

Does past reproductive success influence subsequent reproductive performance?

Richard Lehtinen (rlehtinen@wooster.edu)¹, and David P. Raines¹
The College of Wooster, Biology Department
Wooster, Ohio, U.S.A.



Background

An important continuing question in sexual selection is what factors determine female mate preferences. In species with exclusive male parental care, females of some species have been shown to prefer males with existing broods. However, how general this pattern is, has yet to be established.

Research Questions

- Do females favor or disfavor already mated males?
- Does this preference (if any), change seasonally?



Fig. 1. Male *H. orientale tobagoense* attending several egg clutches and vocalizing. Photo by R. Lehtinen.

Methods

We assessed female mate preferences of the Tobago glass frog (*Hyalinobatrachium orientale tobagoense*) by monitoring males at their calling sites both at the beginning of the rainy season (July) and at the end of the rainy season (November). This species has exclusive male parental care and since males continue to vocalize while guarding previous egg clutches, recent previous reproductive success was straightforward to determine in the field (Fig. 1).

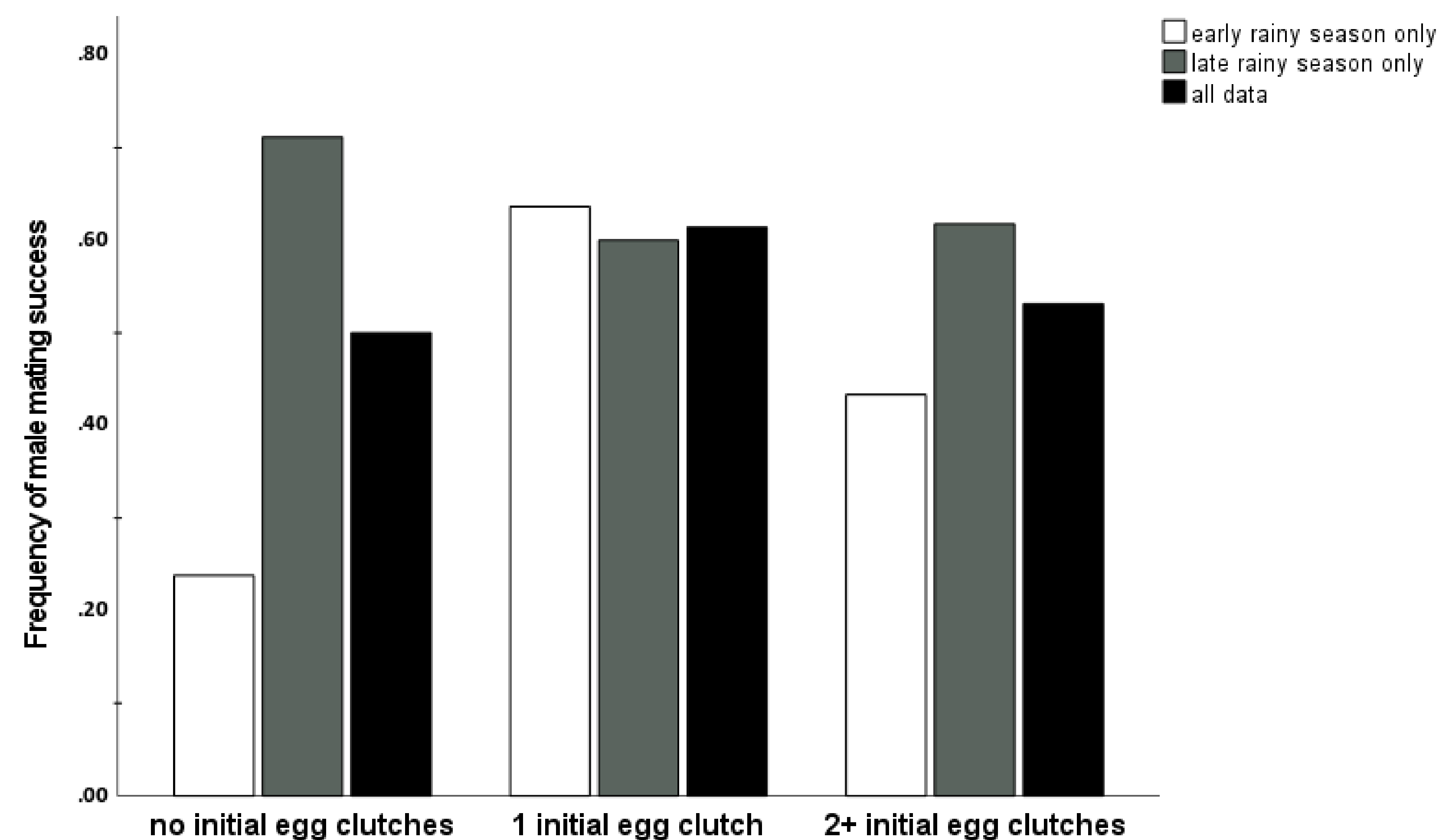


Fig. 2. Observed proportions of males with subsequent reproductive success grouped by the initial number of egg clutches each male possessed.

Results and Discussion

We documented the reproductive success of previously mated ($n = 121$) and previously unmated ($n = 95$) males over 1,919 frog-nights of observation. Preliminary X^2 contingency table analysis indicated that late in the rainy season, there was no significant influence of previous reproductive success on female mate choice ($p = 0.495$, Fig. 2). However, early in the rainy season, unmated males were strongly disfavored compared to males that were already guarding previous offspring ($p = 0.007$, Fig. 2).

Take Home Point

The influence of previous male reproductive success on female mate choice appears to change seasonally.

Acknowledgements

We thank the College of Wooster for funding and the COW IACUC and Tobago House of Assembly for research permits.