研究论文

三峡库区常绿阔叶林优势种群的结构和格局动态

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摘要　　重庆丰都世坪森林公园的常绿阔叶林是长江三峡库区低海拔区残存的较典型的常绿阔叶林。在此地选择具有代表性群落设立1hm²固定样地，应用相邻格子法进行每木调查，通过乔木层优势种群结构和格局研究，探讨群落的特点和动态。结果表明：(1) 此群落的优势树种是小红栲(*Castanopsis carlesii*)、丝栗栲(*Castanopsis fargesii*)和枫香(*Liquidambar formosana*)。(2) 小红栲和丝栗栲种群立木级结构呈不规则金字塔型，幼苗储备丰富，为增长种群，种群从Ⅰ、Ⅱ级幼苗发育到幼树过程中的死亡率较高，中等径级的株数偏少。枫香种群幼苗缺乏，为衰退种群。(3) 应用偏离指数、Lloyd的平均拥挤度和聚块性指数及Morisita指数，在10×10m²尺度下对优势种群进行格局分析，发现3种优势种群成树总体上均为集群分布；小红栲和丝栗栲种群在发育过程中分布格局是由集群分布过渡到随机分布，而枫香是由随机分布过渡到集群分布。

关键词　　小红栲；　　丝栗栲；　　枫香；　_ 增长种群；　　衰退种群；　　集群分布；　　随机分布

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Structure and distribution pattern of dominant populations in the evergreen broad-leaved forest in Three Gorges Reservoir Area

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Abstract　Evergreen broadleaved forests, widely distributing from 22° to 40°north and south in latitude, are mainly dominated by species of Fagaceae, Lauraceae, Theaceae and Magnoliaceae, etc. The largest and most typical one is in China, occupying over 2.5 million square kilometers, across more than ten latitudes. Evergreen broadleaved forests are precious in China for their great ecological, economical and social benefits.

Three Gorges Reservoir Area (TGRA), extending from Yichang in Hubei province to Banan district in Chongqing Municipality, involving 20 counties, is about 54000 km². On the northern border of the middle subtropical zone in China, it is affected by subtropical monsoon climate. So the zonal vegetation would be the evergreen broadleaved forests. However, the zonal vegetation in this area has been destroyed enormously due to agricultural activities.

The Castanopsis forest in Shiping Forest Park in Fengdu county, Chongqing municipality, is the remaining typical evergreen broadleaved forest in TGRA. It is the secondary evergreen broadleaved forest which was restored through mountain closure after clear cutting in 1958.

The research plot was located in Shiping Forest Park (29°47′40″N，107°37′40″E). The 1.0 hm² permanent plot was established in 2001, and was divided into 100 subplots. All the trees whose stems are over 2.5 cm in DBH were identified, measured, tagged, and mapped. The community totally maintained of 39 woody plant species, belonging to 22 families and 29 genera (Tab.1). The dominant families were Lauraceae，Fagaceae, Symplocaceae and Coprifoliace

ae. There were total 650 trees in the tree layer. Evergreen spices made up 67.8% of Importance Values, and deciduous trees were 33.2%. Castanopsis carlesii, Castanopsis fargesii and Liquidambar formosana were dominant species.

The size-class distribution of C. carlesii and C. fargesii showed positive pyramidal type (Fig.1), indicating that both of them had rich saplings banks and regenerated well. The mid-size trees of the two Castanopsis species were few. It was supposed to result from the inter- and intra-specific competition. The size-class distribution of *L. formosana* showed negative pyramidal type, indicating that it lacked saplings banks and regenerated poorly.

Distribution pattern was analyzed using David and Moore's index, Lloyd's index and Morisita's index on plot size of 10 m×10 m (Table 2). Each of the three dominant populations was divided into five classes as Ⅰ:height<33cm, Ⅱ:height>33 and DBH<2.5 cm, Ⅲ：DBH 2.5～7.5 cm, Ⅳ：DBH 7.5～22.5 cm and Ⅴ：DBH>22.5cm. The distribution patterns of adult trees in the three dominant populations were clumped pattern as a whole, and those of C.carlesii and C.fargesii changed from clumped pattern to random pattern during their upgrowth. While those of *L. formosana* altered from random pattern to clumped pattern. The results show significant correlation between the distribution pattern and number of trees.

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