

## **Abstract**

This thesis explores and classifies the capacities of computed tomography (CT) and mainly microcomputed tomography (micro-CT) in vertebrate research. The thesis pursues the application of the method in imaging the particular structures, tries to gain a knowledge as wide as possible about the studied tissues of vertebrates and about the resolution achieved with micro-CT and evaluates the optimal employment of this method. The aim of this thesis is to propose particular structures ideal for employment of this progressive method with high resolution in morphological, ecomorphological and phylogenetical context of research in vertebrate zoology.

At present computed tomography is commonly used diagnostic method, which is employed not only in the medical and veterinary practice but also in biological research. The advantage of computed tomography is it's speed and the fact that it isn't invasive. CT and micro-CT can display mineralized tissues but also soft tissues with used of contrast agents. By micro-CT we create accurate three-dimensional projections of little structures. This can be helpful for example in research of spatially complex skulls and skeletons of even very small vertebrates. At first the thesis tries to map the principles of CT and mikro-CT, the history and the potential of the technique at present. Subsequently the thesis deals with the use of this technology in the research of vertebrates. It tries to get a summary of the examined species and the results of these experiments.

## **Keywords:**

computed tomography, micro-CT, vertebrates, three-dimensional projection, ecomorphology