

Lawrence, Kansas  
7 September 2010

Prof. RNDr. Bohuslav Gaš  
Charles University in Prague  
Faculty of Science  
Albertov 6  
128 43 Prague 2  
Czech Republic

Dear Prof. RNDr. Gaš,

I am writing in regard to the dissertation of Mgr. Martin Fikáček which was sent to me earlier this Summer for evaluation. The following is my report on this work.

The entire dissertation, comprising 13 separate studies, examines the evolution and biodiversity of hydrophiloid beetles and considers both the fossil record (four articles) as well as the modern diversity (nine articles) for a truly holistic perspective on this lineage. It is abundantly evident that Mgr. Fikáček is authoritatively familiar with Hydrophiloidea, and Coleoptera in general. The depth of his expertise in this subject is masterfully reflected in these contributions and, perhaps most significantly, his general knowledge and competence with modern systematic procedures and methodologies is more than apparent. I was greatly impressed by his assortment of papers, particularly those whereby he wisely synthesized traditional (and amply well founded) revisionary practices with current cladistic methodologies for evaluating biodiversity and genealogical relationships. It was further impressive how Mgr. Fikáček extended these same techniques toward a critical evaluation of the fossil record for this group, adding a critical paleontological framework for the broader understanding of distributions, species delimitations, and phylogenetic patterns. As my own area of expertise resides largely in insect paleontology I found these contributions refreshing and exciting. Mgr. Fikáček's contributions to the fossil record of Hydrophiloidea are truly groundbreaking for this lineage of beetles. Never before has such precision and exacting care been taken in the study of fossil hydrophiloids and the re-evaluation of previously described species is of great importance. For the first time thorough accounts of each species are available and they are critically compared with their modern counterparts such that their true affinities can be more fully appreciated and objectively evaluated. In addition, several important new species are described which greatly enhance the known temporal as well as geographical distributions for these beetles. Perhaps most importantly, all of this material has been evaluated using morphometric as well as cladistic methodologies. The latter is of particular value in that apomorphic features of the fossils permit their confident placement into clades such that phylogenetic relationships can be evaluated over a geological timeframe for the first time (*e.g.*, the wise synthesis of paleontological information with the phylogeny of genera in the subtribe Hydrophilina, and the cladistic evaluation of fossil *Limnoxenus*). These works have made significant advances in the study of fossil Hydrophiloidea and it is greatly hoped that such revisions will continue.

It is important to note that Mgr. Fikáček has more than amply demonstrated an expertise across the global hydrophiloid fauna, making his interpretations all the more robust. I was impressed with his equal degrees of expertise with faunas as divergent as those of the New World tropics, Papua New Guinea, and

the Arabian Peninsula (to name just a few). Another excellent element with his work is the degree of documentation for characters and metrics used in circumscribing taxa as well as for the evaluation of phylogenetic relationships. Not only are the characters thoroughly evaluated, but the quality of images, be they scanning electron micrographs, photomicrographs, line drawings, or maps, are all of the best execution. Such detailed and careful preparations make these works all the more accessible to the global community of scholars, and demonstrate objectively the foundations upon which all of his analyses and interpretations are based.

In summary, I strongly recommend acceptance of this dissertation. In comparison to other dissertations I have studied, this work is of high quality and certainly qualifies for the doctoral degree in terms of originality, complexity, and breadth of scope. I hope that upon considering the above you will see fit to grant Mgr. Fikáček a defense of this work and eventually all of the rights and privileges of the doctoral degree.

If there is any further information that you require, then please do not hesitate to contact me.

With kind regards, I am

Sincerely yours,

A handwritten signature in black ink, reading "Michael S. Engel". The signature is written in a cursive style with a large, sweeping initial "M" and "E".

Prof. Dr. Michael S. Engel  
*Professor, Department of Ecology & Evolutionary Biology*  
*Curator-in-Charge & Senior Curator, Division of Entomology*  
*Courtesy Curator, Division of Invertebrate Paleontology*  
*Courtesy Professor, Department of Geology*