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Vienna, October 26, 2024

Review of the PhD thesis entitled

„ZACHOWANIE FLORY WSCHODNIOAFRYKAŃSKIEJ: ZNACZENIE OBSZARÓW CHRONIONYCH

submitted by **Roy E. Gereau**

The two objectives of the present PhD thesis are (1) "*to test the hypothesis that protected areas constitute the primary component and organizing principle of practical and sustainable nature conservation in eastern Africa*", and (2) "*to investigate the use of existing protected areas in the furtherance of in-situ and ex-situ biodiversity conservation in Tanzania*".

To achieve these objectives, the thesis comprises, besides an introductionary part, six publications co-authored by the candidate which have been published in renowned peer-reviewed journals. Their contents ranges from a global to a regional scale.

Evaluation of the contents:

In the introduction different topic of relevance for the thesis, i.e., biological inventories, extinction risk assessments, and protected areas are explained.

The series of papers starts with a review article addressing the question of the importance of tropical Africa in view of global biodiversity richness. A second paper illustrates the plant species biodiversity richness of Tanzanian National Forest Reserves and, consequently, their importance as conservation areas for the native Tanzanian flora. Evidence provided by these two papers highlight the importance of biological

inventories as basis for conservation efforts and supports the hypothesis that protected areas constitute the primary component and organizing principle of practical and sustainable nature conservation in Eastern Africa.

The author of present thesis has been involved in assessing extinction risks of Eastern African plant species for a long time. This experience is clearly reflected in the following papers. First, the species level is addressed by a paper illustrating the genetic diversity of a Critically Endangered species (*Karomia gigas*) and the importance of *in-situ* conservation within existing forest reserves in Tanzania. Finally three papers deal with descriptions of species new to science, all of them occurring in protected areas in Uganda, Tanzania, and Zambia (there only partly in protected areas). These papers provide insights in optimal measures for the conservation of the species in question, based on the reported distribution and threats and the information about assessed protected area effectiveness.

The development of conservation methodologies for the taxa dealt with in the corresponding papers is in line with the second objective of this thesis: to investigate the use of existing protected areas in the furtherance of in-situ and ex-situ biodiversity conservation in Tanzania.

Finally the author provides six conclusions resulting from the papers presented as part of this thesis: (1) biodiversity inventories, extinction risk assessments, and a robust network of protected areas are the primary elements in the design and execution of effective nature conservation; (2) the extensive network of protected areas in tropical Eastern Africa including Tanzania's system of Nature Forest Reserves provide effective protection to a large proportion of the vascular plant flora, including many species of high conservation value (3) Global Biodiversity Hotspots, Key Biodiversity Areas, Important Bird Areas, and Tropical Important Plant Areas provide valuable means of organizing conservation priorities and planning, but provide no conservation benefits in and of themselves, (4) protected areas are primary component and organizing principle of practical and sustainable nature conservation in eastern, because of their regulatory stability and the ability to monitor their effectiveness over time, (5) successful conservation planning is depending on assessments of *in-situ* and *ex-situ* conservation priorities, (6) in Tanzania, data on species' known distributions and threats and information about the protected areas in which they occur are available

from known and tested sources – decisions on meaningful *in-situ* and/or *ex-situ* conservation can be based on such data.

Overall Assessement:

Both the summarizing chapters and the papers included in the thesis are of high quality, well written, and with clear indications of the contributions of the PhD candidate. The conclusions drawn from the papers are well argued and scientifically sound. The cited literature is comprehensive and relevant. The two objectives of the thesis are reached.

Conclusions:

The doctoral thesis of Roy E. Gereau reviewed here meets the conditions specified in Art. 13 of the Act of March 14, 2003 on academic degrees and titles in science and arts (Journal of Laws 2017, item 1789 amend.).

Consequently I recommend that Ruy E. Gereau is admitted by the Biology Faculty Board of the Adam Mickiewicz University in Poznan for the further stages of the doctoral defense procedures. Based on the exceptional scientific contributions of Roy E. Gereau to the conservation of the Eastern African flora, especially related to the importance of protected areas, as documented in the high quality research of the present PhD thesis, I recommend to award the doctoral student appropriately.

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