Comments on the thesis "Space activity and sheltering behaviour of terrestrial isopods" by Romana Pálková

Aims of thesis

In a manipulated setting, diurnal activity, shelter use and vagility of two isopod species was studied at their habitat in the City of Olomouc. The target species differ in their degree of land adaptation (or so the author assumes), therefore their short-term activity is believed to reflect on their behavior. This work, apart from its weaknesses, is a useful summary of what had been done in the topic if isopod sheltering, dispersal and diurnal activity in the past.

Technicality/formals,

The thesis is formally well done, the length of chapters is balanced. The figures and tables are informative, well done. An Appendix is given with maps and raw data.

Quality of individual main chapters (introduction, methods, results, discussion),

Abstract

The argument why field experiments are needed is weak.

Introduction

This chapter provides ample information on the land adaptation of isopods. Page by page it leads us through the main aspects of adaptations all the way to the final goal, the behavioral issues.

The author of the thesis did a good job in gathering information and creating a logically built text on land adaptation of woodlice. A little bit of paleontology would've fit, too.

I very much miss the hypotheses. The chapter includes the objectives, but after the long and rather exhausting introduction I expected some hypotheses generated from all that have mentioned earlier. In other words: it isn't clear what results did the author expect from the experiment? Statistics in ecology only makes sense if we use it for testing - testing the validity of hypotheses formulated from previously collected knowledge.

Methods

If this study has happened indoors I'd say this is a well planned design. As it happened outdoors, I must underline some weaknesses emerging from the fact that "natural" environment is way more complex than a controlled laboratory. In other words: we simply can't be sure what are the explanations for the received results? Yet another words: the answer we get is not for what we asked.

The author shares her concerns about the results in pdf pages 30 and 33 in the Discussions and she's right. Humidity and temperature of air and soil can have dramatic effects on isopod activity. We unfortunately don't get information on how homogenous were these traits at the experimental site? One dry spot due to thinner soil can easily make isopods leave the area. I'd soak bricks with water prior to experiment to mitigate these micro-scale differences. We, however don't get much info of the bricks, either. What happened in the area during daytime? Was there any disturbance? Whatever small difference appears, it may affect isopods' choices.

The species differ in general body size, and sex (interacting with season) can also alter activity. There was no mention of sexes, however a great percentage of females (relative to population size) is gravid in early summer resulting in an increase search for shelter whereas males seem to be more active in search for mates. Also, we don't get information on the general size of the used individuals.

My other problem is the species selection and the objective: comparing a "clinger" with a "roller" seems like a sensible task, but the roller (*A. versicolor*, supposed to be highly adapted to land) happens to grow smaller in general (assumingly lower dispersal ability), and the "clinger" (*P. scaber,* supposed to represent somewhat lower land adaptation) is known to prefer dry/less humid habitats in synanthropic areas.

Results

The results are interesting in general, but the received responses have little explanatory value without additional factors (ego. sex, size/age). It would be nice to see visualization of shelter use with highlighting/coloring bricks after isopod abundances (even changes with time). So, the goals are achieved but we simply cannot know what may be the reason to that?

Discussions

This chapter is well written, the author has put together the significant studies in detail in an attempt to compare them to her own results.

References

The references include cc. 70 titles, which is a relatively large number. On the other hand, one third of the cited works was written before 1980, and many titles before 1960. The author often lists 3-4 citations for the same statement, when I'd simply use the latest, most relevant papers. There are several misspelling of author names ("Hassal", "Warbug", etc.).

General:

It is unclear why did she use P. scaber and A. versicolor for the experiments? A. versicolor is especially an unusual choice being a rare species outside of C. Europe, however it may be common in Olomouc.

A great number of isopods has left right after the start and their numbers kept on declining until the end of studies. It may well have something to do with searching for food. Did the author think about adding (standard quantity and quality of) food to each shelter?

References: Schmalfuss 2008 is an error, it should be Schmalfuss 2003 or 2004 for the updated version.

The thesis is written in English which is a brave but logical choice given the great significance English has as *"lingua franca"* in current science. The language of the text is a mixture of clearly formulated "scientific" English and disturbing stylistic mistakes that repeatedly appear throughout (e.g. "There were observed…"). The thesis, however, shows clear language skills of someone familiar with the scientific literature and potentials for improving written English.

Notes/objections/questions

Further notes and questions are listed above

Summary of contribution/consequence of thesis.

The author did a great job in extracting information from the literature, whereas the actual field research seem to have faced some problems. With my comments above I wish to reflect on possible ways of improving, especially if the goal is to publish in an international peer reviewed journal.

Given the fact this study was conducted by a student with limited resources I must say this is an excellent work. The student have conducted an exciting field study, delivered some interesting results and brought some technical problems to surface which are surely useful contributions to our understanding of isopods and their research.