

Supervisor's evaluation of a MSc thesis

Author: **Vojtěch Waldhauser**

Title: **Evolutionary history and diversification dynamics of the viperid snakes**

Vipers are an iconic group of snakes, and their name alone automatically triggers some emotion I believe in everyone. It is therefore not surprising that vipers have attracted the interest of researchers for centuries. Given the high toxicity of most species and their medical importance in many countries of the world, a lot of research has been dedicated to the effects and treatments of envenomation. However, to be able to comprehend the historical pathways that led to the evolution of one of the most dangerous group of organisms globally, it is essential to understand the phylogenetic history of vipers, estimate the ages of individual clades within the family and assess what factors might have contributed to their present success and a nearly global distribution. This exactly was Vojta's task for his Master thesis.

It would be naïve to think that there have been no previous attempts to infer the phylogenetic history of vipers. In fact, they have been fairly numerous. Yet, all of them relied on very limited genetic data (a couple of Sanger-sequenced loci) and the sampling of species was always rather poor. Therefore, we set out to assemble the most robust dataset of tissue samples of the entire family Viperidae to robustly reconstruct the viperid tree of life, with a particular focus on some traditionally problematic taxa. Our years-long effort paid off – for his Master thesis Vojta was able to generate or collect genetic data of 95% of living vipers, and for about 90 of the species he got sequences of the ultraconserved elements covering more than 2700 loci. Such a massive dataset allowed inferring a robust tree of viperids with confidence, which then enabled additional downstream analyses of diversification.

Vojta joined our group very early in his studies. I was during his first year at the University (or even sooner?) and given the time we have already spent together it feels weird to me that he is now getting only his Master degree. For his age and study stage, he already has massive experience in the field and with various lab techniques and analytical approaches. Vojta possesses deep interest in biological sciences and is keen to learn new and often challenging methods. During his MSc studies he spent one month in Washington in the lab of Edward Myers learning how to process UCE sequence data, conducted field trips to several African and Arabian countries, and presented the results of his research on local and global congresses, including the herpetological pinnacle, the World Congress of Herpetology in Malaysia this summer.

I believe it is obvious from the above-said that the quality of Vojta's thesis is outstanding. Combined with his qualities as a person and young researcher I must conclude that I am extremely happy to have in on my team.

In Prague
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Jiří Šmíd