Differences in size between first and replacement clutches match the seasonal decline in single clutches in Tree Swallows Tachycineta bicolor

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Abstract

© 2016 British Ornithologists' UnionThe seasonal decline in clutch size in birds can be a response to the environmentally conditioned decrease in prospects for offspring or a consequence of a lower physical ability of late-breeding females. To find out which of the explanations apply in Tree Swallows Tachycineta bicolor, we assessed whether replacement clutch size in this species is affected by an individual female's ability to lay a certain number of eggs. To do this, we measured the decline in clutch size as a function of laying date between first and replacement clutches in individuals that re-nested following natural failure, and compared this with the rate of decline in clutch size with laying date for Tree Swallows that laid only a single clutch in that season. Additionally, we assessed whether the clutch size and the rate of its seasonal decline varied across years. We accounted for the truncated and under-dispersed nature of clutch size data by using a Bayesian approach in the analysis. We found little variation in the rate of clutch size decline across years at our breeding site. Accounting for this seasonal decline in clutch size, mean clutch size was similar between single-time breeding females and those that laid replacement clutches, implying that the number of eggs laid on the second attempt by female Tree Swallows is determined by laying date, rather than by the female's physical ability to produce a clutch of a certain size.

Keywords