Lucie Ambrožová: Dung beetles of Central Europe: Diversity and conservation

Supervisor's evaluation of PhD thesis

Our collaboration with Lucie started a while ago. In her master thesis, she attempted to investigate the effects of horse grazing on grassland beetles using flight intercept traps. Everything worked perfectly except for the traps and the fact that protecting them from curious horses also prevented beetles from getting into the traps. But the interest in documenting the effects of freely-grazing large herbivores on insects has been born. And when Lucie decided to continue her studies, dung beetles were obvious choice.

The PhD started as an attempt to document changes in dung beetle fauna caused by a successful revival of year-round grazing by free roaming horses, cows and wisents in a reserve in central Bohemia. It, however, quickly developed into a rather large-scale sampling of numerous pastures in three regions of Czechia involving a lot of labour in the field and in the lab. All this effort was lead and managed by the student, who was able to obtain money, organize her team of "shitwashers" (beetles were washed from the dung in buckets of water), sort and identify the beetle material, analyse the data, and prepare several manuscripts with minimal assistance from her supervisor & co-supervisor. Important was the internship with Simon Thorn in Bavaria who introduced Lucka to the state of art methods of statistical analyses in community ecology and substantially contributed to two of the three papers in the thesis. She also teamed up with dung beetle specialists and enthusiasts from Czechia, Austria and Germany. At the same time, she collaborated with administrations of two national parks and was able to negotiate her way into some jealously guarded game reserves, numerous nature reserves and private pastures. The diplomatic skills required to gain the access to her sampling sites could hardly be overestimated.

It is certainly worth mentioning that on top of fulfilling the formal requirements of a PhD study, the student made the effort to address several rather practical problems of insects' conservation as demonstrated by the five papers published in regional (non-IF) scientific or popular journals. In Czechia, the animals grazing in protected areas often are (or were) regularly medicated with antiparasitics. Lucie was the first to seriously address the threat this poses to dung beetles and got the message to relevant audience. Many managers of protected areas now at least do perceive the antiparasitics as a problem. She also published commented species lists of beetles encountered during the sampling. Last, but not least, her effort in captive breeding of *Copris lunaris* allowed for the (so far successful) reintroduction of the species to Bohemia, where it went extinct about two decades ago.

To summarise, Lucie acted as an independent colleague rather than a student during her PhD. She exhibited the right and rare combination of curiosity, independence, determination, organization skills and intellectual capabilities. It thus was a great pleasure to have such an enthusiastic, capable, and hardworking colleague. I also greatly enjoyed the detour from our usual "dead-wood business" to the ecology of more aromatic and sticky substrates. I thus believe she is fully equipped for an independent scientific carrier and endorse her PhD thesis for defence.

In České Budějovice, 27th January 2023

Lukáš Čížek