

Флора і фауна водних та навколоводних систем // Flora and fauna of aquatic and nearby aquatic systems

Amphibians as the most threatened vertebrates and their protection

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Amphibians belong to the most threatened vertebrate group worldwide. Declines recorded in populations for the last decades have been displayed as complex problem of multiple causes acting often simultaneously, while the most eminent turned out to be: habitat destruction and modification, pollution, climate change, introduction of alien species and infectious diseases. Urbanization represents one of the most common and more lasting habitat loss contributes to worldwide population declines through modification of natural habitats into impervious surfaces together with physical urban landscape components such as buildings, roads which often act as barriers and induce fragmentation and isolation of animal populations. In area with extreme urbanization (e.g. urban core areas) species richness of amphibians tends to be reduced.

In Košice, the second biggest city in Slovakia, only the green toad (*Bufo viridis*) can be found directly in the urban core. In peripheral areas of the city, more various amphibian species can be found, which are using various types of habitats such as forest, wetlands, temporary water depressions or gravel pits. Not just urbanization but also modification of natural habitat into agricultural land and using various chemicals for crop treatment that can be harmful for animals represents serious problem which negatively affect amphibian populations. In addition, in Zemplín region in Eastern part of Slovakia previous PCB production is undoubtedly related with the occurrence of these substances in higher concentrations compared to other regions. How these substances impact local biota is still poorly understood, but we know that they can persist in the environment and can accumulate in wildlife. Amphibians can be more influenced and sensitive to environmental variation compared to other vertebrate groups since they have biphasic way of life that expose them to changes in both the aquatic and terrestrial environment. Furthermore, their typical features such as permeable skin and eggs without shell make them susceptible to desiccation and other negative factors as mentioned contamination in the external environment.

Since they are very sensitive to environmental changes, especially at early stages, they are considered to be good bioindicators of environmental health. During several visits with students, we observed amphibian fauna in various habitats in the territory concerned. We showed them how to manipulate with them without causing damage and how we can measure their selected body parameters or weight and take samples such as swabs, tissues, which are commonly used in the research and monitoring of the health and fitness of their populations.

Amphibians play an important role in our ecosystems in energy flow and nutritional cycling. They represent valuable components in many aquatic and terrestrial food chains; therefore, their loss may affect other organisms. Amphibians can play a role in keeping mosquito numbers down because amphibian larvae feed on mosquito larvae. Post-metamorphic stages may prey on various blood-sucking insects which are vectors of diseases of medical and veterinary importance. Therefore, introducing this group of animals to young generation and informing them about their importance for us and for the ecosystem, about the factors that negatively affect them, represents an important mission to maintain their awareness and amphibians on this planet.