

## **GENERAL ECOLOGY AND ECOLOGY OF INDIVIDUALS AND POPULATIONS**

### **Urban amphibians: adaptation ecology on urbanized habitat**

supervisor: doc. RNDr. Marcel Uhrin, PhD.

konsultant: RNDr. Monika Balogová, PhD.

study form: full time

Annotation: Currently, amphibians represent the most threatened class of vertebrates in the world, with habitat destruction and modification being one of the major factors significantly contributing to their global decline. The impact of urbanization, nowadays in Anthropocene era the most common form of alteration of natural habitats, on this basal class of vertebrates is still poorly understood, which also creates protection limits. On the example of the Košice urban agglomeration, the selected population and ecological characteristics of the different amphibian species will be analyzed, as well as the factors of their distribution and survival in the urban environment.

### **Relictual forms of arthropods (Arthropoda) in subterranean ecosystems of the Western Carpathians**

supervisor: doc. RNDr. Lubomír Kováč, CSc.

study form: full time

Annotation: The biological investigations of caves and shallow subterranean habitats in the Western Carpathians during the last two decades revealed wide spectrum of relictual arthropods (Arthropoda). This study is aimed to specify populational traits of selected arthropod relicts and focus on the their molecular phylogeny. It is expected that the study will contribute to testing the hypothesis that some obligate cave arthropods occupying the Western Carpathian caves are old Tertiary relicts.

### **Urban habitats of the Košická kotlina basin: distribution, food relation and bionomy of Lepidoptera**

supervisor: doc. RNDr. Lubomír Panigaj, CSc.

study form: full time

Annotation: Urban habitats represent the original, natural environment changed by different anthropogenic activities, mainly by the construction of human settlements. Despite the loss of the original natural character, there are still areas where a variety of fauna from the surrounding countryside survives. Parks, cemeteries, gardens, and road edges, represent relatively appropriate conditions for the Lepidoptera. The aim of this study is to find out the rules and patterns of the Lepidoptera settlement of such habitats by using classical entomological methods (direct observation, trapping, mark-release-recapture, light traps, etc.). This study will be further focused on behavior of selected butterfly groups with daily activity and their adaptation to altered abiotic conditions.

### **Monitoring of mercury content in the environment using lichens**

supervisor: prof. RNDr. Martin Bačkor, DrSc.

konsultant: RNDr. Michal Goga, PhD.

study form: full time

Annotation: Lichens are effectively employed in biomonitoring of environmental pollution for long time. It is mostly due to species determined differences in sensitivity against xenobiotics and lack of protective layer on the surface of lichen thalli – cuticle. The aim of this study is to determine mercury content in lichens related to distance from source of pollution (historical mining) and analysis of changes of selected parameters of lichen metabolism.