Supervisor report for the Bachelor thesis:

Exploring the relationship between species richness and intraspecific trait variability

by Hana Dvořáková

I met for the first time Hana via Skype, one year ago, and we started directly to organize the work together through a videoconference from UK, first with a bibliographic work and then planning an experiment. Since then Hana was able, to a large extent independently, to set up a complex biodiversity experiment and carrying out an intense functional trait sampling. Although she could count on the constant advice from many good collaborators from the Department of Botany, she was indeed able to establish and develop nicely a rather complex experiment, understanding its implications, organize other people for the sampling campaign and then write a pertinent and well written Bachelor thesis reporting this experience. During the experiment, due to germination problems of one species (despite previous germination trials were conducted), Hana had to order and sown again one species, showing that she had to face a set of technical problems which were solved professionally and to a large extent independently. She was then able to learn and understand several mathematical tools to analyze this type of experiments and a set of basic statistical analyses,. The introduction of the thesis also denotes a very good of review the literature, to a large extent based on an independent research and understanding of the literature. I consider the work done, and the resulting thesis, very well developed and of high scientific interest. I feel the result is quite exceptional for a bachelor thesis, and the thesis is written in a good and fluent text in English, which is also quite exceptional.

The thesis "Exploring the relationship between species richness and intraspecific trait variability" shows that species modulate their phenotype in response to changes in species richness and biodiversity effects. This is an interesting result showing that the functional trait space occupied by species, expected to reflect their occupied niche in a community, depend on biotic interactions with other species. In particular the results seem to suggest an increase of niche differentiation with increased number of species, suggesting that species become more functional different between them when interspecific competition increases. It would be interesting to explore, after the seminal paper Zuppinger-Dingley et al. (Nature 2014), how much these effects are transferred to future generations of the same plant species, therefore if the effects are trans-generational. Hopefully this expansion of the work could be done again in collaboration with Hana for a Master thesis.

In summary, I believe the Bachelor thesis by Hana Dvořáková is a very nice piece of work, which should be more than enough to complete the Bachelor studies. Also I believe that Hana has a good potential for developing more in deep studies on these and related topics.

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