

Reviewer 1

1. **I consider plant histology studies to be important and I believe that even today they can provide new, useful results. The results of the manuscript shade and clarify our generally learned/taught knowledge about the secondary thickening of the stems, and within about liana-type thickening. „Allocate” - It is a frequently used word in the manuscript, and I think that its use is sometimes not justified, it does not facilitate the understanding of the given statement: For example, in line 74 206. I suggest based for example on the article of Smith K.T (Compartmentalization, Resource Allocation, and Wood Quality. Curr Forestry Rep (2015) 1:8–15. in which the “within-tree allocation” is used as “within-tree allocation between tree growth and protection from herbivory”) the use of „within-stem allocation (of resources)” between/among investigated functions in lianas and trees... Since a stem fulfills several functions, and the ratio of the tissues serving these can vary.**

Authors: We use the word "allocation" to describe how plants balance the distribution of their biomass or limited resources—such as energy and nutrients—across various functions. We believe that this usage is appropriate within the context of our research, as it captures the dynamic nature of resource distribution in plants (trees and lianas). That said, we also recognize the validity of your suggestion. After careful consideration, we have opted to retain the term "allocation," as it can be applied broadly across different contexts, including the one you proposed.

2. **Line 171: Important to highlight, that the anatomical features were investigated only in wood/xylem. In my opinion phloem and cortex in a young seedling can contribute significantly to transport, storage, photosynthesis, tissue replacement caused by injury, flexibility, etc.**

Authors: We indicated throughout the text that we measured anatomical traits in wood (L:175; L:178). We agree with the reviewer that bark, including phloem and cortex, can play an important role in the functioning of seedlings. However, our study is focused on wood.

Discussion

3. **To lines 221-245. It is surprising that the development of the genetically determined histological structure is so dependent on the environment, in this case, whether there is support or not. It would be exciting to examine the genetic background of this as well in the future.**

Authors: In addition to environmental drivers, there may be additional intrinsic drivers linked to developmental shifts that occur during ontogeny. We agree that studying the underlying causes of these shifts would be interesting but this falls out of the scope of this manuscript.

4. **Line 251-257: What does „demographic difference” between lianas and trees means? And what is the connection between demographic and structure of wood? In my opinion demographic is more than ability of species to grow! Abiotic and biotic**

environmental factors influence it. It is not surprising that liana seedlings do not grow quickly without support. Plants do not waste energy unnecessarily, they “wait” for help. Growth can also be strongly influenced by light conditions. Did the light conditions also change during the dry season? The description of the places of collection/structure of the forests is missing.

Authors: In our study, when we refer to "demographic differences," we are specifically discussing differences in growth rates between lianas and trees. For clarity, we have used the term “growth” instead of “demography”. We agree that demography encompasses more than just growth; and that both biotic and abiotic factors affect growth. In the models explaining growth based on growth form (i.e., liana or tree), we included seedling height as a fixed factor and species as a random effect.

Regarding your point on light conditions and environmental influences, while our study primarily focuses on seasonal water availability, we agree that light can also play a critical role. We have measurements of light availability per 1 m² plot that have been included as an additional fixed effects in our models. The results show that light (i.e., canopy gap index) is unrelated to growth ($F=1.67$; $p>0.05$). Moreover, including light in the models did not change considerably the marginal or conditional coefficients of determination (R^2): Without light: R^2 conditional: 0.41 and R^2 marginal: 0.09; with light: R^2 conditional: 0.38 and R^2 marginal: 0.10

What does „demographic difference” between lianas and trees means? And what is the connection between demographic and structure of wood?:

Authors: The term demography refers to growth. For clarity, we have used the term “growth” instead of “demography” in the discussion.

Did the light conditions also change during the dry season?:

Authors: The light conditions likely varied between the dry and wet seasons, as these forests are deciduous. However, this temporal variation in light should affect both trees and lianas similarly. We believe that spatial variation in light may play a more significant role in giving some seedlings an advantage over others. To account for this potential effect, we have introduced new models that include the percentage of understory light availability at the seedling plot level (L:147-150).

Materials and Methods

5. line 306: „(≥ 20 cm and ≤ 130 in height) -in this form these data are not understandable! Height of plantlets were 20-130 cm.? In my opinion if it is true, this is a too wide range of data! - Because, the structure of stems of 20 cm or of 130 cm (belonging to same species) show lots of differences. In „Discussion” (line 197) is written: „that we compared liana and tree seedling of similar heights, and measured wood anatomical traits at the same stem height (i.e., at 5 cm from the base)”. This

statement is very important, because recently, several studies brought a new perspective on the inter-individual variation of wood anatomical traits highlighting the role of tree height as the driver of wood anatomical variation along plant stem, as opposed to the classical pith-to-bark age trend. May I ask how the two statements are consistent?

Authors: We have adopted the format suggested by the reviewer. Regarding your other comment, this seedling height range is commonly used to define seedlings in permanent forest surveys (see ForestGEO protocol [1] <https://forestgeo.si.edu/protocols/seedling-performance> . In response to your question about standardization, we agree that wood anatomical structure can change with plant height. This is particularly true in the case of vessel lumen size, as plants need to build narrower vessels as they grow in height. To take into account these height-related variations, we standardized all our measurements by size, as all cross-sections were cut at 5 cm from the stem base. This information is included in the methods section (L:312).

6. Figure 3. and Fig. S2: Beautiful pictures of very different stem and xylem structures! How old are these plantlets?

Authors: Thank you. These seedlings were collected from the field and we do not have accurate information on their age.

7. Table S1: Does the fourth coloumn contain the data of lianas and trees as well?

Authors: Yes, the range of each trait was calculated with the values of both lianas and trees.

8. Table S2 – What is the guiding principle in the enumeration?

Authors: Can you please be more specific about what you mean by enumeration?

References:

Anderson-Teixeira, K. J., Davies, S. J., Bennett, A. C., Gonzalez-Akre, E. B., Muller-Landau, H. C., Joseph Wright, S., ... Baltzer, J. L. CTFS-ForestGEO: a worldwide network monitoring forests in an era of global change. *Global Change Biology*, 2014. 21(2), 528–549.