

Supervisor's assessment for PhD student Jiří Tůma

Thesis title: The effect of tropical land use change on soil dwelling ants and termites, their interaction and on ecosystem processes they affect

Jiří's thesis seeks to understand the way that ant and termite communities are affected by tropical habitat change, specifically logging of primary rain forest, and conversion to oil palm plantation. His work assesses these changes in terms of community composition, ant predation on termites, and the process of bioturbation mediated by these and other insects. Because there is a disparate and mainly anecdotal literature on ant-termite predation, we decided that Jiří should write a review paper summarising this interaction, and the other ways that these two groups affect each other. I was very pleased with the way he handled this task and we were able to publish the result in the journal *Biological Reviews*. Jiří also carried out extensive field work in Malaysian Borneo as part of his PhD, often in challenging conditions with only basic facilities. This he did efficiently and without complaint. He also dealt calmly with issues (beyond his control) in the bureaucracy in Malaysia that prevented export of some of the soil samples from the project for over two years. Despite this delay, he was able to publish one paper relating to impacts of ants and termites on soil properties in *Applied Soil Ecology*. This documented, for the first time, how changes in community composition of these two groups results in a smaller number of species being responsible for uplift of soil to the surface in more degraded habitats, such as logged forest and oil palm. This is of concern, because it indicates that bioturbation in degraded habitats, despite not being slower than in primary forest, is likely more vulnerable to future extinction events. Finally, Jiří assessed the manner in which ant and termite communities, and ant predation on termites, is affected by anthropogenic habitat change. This involved extensive field collections of ants and termites from soil pits in Borneo, and laboratory morphological identification of these specimens. The chapter is the first documentation of parallel shifts in ant and termites communities with habitat change at species level, and also the first documentation of how ant predation on termites changes along this gradient. We will submit this work for publication soon. Overall, I have been very pleased with Jiří's dedication to his research. He demonstrated keenness to learn in all aspects, from statistical modelling in R, to improvement in his scientific writing skills. Throughout his PhD studies, Jiří has taken the initiative and engaged more broadly in his field, co-authoring two book chapters on the topic, and supervising a student looking at ant communities on Mt Kletř. He is clearly passionate about his work. I am entirely satisfied with the thesis as he presents it and could not have asked for a kinder, more dedicated first PhD student.



Tom M. Fayle

3rd May 2020