

Climate warming is a global phenomenon that causes a number of changes in the functioning and distribution of animals. The current scenarios assume an average temperature increase from 2°C to 5°C during next century as well as an increased risk of extreme daily temperature fluctuations. One of the most sensitive groups to temperature changes are ectothermic species whose physiology and behaviour depend on the ambient temperature. Susceptibility to elevated temperature can vary between co-occurring species, therefore global warming may disturb the interspecies interaction. The balance between predators and their prey seems to be particularly threatened because their movement mechanism is strongly dependent on the ambient temperature. High sensitivity to elevated temperatures can lead to a reduction in the defensive abilities of prey, making it easier to catch by predators. The opposite situation is also possible, when the increased temperature will reduce the foraging efficiency of predatory species, result in increased survival of their prey. Therefore, in consequences of global warming, species that cope better in a higher range of ambient temperature will gain an advantage. The main goal of the project is to answer the question: does global warming reduce the ability to obtain food and defence mechanism against predators of native species as much as their invasive counterparts. In the project we will use gammarids as prey (two native and two invasive species), which occur in high densities and in many cases being the primary source of food for fish. Three species of fish (one native one invasive and one familiar ubiquitous, which is familiar to both native and invasive gammarids) will be used as predators. In project will focus on parameters determining the final effect of the interaction between prey and the predator. In the case of prey, we will measure parameters such as survival, activity, and feeding. We will also analyse physiological parameters, including defence against the negative consequences of an increased metabolic rate. In the case of predators, their growth and the efficiency of feeding on various species of prey in optimal and unfavourable thermal conditions will also be studied. The obtained results will provide a key information on the consequences of climate change on the balance in the predator-prey system. Realisation of the project will assess the role of global warming in the spread of alien species that evolved under conditions of higher temperature than their native counterparts.