Executive summary 2023

This phase of the PhenoClim project aimed to evaluate the effects of extreme meteorological phenomena on the phenotypic diversity of two oviparous vertebrate species, Lacerta agilis and Natrix natrix. We utilized an extensive phenotypic database to analyze spatial variations and the impact of extreme climatic variations. Controlled experiments were conducted with eggs incubated under simulated conditions of extreme temperatures to better understand the effects on development and phenotypic variation. For regional analysis, we used 3048 observations regarding the phenotypic diversity of Lacerta agilis and 5340 observations concerning the phenotypic diversity of Natrix natrix. These data were processed in the context of five extreme climatic variables, and we developed predictive models of phenotypic diversity in the context of climate change for the year 2070. The models suggest significant changes in the geographical distribution of the studied phenotypes under various climate change scenarios. The experiments revealed that both species are sensitive to extreme temperature variations, affecting their development and survival. The results suggest that climate change will have a significant impact on the phenotypic diversity and geographical distribution of Lacerta agilis and Natrix natrix. These findings have been presented at international scientific conferences and are in the process of being published in ISI Q1/Q2 journals. These results are crucial for understanding the impact of climate change on biodiversity and for informing conservation strategies.

Date **Project Director**

5.12.2023 Dr. Iulian Gherghel