

The Miocene was a time of dramatic changes in geography and climate that reshaped vertebrate faunas in Africa and Eurasia. Land connection was established between these two continents in the early Miocene, giving the opportunity to ancestors of many vertebrate groups (for example, elephants) to colonize Eurasia. The middle Miocene is characterized by global warming (Mid-Miocene climatic optimum) and the come-back of a tropical landscape in Europe. This was followed by climate cooling, and finally closure of the Mediterranean Sea resulting in a large-scale drought in the area. Central Eurasia was covered by a huge sea called Parathetys which acted as a barrier for terrestrial animals. Unfortunately, the role of the northern coast of the Parathetys in dispersals of terrestrial fauna between Europe and Asia is not well understood. This is due to poor sampling of that area with only few localities known from southern Poland and northern Ukraine. This project aims to fill this gap through the means of intensive fieldwork and obtaining original material from recently discovered localities. Obtained fossils belonging to various vertebrate groups like crocodiles, turtles, lizards, and mammals will be identified based on their morphological features, and internal structures will be aided with three-dimensional scans. More complete specimens will be studied phylogenetically to recognize their relationships with animals from other areas in the world. In particular, we want to focus on species that prefer warmer areas to test how climate affected their distribution in the north. Obtained results will directly impact our current knowledge of Miocene biogeography and species diversity, and also contribute to the broader understanding of the climate system of this time period.