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研究论文

海南鹦歌岭轮叶三棱栎（*Trigonobalanus verticillata*）群落特征与保护对策

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摘要 应用样方调查法，研究了中国分布新记录种——轮叶三棱栎(*Trigonobalanus verticillata*)种群结构及其所处森林群落特点。结果表明：轮叶三棱栎仅分布于海南鹦歌岭海拔1100~1400 m近山脊处的热带山地雨林及热带山地常绿阔叶林群落中，与陆均松(*Dacrydium pectinatum*)、海南阿丁枫（*Altingia obovata*）等树种伴生。在2个面积为1500 m2的调查样方中共记录了90种乔灌木树种，均匀度和Shannon-Wiener指数分别为0.81、0.86和3.20、3.27，轮叶三棱栎的重要值在群落中排在第9~10位；种群结构分析结果显示该种群数量小且无Ⅰ龄级和III龄级，属不稳定种群；轮叶三棱栎生态位宽度为1.69，在群落中仅排第19位，与陆均松和鸡毛松（Dacrycarpus imbricatus）的生态位重叠值分别为0.59和0.68，但与群落优势种的生态位重叠值多小于0.3。鹦歌岭在海拔1000 m以上具有较大面积的台地和人为破坏较少可能是该种群得以幸存的重要因素，加强就地保护，开展该种植物的生物学特性研究，并建立国家级保护区，将海南中部山区各保护区有机地联合在一起为保护良策。

关键词 轮叶三棱栎；种群；物种多样性；生态位宽度；生态位重叠；年龄结构

分类号 Q143,Q16,Q948.1

Community characteristics and conservation of *Trigonobalanus verticillata* (Fagaceae) on Yinggeling, Hainan Island

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Abstract The genus Trigonobalanus belongs to a primitive branch of Fagaceae, the trigonobalanoids. Fossil evidence suggests that the trigonobalanoids originated as early as the Paleocene to Eocene, and spread across the Eastern and Western hemispheres, which makes them attractive for biogeographical and phylogenetic studies. *Trigonobalanus verticillata* was previously only known from tropical Southeast Asia (Sulawesi, Borneo, and Peninsular Malaysia) until we found *T. verticillata* on Mt. Yinggeling, Hainan Province, a large tropical island of China, during a floral survey in December 2005. We studied the *T. verticillata* population by plot survey and analyzed age structure, biodiversity of the forest community with T. verticillata, importance rank of tree species, niche breadth, and niche overlap with T. verticillata. The population of *T. verticillata* was found in the upland areas of Yinggeling between 1100 m and 1400 m, where the communities were dominated by *Dacrydium pectinatum*，*Altingia obovata*, *Castanopsis carlesii*, etc. In two plots of 1500 m^2, a total of 90 tree and shrub species with diameter at the breast height (D_{dbh}) greater than 2 cm were recorded, belonging to 47 genera in 29 families. The evenness and Shannon-Weaver diversity indices of the forest community were 0.81-0.85 and 3.20-3.37, respectively. T. verticillata was the 9th or 10th most important canopy species in the community. The population of T. verticillata was low in density and unstable with only a few individuals of young seedlings and saplings with Ddbh < 2.5 cm. Its niche breath was 1.65, ranked 19th in the community. It

s niche overlap with other dominant species was usually lower than 0.3. Large areas of upland and relatively undisturbed forest habitats probably account for the existence of T. verticillata population. We suggest preserving the existing community by establishing the Yinggeling Nature Reserve as soon as possible because of low population density, unstable age structure, low niche breath, low niche overlap, and importance as a canopy species.

Key words Trigonobalanus verticillata _ population _ species diversity _ niche breadth _ niche overlap _ age structure

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