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POSTER

Feeling the heat: impacts of high temperatures on the fitness of arid-zone birds

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Although climate change has been implicated in range and abundance changes of species, the mechanisms underpinning these demographic changes remain poorly understood. In most land areas, heatwaves are expected to become more frequent and more intense under climate change. Many birds inhabiting hot, arid environments may be especially vulnerable to such changes because they may already live close to the limits of their thermal tolerances. To address this knowledge shortfall, we are studying the direct effects of high temperatures on the behaviour, physiology and ultimately fitness of a diversity of bird species living in the Kalahari of southern Africa. We discuss how increased thermoregulatory demands reduce foraging efficiency in Southern Pied Babblers *Turdoides bicolor* and Fiscal Shrikes *Lanius collaris*, and in turn how these negatively impact body condition in adults (Babblers) and nestling growth rates (Shrikes). Further, we describe a new project investigating trade-offs between thermoregulation and male decision-making, with implications for breeding success, in Southern Yellow-billed Hornbills *Tockus leucomelas*. Our data suggest that high air temperatures (but well within the range of temperatures currently experienced in the Kalahari) cause changes in bird behaviour that have negative fitness consequences, thus identifying mechanisms by which these species may be vulnerable to the further climate warming predicted for the Kalahari.

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