

7. September 2010

Universität Koblenz-Landau, Fortstraße 7, D-76829 Landau**Magdalena Curikova**

doctoral study

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Tschechien

Thesis Review for the Ph.D. defense of Markéta Faustová**Dear Miss Curikova,**

here I send you the review for the Ph.D. thesis of M. Faustová.

Thesis Review for the Ph.D. defense at the Faculty of Science, Charles University in Prague, 9th
September 2010 by**Markéta Faustová**Title: ***Phylogeography, taxonomy, and systematics of selected members of the family Bosminidae.***

Reviewer: Prof. Dr. Klaus Schwenk, University of Koblenz-Landau, Germany

(1) short overall assessment of the thesis

The thesis contains three chapters based on one already published manuscript and two manuscripts which are nearly ready for publication. Overall this thesis deals with a well known, but taxonomically difficult, group the Bosminidae. Based on up-to-date genetic and morphological analyses Miss Faustová tackles longstanding but unresolved questions in the field of systematics and evolution. The study is original and based on a well structured sampling design and appropriate analytical approaches. The quality of documentation is high, as the publication in a highly ranking international journal shows.

(2) specific critical comments

Overall I congratulate Miss Faustová to a very interesting and thorough study using genetic and morphological approaches to solve several basic systematic questions. However, I would like to address some aspects which might deserve some further considerations:

1. I think that the title of the Thesis is a bit misleading, "phylogeography" is not really a focus of the study. There is no phylogeographic analysis conducted.
2. The third chapter (on mtDNA genome comparisons) seems a bit isolated from the two others. The reason for this is of course the nature of this study, however my critical point is not the structure of the thesis rather the lack of integration of the three parts. In my view the thesis as a whole should be more than the sum of all chapters, i.e. the introduction or the conclusions should integrate the different chapters.
3. Although the first part of the thesis contains several typos and grammatical ambiguities, on average the rate of "formal errors" is below average (based on my experience).

(3) more general questions to the defendant

1. It is mentioned that some DNA sequences were cloned (HSP90) to obtain both alleles, thus what was the frequency of heterozygotes, and were more than two alleles found in an individual or population?
2. In Table 1 of chapter 1 Miss Faustova presents estimates of population differentiation (e.g. F_{ST}) which are based on largely different sample sizes. Has that bias been tested?
3. In chapter one you mention that "morphotypes represent a group (...) with apparent reproductive isolation". However, in figure 1 we see that many haplotypes (mtDNA and nDNA) share different morphotypes, indicating that hardly any reproductive isolation occurs. How do you justify your main conclusion?
4. What is the link between all three chapters?
5. Which conclusions can be drawn from your findings in *Bosmina* to other cyclic parthenogens?

(4) statement

I consider the Ph.D. thesis of Markéta Faustová suitable for award of a Ph.D.

Sincerely,



Klaus Schwenk