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**Report of the member of the Thesis Council on the thesis:
“Rove-Beetles Of The Genus *Quedius* (Staphylinidae: Staphylinini) Of Russia And Middle Asia:
Taxonomy, Distribution And Ecology”**

Submitted for the completion of thesis for the
degrees of Candidate of Biological Sciences

Speciality 03.02.04 – Zoology
by Maria Alekseevna Salnitska

at Saint-Petersburg State University

Report for Ph. D. submission
Maria Alekseevna Salnitska
“Rove-Beetles Of The Genus *Quedius* (Staphylinidae: Staphylinini) Of Russia And Middle Asia: Taxonomy,
Distribution And Ecology”

Prepared by: Prof. Stylianos Chatzimanolis, PhD, University of Kansas

Outline

One of the most speciose taxa among Staphylinidae (rove beetles) is the genus *Quedius*. The genus has a high degree of endemism and habitat specialization, and its holarctic distribution makes it an ideal organism for evolutionary, ecological and biogeographical studies. Yet, *Quedius* is also one of the most problematic taxa among rove beetles. It is almost impossible to create identification keys for its 700 species due to the high degree of interspecific variation and the high levels of synonymy. Additionally, there are parts of the world that are completely unexplored regarding the faunistics of this genus, complicating issues both of alpha taxonomy and biogeography. The premise of this PhD dissertation is to tackle these problems in *Quedius* and assess the taxonomy, ecology and faunistics over Russia and Middle Asia.

Assessment

Relevance of the dissertation research

Dealing with the genus *Quedius* is one of most challenging problems in rove beetle systematics and someone who starts their career with this genus can tackle any future research project. Russia and Middle Asia are practically unexplored areas regarding the systematics of rove beetles so the combination of geography and the taxonomic problems makes this dissertation a highly relevant topic.

Degree of validity of scientific provisions, conclusions and recommendations formulated in the dissertation

The dissertation starts by using appropriate previously published works as the foundation of the research and expands by moving forward into new research. The research conducted here uses modern techniques to address long standing problems and the conclusions are appropriate well thought out.

Structure and content of dissertation

The dissertation is composed of an Introduction, four chapters, a Conclusion section and the References section. The Introduction sets the stage for the following chapters by carefully describing what is the scientific problem and how it will be addressed. Throughout the dissertation appropriate reference is made to published papers by the candidate that extrapolate on what being discussed. While I cannot comment on the Russian part of the dissertation, the English half is well written with only very minor linguistic mistakes, at a level one would expect from a USA institution. The References are appropriate and correctly cited throughout the dissertation. Overall, the dissertation clearly advances the scientific knowledge and it is a significant contribution to beetle systematics by tackling important and difficult scientific problems.

Specific areas of discussion

Introduction

The introduction starts with a general overview of *Quedius*: what is known about the genus, its diagnostic characters, the presence of *Quedius* in various parts of the world and finally what is known about *Quedius* in Russia and Middle Asia. Then the scientific problem is discussed as well as the purpose of this dissertation and its scientific novelty. The introduction ends by listing all the presentations and publications that have resulted from this work, and the material and methods for the dissertation. Overall, the introduction is appropriate and well written.

Areas for improvement: On the first page, *Quedius umbrinus* is brought up as a subject for the study of intraspecific variability and morphometrics. However, very few details are provided why this is a good model

for this study, besides that the alpha-taxonomy for this species is rather controversial. A few more details would have been helpful here.

Main Body

Chapter 1 presents a summary of the background work to synthesize all available publications for *Quedius* in Russia and Middle Asia in a form of an annotated catalogue and this work was published as a 100 page paper in *Zookeys*. This work by itself is probably the equivalent of a Master's thesis work and it is ver well done.

Chapter 2 presents the results of the faunistic analysis of *Quedius* for Russia and Middle Asia. *Chapter 3* is the summary of the taxonomic work that resulted from this dissertation: description of two new species, redescription of seven and eight species were synonymized. Chapters 2 and 3 together resulted in three papers published in international journals. *Chapter 4* presents the results of studying the intraspecific variability for several species of *Quedius* using both traditional and modern (DNA barcoding and morphometrics). The analyses presented here use state-of-the-art approaches for species delimitations and are very important particularly for challenging taxa.

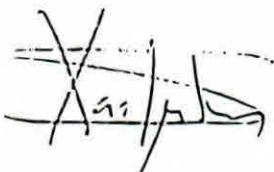
Areas for improvement: As far as I can tell, chapter 4 is the only chapter that is not published. In general few details are given for the morphometric analysis presented on Fig. 13 or the barcoding analysis presented on Figs 11-12. I would have liked to see a bit more discussion on the results here.

Conclusions and References

The conclusion section is appropriate and comprehensive. All the references are appropriate, comprehensive and well cited throughout the text.

The dissertation by Maria Alekseevna Salnitska is an independent and significant scientific work towards the study of rove beetles. It presents new data and taxonomic information that are going to be of broad use by the scientific community.

Overall the dissertation research "Rove-Beetles Of The Genus *Quedius* (Staphylinidae: Staphylinini) Of Russia And Middle Asia: Taxonomy, Distribution And Ecology" carried out by Maria Alekseevna Salnitska presented for the degree of the Doctor of Philosophy in Biological Sciences meets the qualification requirement for candidate dissertations on Specialty 03.02.04 - Zoology.



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