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Influence of woody plant community composition on the distribution of macrofungal community composition: a case study in Yunnan Province, China

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Purpose: We aimed to map the spatial distribution of macrofungal and woody plants community composition in these three sites; to assess whether there has a consistent relationship between macrofungal community composition and woody plant community composition among different functional groups; to further explore what factors affect the macrofungal community composition.

Methods: This study investigated the distribution of macrofungi and woody plant community composition across three sites in Yunnan, as visualized by distribution maps.

Results: The spatial distribution of macrofungi were significantly correlated with the density of woody plants. In two sites, Zhongdian and Baoshan, the community composition of ectomycorrhizal fungi and ectomycorrhizal plants were significantly correlated, but no such relationship was found in our third site, Xishuangbanna. Macrofungal distribution was further affected by geographical and climatic factors at each site, and by the slope of individual plots.

Conclusions: We concluded that dominant woody plant species could be used as an indicator of macrofungal community composition. Thus, forest management of the density of woody plants, coupled with conservation of dominant woody plants species, would be a reasonable strategy for supporting the conservation of macrofungi.