2016 we monitored 70 zebra finch (Taeniopygia castanotis) breeding attempts in the wild. We recorded the frequency of parental visits to the nest together with mean maximum ambient temperature experienced between day 7 and 14 of the nestling period. We found that for each increase of 1 °C in the daytime temperature there was a 1% reduction in the hourly rate of parental visits. Our data suggest that nestlings may receive less food under thermally challenging conditions, which is consistent with recent studies that demonstrate offspring are smaller when reared during periods of high temperature. Understanding the behavioural drivers that may contribute to the production of smaller offspring in the heat could prove useful to forecast long-term consequences for fitness triggered by climate change.

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