

Assessing parental effort in a Neotropical parrot: a comparison of methods

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Abstract

Various behavioural or body condition indices are frequently used to measure avian parental effort. To determine which of the indices provide meaningful short-term assessments of parental effort, we used four of them concurrently on breeding green-rumped parrotlets, *Forpus passerinus*, and then compared the results with field metabolic rate (FMR) measurements obtained using the doubly labelled water (DLW) technique. Nest provisioning rate correlated significantly with FMR among both males and females, while proportion of time away from the nest was correlated with FMR in females but not in males. Adult mass change during the breeding cycle and feeding latency were both unrelated to FMR. Our results suggest researchers should be cautious in assuming that any indirect method of quantifying parental effort is reliable for a particular species. We also tested whether the relatively invasive DLW protocol causes potentially confounding changes in study animals' subsequent behaviour. Paired observations before and after DLW injection showed no measurable changes in parrotlet nest attendance patterns or nest provisioning rate.

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