عنوان مقاله:

Spatial distribution and association patterns of tree species in a tropical evergreen forest

محل انتشار:

دومین کنفرانس بین المللی اکولوژی سیمای سرزمین (سال: 1395)

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خلاصه مقاله:

We asked (1) what are the prevailing types of intra-specific spatial distributions and inter-specific association patterns at species and life stage levels of trees in a tropical rainforest? (2) Which ecological processes could structure these patterns?A 2-ha plot of tropical evergreen forest was designed in north-central VietnamWe used univariate and bivariate pair-correlation functions to investigate the spatial distribution and association patterns of 18 abundant tree species. To disentangle first- and second- order effects, we used a scale separation approach with the heterogeneous Poisson process as null model.The results shown that: (1) Sixteen of 18 species had aggregated patterns at various scales and regardless of their abundance. (2) Significant and aggregated patterns were found in 64% of all specific life stages. (3) At scales up to 15 m, 12.4% species pairs showed significant associations, among that 71% were spatial attractions, 5% were spatial repulsions and 24% were non-essential interactions. (4) In different life stage associations, attractions (81%) predominated over repulsions (19%) at small scales of up to 15 m.Our findings provide evidence that dispersal limitation may regulate the spatial patterns of tree species. Moreover, positive spatial associations between tree species and life stages suggest the presence of species herd protection and/or facilitation in this forest stand, while the persistence of intra-specific aggregation through life-stages suggests a very late onset or even absence of self-thinning. Habitat heterogeneity plays an important role for species distribution patter

کلمات کلیدی:

Spatial pattern; Point pattern analysis; Pair-correlation function; Tropical evergreen forest; Vietnam; Species association; Species herd protection; Dispersal limitation; Self-thinning; Neutral theory