

## 哀牢山常绿阔叶林树种多样性及空间分布格局

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## Diversity and spatial distribution patterns of trees in an evergreen broad-leaved forest in the Ailao Mountains, Yunnan

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摘要

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**摘要** 为了探究哀牢山中山湿性常绿阔叶林树种多样性特点及优势种群空间分布特征, 2008年, 中国科学院西双版纳热带植物园在哀牢山生态站附近的常绿阔叶林建立了一块6 ha的森林动态监测样地, 逐一测量并记录了样地中所有胸径(DBH)≥1 cm的树木的胸径, 并对其挂牌标记、鉴定和确定坐标位置。应用 Ripley' s L-Function分析了样地内4个上层优势种的空间分布格局。结果表明, 样地内共有DBH≥1 cm的乔木12,131株, 隶属于25科49属68种。样地内硬壳柯(*Lithocarpus hancei*)的重要值最大, 其胸高断面面积也最大; 其次为变色锥(*Castanopsis wattii*); 排在第三位的为云南连蕊茶(*Camellia forrestii*), 有1,712个个体, 是样地内个体数量最多的树种。和同类型森林相比, 哀牢山中山湿性常绿阔叶林是多优种类型, 物种总数较少, 稀有种所占比例也较小。样地内4个上层优势种的小径级个体数量较多, 而大径级个体数量较少, 而且在空间上呈现互补特征。对样地中符合条件的26个树种(生活史期间的树木株数≥40株)的空间格局进行分析, 53个生长时期中有37个表现为集群分布, 表明在树种多样性维持方面, 密度制约机制可能不是主要原因, 生境异质性可能起着重要作用。

**关键词:** 树种多样性 密度制约 生境异质性 集群分布

**Abstract:** All free-standing trees within a 6-ha plot with diameter at breast height (DBH)≥1 cm were tagged, mapped, measured and identified to species. The spatial distribution patterns of four dominant canopy tree species in the plot were analyzed using a point pattern analysis Ripley' s L-function. A total of 12,131 free-standing individuals were recorded, including 68 species belonging to 49 genera and 25 families. *Lithocarpus hancei* had the highest basal area and the largest importance value. The second was *Castanopsis wattii*. *Camellia forrestii*, an understory tree species, ranked third in terms of importance value, although it showed the highest abundance (1,712 individuals). And this evergreen broad-leaved forest did not contain an obviously dominant species. The four dominant canopy species had a large number of seedlings and saplings and tended to be patchily distributed. We also examined the spatial distribution of 26 tree species with ≥40 individuals at each growth period (DBH ≥1 cm). Thirty-seven of 53 life history stages showed aggregated distribution pattern, suggesting that habitat heterogeneity may be more important than density dependence for regulating the population spatial structure of most tree species in the subtropical forest studied here.

**Keywords:** tree species diversity density dependence habitat heterogeneity aggregated distribution

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