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Interactive comment on “Phylogenetic support for the Tropical Niche Conservatism Hypothesis despite the absence of a clear latitudinal species richness gradient in Yunnan’s woody flora” by G. Tang et al.

Anonymous Referee #2

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The authors have made effort to defend what they did in the study. However, from their responses to reviewers’ comments, I see more severe problems with their study. The data that they used are not appropriate to address the issues of their study. I strongly disagree with all of their responses to my comments. As an example, here are my comments to some of their responses.

Data quality: As I mentioned in my previous comments, the ~40% of Yunnan woody species used in the study may not appropriately represent the entire woody flora of Yunnan. However, the problem with their data is much more severe than this incom-

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pleteness of the floristic data. A more severe problem is with the species that they used in their study. Their modeled species distributions were generated based on herbarium collection records and climate data. Herbarium collections of a given species generally cover a small percentage of the distribution area and possibly habitat types of the species. Localities of herbarium collections for a species in their study are as few as five. Using such few records is unlikely to generate relatively accurate distributions of the species across 4936 grid cells of 10 km by 10 km in Yunnan, which covers 394000 km² and a great variety of habitats. Furthermore, Yunnan is geographically rather rugged and distributions of many species within Yunnan are driven by geographical/historical processes such as the rising of the Himalayas due to the collision of the Indian plate with the Asian plate, rather than driven by climate. Thus, species distributions generated by models based in part on climate must be biased. Another critical problem with the study is that the authors used climate data to generate species distributions and then used the model-generated species distributions to relate to climate in testing for the Tropical Niche Conservatism Hypothesis. This is a typical example of circulation.

APG II versus APG III: The explanation by the authors for not using APG III is unacceptable. APG III (published in 2009) is a substantially updated version of APG II (published in 2003). If there are no substantial updates in APG III, one would not expect that the top international botanical journal (BJLS) would have published APG III. In fact, there are many dramatic changes in APG III, even at very deep divisions of the phylogeny. For example, eudicots are sister to a clade including both monocots and magnoliids in APG II but magnoliids are sister to a clade including both eudicots and monocots in APG III. Such a change is dramatic. Regardless of whether using APG III in the study would change the general pattern found by the study based on APG II, an appropriate way to do science is to use the most current knowledge, rather than outdated knowledge.

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