Zhanqing Hao, J Ecosyst Ecogr 2017, 7:1(Suppl)
http://dx.doi.org/10.4172/2157-7625-C1-025

Zhanqing Hao

Chinese Academy of Sciences, China

Functional and phylogenetic temporal turnover in two temperate forests in Northeast China

Whether deterministic or stochastic processes dominate temporal turnover of community composition and which factor has significant influence on that turnover, has been a central challenge in community ecology. Functional and phylogenetic temporal beta diversity can capture important insights of the underlying processes. In this study, we focus on functional temporal turnover based on 14 functional traits and phylogenetic temporal turnover using fully mapped data in two large temperate forest plots at different successional stage. We found that 1) Deterministic processes are the main process for both forests and size classes. The functional and phylogenetic compositions are relatively constrained at late successional stage and changed dynamically at early successional stage. Moreover, the functional and phylogenetic turnover of two size class trees have contrary tendency at different succession stage, which may be due to the similarities among death, recruitment and survival individuals. 2) Principal components and null model analysis showed that functional traits that are more related to "nutrient economy" and structure investment can significantly influence the temporal turnover; 3) Biotic factors (e.g.. basal area of neighborhood) play an important role in influencing functional and phylogenetic temporal turnover for both forest plot. In conclusion, our analysis clearly emphasizes the functional and phylogenetic temporal turnover are deterministic at local scale. In addition, identification of key functional traits are important for functional diversity analysis, which can contribute to a better understanding of local community assembly mechanisms.

Biography

Zhanqings Hao focused on the biodiversity and ecological functions. As one of the Chinese scientists who participated in biodiversity research, he initiated the establishment of 25ha temperate permanent monitoring forest plot in Northeast China in the year 2004, which is the earliest temperate forest plot in China. He has been an important member of Chinese Forest Biodiversity Monitoring Network (CForBio). After that, a series of forest plots had been established along successional stages and latitude gradients. All those forest plots provided the opportunity to detect the biodiversity patterns and maintaining mechanisms in temperate forests.

hzq@iae.ac.cn

Notes: