自然恢复下马占相思人工林的群落特征

海辉[1] 建杏[2] 海[1] 田乐宇[2] 余 标[1*]

（1. 海南大学林学院，海口 570228；2. 海南省林业科学研究院（海南省红树林研究院），海口 571100）

摘 要:【目的】分析海南中部地区马占相思人工林自然恢复下植被优势种组成、物种多样性、空间分布格局等群落特征的变化，为海南中部地区及海南热带雨林国家公园区马占相思人工林向天然林转化提供参考。【方法】基于对海南省枫木实验林场不同自然恢复时间（10 年、15 年、20 年）的马占相思人工林的野外调查，对其物种组成、木本植物密度、物种多样性和空间分布格局进行比较分析。【结果】调查结果表明，自然恢复时间为 10 年和 15 年的马占相思人工林物种数量接近，分别为 84 种和 82 种，自然恢复时间为 20 年物种数量最多，有 101 种。随着马占相思人工林恢复时间的增加，群落中乔木层木本植物密度上升，灌木层木本植物密度减少。各林层的优势种组成也随着恢复时间的变化而变化，其中草本层植物优势种组成的变化最大，其次是灌木层，乔木层的变化最小。乔木层和草本层物种丰富度及物种多样性均以恢复时间为 20 年的最高，灌木层则表现为 15 年的最高，各林层物种丰富度及物种多样性随时间变化不一致，乔木层表现为 20 年>15 年>10 年，灌木层表现为 15 年>20 年>10 年，草本层表现为 20 年>10 年>15 年。3 个不同恢复阶段的马占相思林优势种群空间分布格局类型主要为聚集分布，随着恢复时间的增加，马占相思从 10 年、15 年的均匀分布到 20 年转变为聚集分布，银柴等喜阳先锋种由 10 年的聚集分布转变为 15 年的均匀分布，20 年时在群落中数量逐渐减少转变为非优势种。【结论】本研究调查的 3 个不同恢复时间的马占相思人工林均尚处在演替前期，随着自然恢复时间的增加群落中乔木层的物种组成、木本植物密度和多样性会逐渐增加，而群落中马占相思的数量和优势度会逐渐降低，各层次的优势种组成变化较大，目前群落仍处于演替前期喜阳先锋种逐渐向中性物种和耐阴种演替的阶段。

关键词：海南中部；自然恢复；马占相思人工林；群落特征

Community characteristics of Acacia mangium plantation under natural restoration

Abstract : 【Objective】 The changes of community characteristics such as dominant species composition, species diversity and spatial distribution pattern of Acacia mangium plantation under natural restoration in central Hainan were analyzed to provide reference for the transformation of Acacia mangium plantation to natural forest in central Hainan and Hainan Tropical Rainforest National Park. 【Method】 Based on the field investigation of Acacia mangium plantation with different natural restoration time (10 years, 15 years and 20 years) in Maple Experimental Forest Farm of Hainan Province, the species composition, woody plant density, species diversity and spatial distribution pattern were compared and analyzed.【Result】The results showed that the number of species in Acacia mangium plantation with natural recovery time of 10 years and 15 years was close, 84 and 82, respectively. The number of species with natural recovery time of 20 years was the highest, with 101 species. With the increase of the recovery time of Acacia mangium plantation, the density of woody plants in the tree layer of the community increased, and the density of woody plants in the shrub layer decreased. The composition of dominant species in

each forest layer also changed with the change of recovery time, among which the composition of dominant species in herb layer changed the most, followed by shrub layer and tree layer. The species richness and species diversity of tree layer and herb layer were the highest in the recovery time of 20 years, and the shrub layer was the highest in the recovery time of 15 years. The species richness and species diversity of each forest layer varied with time. The tree layer showed 20 years > 15 years > 10 years, the shrub layer showed 15 years > 20 years > 10 years, and the herb layer showed 20 years > 10 years > 15 years. The spatial distribution pattern of the dominant species of Acacia mangium forest in three different recovery stages was mainly aggregated distribution. With the increase of recovery time, Acacia mangium changed from 10 years and 15 years of uniform distribution to 20 years of aggregated distribution. The distribution of pioneer species such as Aporosa dioica changed from 10 years of aggregated distribution to 15 years of uniform distribution, and the number of species in the community gradually decreased and became non-dominant species in 20 years.【Conclusion】The three Acacia mangium plantations with different recovery times investigated in this study are still in the early stage of succession. With the increase of natural recovery time, the species composition, woody plant density and diversity of the tree layer in the community will gradually increase, while the number and dominance of Acacia mangium in the community will gradually decrease, and the composition of dominant species at all levels will change greatly. At present, the community is still in the early stage of succession. The pioneer species gradually evolved into neutral species and shade-tolerant species.

Keywords : central Hainan ; natural recovery ; acacia mangium plantation ; community characteristics