

Dear Editor,

We thank you and the reviewers for the careful evaluation of our manuscript. In this revised version, we implemented three minor changes, outlined below:

(1) We fixed the labels in Figure 1 to reflect the revised classification, as requested by one of the reviewers.

(2) Following the same reviewer's suggestion, we incorporated the reference *Pym et al. (2023)* in the Tropical Andes section (lines 489–491) (in blue). This addition required a slight reorganization of the paragraph and the inclusion of the following sentence:

“Additionally, an overall decline of megafauna in tropical Andes resulted in sensitive ecological consequences associated with vegetation turnover, e.g., the encroachment of both palatable and woody taxa, as well as fuel build-up (Bush et al., 2022; Pym et al., 2023).”

(3) We added one short sentence in the abstract (lines 29–30) and two short sentences between lines 694–698 (in blue) to complement and refine ideas that are already present in the manuscript.

Lines 29–30: “In warmer tropical regions (NNeo, Amazonia, CEB), moisture availability was likely the main controlling factor of both vegetation and fire, *with the effects of low CO₂ amplifying these constraints.*”

Lines 694–698: “*A stronger impact of low CO_{2atm} is expected on vegetation in warm tropical regions (e.g., NNeo, Amazonia, CEB, NEB) compared to cold regions (e.g., ExTrAn, SESA, TrAn) (Sage and Coleman, 2001). Reduced CO_{2atm} is also suggested by modelling data to weaken the fire regime by altering availability and properties of biomass (Haas et al., 2023), while it can also increase the severity of fires by slowing post-burn tree recovery (Bond et al., 2003).*”

Apart from these stated minor changes, the paper is exactly the same as the previous version.

On behalf of all coauthors,

Thomas Kenji Akabane