General comments

This meta-analysis work analyzed how does plant mixture affect land surface water cycle. This topic is very important and this work is timely to inform what is the situation. The authors collected a very good data, and the methodological framework is robust. Therefore, this is a nice and solid work. I'm glad to read it at this stage. I have no big major concern except several technical points.

Response: Thank you very much for your time and constructive comments on our paper. We have read through comments carefully and have made modifications. Please see the following point-by-point replies for details.

Line 28: I would like to remove "global", as plants play their roles mainly in the local - regional scales, and their effects are largely limited in the global scale.

Response: Thank you for your comment. This sentence will be rewritten in the text (Line 28).

"Plants are the main biological regulators of regional water cycles and determine the hydrological fluxes of ecosystems."

Line 38: remove the dot

Response: It has been edited in the text (Line 38).

Line 40: what does the "this" mean is unclear, rephrase please

Response: Thank you for your comment. The term "this" in Line 40 refers to substrate change. This sentence will be rewritten in the text as follows (Line 40-42).

"These modifications in the substrate affect the distribution of precipitation between the above- and below-ground components subsequently impacting a broad spectrum of processes within the water cycle, such as evaporation, stemflow, throughfall, soil infiltration, and surface runoff (Collins & Bras, 2007; Luo et al., 2022; Li et al., 2022; Unigarro et al., 2023)."

Line 50-51: it's unclear what is "the region"? clarify

Response: Thank you for your comment. This sentence will be rewritten in the text as follows (Line 51-52).

"However, various studies have reported contradictory results (Rahman et al., 2017; Guderle et al., 2018) or negligible (O'Keefe et al., 2019) effects of plant mixtures on soil water content as well as for other water cycle processes (Ghahremani et al., 2021; Leimer et al., 2014; Spehn et al., 2000)."

Line 80-82: it will be better to write the search expression in a formal way, which will benefit reproduction

Response: Thank you for your comment. We will add search expression as follows in the text (Line 82-84).

"We identified peer-reviewed papers published up to 1 Jun 2022 in the Web of science, SCOPUS, and China Knowledge Resource databases with the search term 'biodiversity OR "plant diversity" OR "species richness" OR "species diversity" OR "species abundance" OR monoculture OR mixture AND "water fluxes" OR "water cycle" OR runoff OR infiltration OR evaporation OR evapotranspiration OR transpiration OR "soil water" OR interflow OR throughfall."

Line 103: please provide details about the data source

Response: We agree. We will add search data source as follows in the text (Line 108).

"Ecosystem types were categorized as forests, croplands, agroforest, grasslands, and indoor plantation (Chen & Chen, 2021)."

References:

Chen, X., & Chen, H. Y. H. (2021). Plant mixture balances terrestrial ecosystem C:N:P stoichiometry. *Nature Communications*, 12(1). doi:10.1038/s41467-021-24889-w

Line 167: replace these abbreviation names with "water cycle" or similar words, to make it simpler and clearer

Response: We agree. This sentence will be rewritten in the text as follows (Line 172-173).

"**Figure 4:** Comparison of water cycles (Soil water content, runoff, steady infiltration, evaporation, transpiration, throughfall, and water use efficiency) in diversification assemblages versus monocultures between ecosystem types."

Line 188: "at" → "among"

Response: We agree. It will be revised in the text.

Line 189: in the topsoil (0-20 cm) in deeper soil? An "and" is missing here?

Response: Thanks. This sentence will be rewritten in the text as follows (Line 195).

"The effect of plant mixture on SWC exhibited a slight increase in correlation with MAP throughout the entire soil profile."

Figure 10: legend within each panel is not necessary. It's better to remove them to keep the figure more concise

Response: We agree. It will be edited in the revised manuscript.