

Strategies of non-breeding males of sedge warbler *Acrocephalus schoenobaenus*

Summary

This work is an attempt to explain the occurrence of significant proportion of non-breeding males in the population of sedge warbler *Acrocephalus schoenobaenus*. Three hypotheses were proposed to explain this phenomenon: (1) strategic delay of reproduction until subsequent breeding seasons, to allow occupation of the best territories, (2) compensation for mating failure in the initial phase of settlement by taking advantage of territories vacated later in the breeding season, and (3) compensation for the lack of within-pair reproduction by means of extra-pair matings.

The study was based on the data collected during 11 breeding seasons (1998-2008) in two study plots located in natural floodplains of the Nida river (S Poland). Detailed analysis of males' life career and their within-season territorial shifts included 237 males recorded for the first time in the study area between 2004-2008.

Males that were not mated and that did not move territories by the end of their first breeding season, reached substantially lower lifetime reproductive success, measured as the number of eggs, nestlings and recruits, in comparison both to individuals mated from the beginning of their first season, as well as to those initially unmated, but moving their territories during this season. However, the lifetime success of initially unpaired males that shifted their territories within the season, was similar to the success of early breeders. There is no support for the existence of the strategy of delayed breeding in the studied population, mainly because males unmated in their first season have very low rate of survival until subsequent seasons.

The scenario of within-season abandonment, changing and re-occupation of territories, is an important mechanism allowing the settlement of males thus far non-breeding. Each season, a significant proportion of already occupied territories were abandoned, and half of them were quickly re-settled by new males. As many as two-thirds of these replacing males improved their mating status after taking over the vacancy, and half of them successfully raised young. Non-breeding males from the studied population clearly competed to settle in the best quality territories within the same season. The probability of non-breeders' settlement, their number and date of settlement was significantly positively related to the territorial quality of settlement sites, which confirms the assumptions of the model, proposed by Kokko and Sutherland (1998).

The presented results supported the assumptions of the hypothesis on non-breeding compensation during the first season, while the hypothesis assuming the existence of the strategy of breeding delay to the following seasons, had to be rejected. The compensation for the lack of a pair-bond through males' engagement in extra-pair matings was not confirmed either. The negligible percentage of non-breeding males participated in EPC, and their much lower lifetime reproductive success rendered this strategy to be of marginal importance in the studied population.