

Desert birds lay larger eggs when they have more helpers, research shows

November 10 2023



White-browed sparrow weavers. Credit: Andrew Young

White-browed sparrow weavers live in family groups in which only a dominant pair breeds and their grown-up offspring, particularly females, help to feed nestlings.

The study, by researchers at the University of Exeter, found that mothers increased the size of their eggs when they had more female helpers on hand. The number of male helpers did not affect egg size, probably because male helpers feed chicks at substantially lower rates than female helpers.

The paper, [published](#) in the journal *PLOS Biology*, is entitled, "Mothers in a cooperatively breeding bird increase investment per offspring at the pre-natal stage when they will have more help with post-natal care."

"We don't yet fully understand why helped mothers are laying heavier eggs, but our results point towards one likely explanation," said lead author Dr. Pablo Capilla-Lasheras, now at the University of Glasgow.

"Helpers may allow mothers to invest more in offspring at the egg stage by lightening maternal workloads at the chick-feeding stage.

"Our findings support this, as mothers with more female helpers did indeed enjoy significantly lighter workloads at the chick-feeding stage."

This study is one of the first to show that [mothers](#) in cooperatively breeding [birds](#) actually change the size of their egg according to their [social environment](#).

"Helpers feed offspring 'after' they hatch in birds, or are born in mammals, but our findings highlight that helpers could have hitherto unexplored beneficial effects on offspring even before they are born, by triggering an increase in maternal investment before birth," said Dr Andy Young, senior author on the study at the University of Exeter.

"This discovery has potential implications for other cooperative species too, including ourselves, because this maternal strategy of increasing investment in [offspring](#) before birth when helped, whether in the egg or

in the womb, could be something that occurs more widely across cooperative species."



White-browed sparrow weaver. Credit: Andrew Young

These findings stem from a remarkable continuous decade-long field study of 40 [family groups](#) of sparrow weavers in the Tswalu Kalahari Reserve, South Africa.

The environment is harsh, with unpredictable patterns of rainfall, and it is thought that the birds' cooperative breeding strategy helps to reliably rear chicks despite these conditions.

Nearly 10% of the world's birds have non-breeding "helpers" of this kind.

Sparrow weavers are among the most cooperative of birds, however, with breeding pairs being assisted by up to 10 helpers.

Remarkably, the helpers completely forego their own reproduction, remaining within their family as non-breeding adults for up to six years, helping to rear their parents' young.

More information: Pablo Capilla-Lasheras et al, Mothers in a cooperatively breeding bird increase investment per offspring at the pre-natal stage when they will have more help with post-natal care, *PLOS Biology* (2023). [DOI: 10.1371/journal.pbio.3002356](https://doi.org/10.1371/journal.pbio.3002356)

Provided by University of Exeter

Citation: Desert birds lay larger eggs when they have more helpers, research shows (2023, November 10) retrieved 28 April 2024 from <https://phys.org/news/2023-11-birds-lay-larger-eggs-helpers.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.