



To: Representatives of Charles University, Faculty of Science

**Evaluation report**  
**For the PhD thesis of Guillermo Uceda-Gómez entitled**  
**„Organization of Afrotropical plant-bird pollination communities: the effects of altitude**  
**and seasonality“**

Pollinators and plants developed tight relationships which are very important for the ecosystem functioning. Traits of both of the pollinators and plants are very important for the interactions. Understanding the consequences of biodiversity and traits change is thus of major importance for ecosystem functioning. Especially in regions where diversity is high, and where we lack clear understanding of the processes in play.

Here, very timely, the thesis of Guillermo Uceda-Gómez comes. In the introduction, the author first delves into the origin of the angiosperms which is important for the plant-insect, as well as plant-bird relationships. Further on, he summarizes the knowledge on the diversity of pollinators and moves on the topic of the pollination by birds. The final parts of the introduction then focus very well on the pollination syndromes, drivers of these interactions and mechanisms in play for their establishment. After a very nice and lengthy introduction, the thesis starts to focus on the specific aspects and problems of the pollination systems in understudied African region.

Here, I very much appreciate the tremendous amount of field work and post-field work, which are standing behind the whole thesis. To my great (not sure whether positive or negative) surprise, the whole thesis consists of 8 chapters (7 of them are published in peer-reviewed journals), which are all based on the extensive field sampling, and from along different elevations and habitats of Mount Cameroon. Knowing the working conditions there, and especially challenging wet season, I have to clap once again for collecting such a great amount of data which were used to challenge the hypotheses related to the segregation of the bird-feeding niches and pollination syndromes and spatio-temporal variation in the interactions.

An important finding of the chapters is that different processes drive the interactions. During the dry season, neutral processes drove the visitation, but niche-based processes become important in wet season (shown in Chapter I - Biotropica). Later on, the author returns to the effect of elevation and seasonality in Chapters VI (Oecologia) and VII (manuscript), and even in Chapter VIII where he works outside of the forested gradient. All these chapter complement each other really well and represent an enjoyable complex topic which stresses the importance of neutral as well as niche-based processes. I very much like the discussion of the results and the explanation of the most important findings. In Chapter II (Ecology and Evolution), I very much appreciated the experimental aspect with the alien species, which very much helped in the understanding of the importance of the evolutionary processes. Chapter III (Biological Journal of the Linnean Society), was even more pleasant surprise for me, as the experimental setting was really neat and followed very well the



Chapter I and confirmed the findings. Despite the author found a continuity in how the insect and birds visited the plants, they syndromes were confirmed from the plant's point of view (Chapter IV - Oikos), and then focused on the sexually driven segregation of niches (Chapter V – Journal of Ornithology).

In all chapters, appropriate statistical methods were used, to my knowledge, and majority of the texts are very enjoyable to read. I found several small mistakes in the only unpublished manuscripts, but I believe the author will have several chances to fix them. Sometimes, I believe the Figures and their legends could be more self-standing. However, considering the chapters have been published already, maybe I am just too demanding.

Questions (which I might ask during defence):

- Which result or manuscript are you most proud of and why?
- Figure S3, Page 243 (and there is many more similar figures). Do you think the hump is reliable in the middle, if there are no data-points in that region? Part a) and b) also seem to be showing different elevations.
- In some chapters, you combined video recordings with direct observations. To my understanding, the video recordings were taking into account also night pollinators. Did the observers observe at night too? If not, how could this affect the results?
- There is a table at the beginning, and in one of the later chapters, there are sites listed and the descriptions seem to be confusing, e.g. page 38. Where elevation 2300 seem to be described as lowland? And 2800 m as mid-elevation?
- What is the proportion of robbers in the bird community, does it change with elevation and is there some continuum in the traits? Can the bird for example rob some plants and pollinate other species?
- In the thesis, there is several comparisons between African and New World systems. Could you summarize the most important similarities or similarities in the systems?
- Could you elaborate on how flower mites (which often travel on birds) could affect the interactions you observed? What ecological roles do they play in your specific system?
- How do you envision your findings on the plant-pollinator interactions to be impacting conservation efforts for Afrotropical regions? Maybe specifically, can you comment on how might habitat fragmentation alter the bird-plant pollination dynamics you observed?
- You discussed elevational distribution of various pollinators. Imagine there is a widely distributed plant species, potentially pollinated by different pollinators (or maybe in different proportions), how do you think it would affect their reproductive success? Which other factors, except the presence of the pollinators, would be affecting the success? Maybe some environmental factors?



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**In summary, the dissertation of Guillermo Uceda-Gómez represents a solid personal and scientific achievement. Guillermo Uceda-Gómez clearly accomplished all presented research projects with satisfying quality. The dissertation should be accepted without hesitation.**

In Ceske Budejovice  
13<sup>th</sup> November 2024

Kind regards

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