

Description for general public

Contribution of avian male and female into parental care has been a hot topic in behavioural and evolutionary ecology for a long time. Majority of studies have been considered the issue from the perspective of sexual conflict, where male and female work independently, all the time compromising their interests that are different for the two sexes. Recently, however, an alternative perspective has been proposed, to look at male and female parental performance in the context of their cooperation. In this project we consider such a perspective looking into male and female parental performance in the little auk (*Alle alle*). This is a small Arctic seabird, with typical traits of long-life history species (long-lived, long-term pair bonds, long and extensive bi-parental care). In such a system, male and female are expected to cooperate during the reproduction as it is likely to increase their fitness even more than if they would work independently. We assume that coordination of male and female parental performance is a manifestation of their cooperation. Consistently, we expect that parents coordinate their parental performance during the incubation and chick rearing period in a way that increases their fitness (expressed as chick's survival and body condition, and adults body condition). We also expect that the coordination level, even if changes across the context (stage of breeding season, environmental situation) is a pair-specific trait, and is related to the strength of pair-bond. Thereby, the aim of the project is to evaluate the coordination level of the parental performance across various contexts (breeding stages, various environmental conditions), and to examine relationships between the level of coordination and the parents fitness. We will perform our study during three consecutive seasons in the little auk colony in Hornsund (Spitsbergen), using modern technical solutions to register the birds behaviour and colony attendance pattern. Analyzing data, we will apply modern statistical approach (randomization, modelling) which will allow us to examine the studied issues in an efficient way.

The present project will give insight into evolution of cooperation of the parents in avian bi-parental care system. This is a novel approach to look at male and female parental performance being long viewed through perspective of sexual conflict. Using the little auk as a model species we will consider the issue of parental cooperation in the ecological group (wild seabird of long-life history) that has been typically neglected in parental care studies. The project will also fill gaps in a basic knowledge about breeding biology and ecology of the little auk. Such a knowledge, being interesting *per se* in behavioural ecology, is also important in the context of the on-going climate changes. The little auk is a keystone species in the Arctic ecosystem, and the Arctic is currently experiencing a great climate amelioration at unprecedented rate. Detailed knowledge about breeding biology and ecology of the little auk will further allow to better predict its future in the rapidly changing environment.