

Female reproductive strategy in the longhorned beetle *Corymbia rubra* (Coleoptera, Cerambycidae)

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This study investigated the reproductive strategy of females of the xylem-feeding longhorned beetle *Corymbia rubra* (Coleoptera: Cerambycidae). It documents the number of eggs, average body mass of newly hatched larvae, clutch mass and coefficient of variation of body mass of larvae. Moreover, it reports the length of the laying eggs period as well as a day during the reproductive season when female started laying eggs. *C. rubra* females were found to lay many eggs, compared to other cerambycid beetles. The body size of newly hatched larvae depends on female size, while fecundity and clutch mass do not but, on the contrary, negatively correlate with time progress in season. The study shows that reproductive strategy of a cerambycid female could be explained in terms of the optimality models for multiseasonal species.

Key words: clutch mass, fecundity, offspring size, optimal resource allocation, reproductive strategy.

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INTRODUCTION

The optimal resource allocation theory assumes that living organisms, constrained by limited resource acquisition or energy expenditures (Weiner 1992) and mortality (Kozłowski 1992), allocate differently the surplus resources into growth, reproduction and repair (Kozłowski 2000) in order to maximise fitness (Roff 1992, Kozłowski 2000). However, fitness depends not only on the total amount of resources allocated to reproduction but on number of offspring reaching reproductive age. Thus, offspring size and number, the components of the female reproductive effort, depend on the amount of energy allocated, and are generally a function of female size (Stearns 1992, Honek 1993; but see also Klingenberg & Spence 1997). The female reproductive strategy is to divide finite resources among the number of offspring of certain sizes in a way that maximises its fitness, while the individual offspring

survival increases with the investment in it (Smith & Fretwell 1974). Different physiological stages as well as environmental factors may influence the female strategy (Stearns 1992, Honek 1993, Fox & Czesak 2000). Many authors point out the considerable unexplained variance observed in the reproductive patterns in insects (Honek 1993, Klingenberg & Spence 1997, Javoš & Tammaru 2004), indicating that the mechanisms here are still far from being well understood.

In a present study, the adult longhorned beetles *Corymbia rubra* (*Leptura rubra*) L. (Coleoptera: Cerambycidae) were collected in a field in order to achieve a laboratory culture of newly hatched larvae for further breeding, and the experiment was not planned directly for reproductive performance description. However, interesting findings were collected on female reproductive strategy and these data were analysed. The cerambycid beetle group is still poorly understood