Study on Dynamic Pattern of Species Diversity in Gaps of Karst Forest in Maolan Natural Reserve, Guizhou Province

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Abstract: The change pattern of species diversity of different growth forms in gaps of different sizes and developmental stages in Maolan Karst forest was measured and analyzed by means of Marglef index, Shannon-Wiener index, Pielou index and Simpson index. The results showed that the species diversity index (Shannon-Wiener) of arbor, shrub, herb and liana reached the highest in gap size of 140~210 m², and decreased with gap size being larger. The species diversity index of arbor, shrub and herb reached the highest in the gap age of 20~30 years, and decreased with gap age. The species diversity index of liana increased gradually with gap development and reached the highest in 40 years. The highest value appeared much later than those of other growth forms. The general trends of species richness index of different growth forms were correspondent with those of species diversity index, and species evenness index were in opposite to those of ecological dominance index. Species diversity index of arbor and liana did not change much more significant than those of shrub and herb with change of gap size and gap age. Shrub and herb were much sensitive to temporal and spatial environmental change of gaps.

Key words: karst forest; gaps; species diversity; dynamic pattern

封面照片说明:川中丘陵区的桤柏混交林

四川盆地普遍出露白垩纪(K)和侏罗纪(J)的紫红色岩层,岩性以泥岩、页岩、粉砂岩、砂岩为主,有“红色盆地”之称。盆地内地貌以丘陵为主,广泛分布着由紫红色岩层风化形成的紫色土。紫色土土壤矿物质肥力较高,盆地的亚热带湿润季风气候与非地带性紫色土的组合,使四川盆地成为我国最佳的农业组合区之一;因此,该区人口密集,农耕活跃,是全国六大商品粮基地之一。由于红色岩层岩性松软,抗风化能力弱,土壤抗蚀性差,加之人为活动强烈,以及不合理的荒地开垦,导致环境退化、水土流失异常严重。

从20世纪70年代开始,为治理水土流失和改善环境,在盆地丘陵区广泛培育桤柏混交林。桤柏混交林的大面积栽培,对增加四川盆地丘陵区的植被覆盖度、改善生态环境、防治水土流失,起到了积极作用。照片为川中丘陵区盐亭县的桤柏混交林。

(山 水)