

大足不同密度桢楠次生林群落特征和土壤理化性质研究

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摘要:桢楠是我国珍稀渐危树种, 国家二级保护植物, 野生多散生于海拔 1500m 以下的亚热带常绿阔叶林中。而喀斯特生境岩石裸露、土壤浅薄贫瘠、岩溶干旱频发, 理论上并不适合喜耐荫且喜酸性土壤的桢楠生长及幼苗更新。因此重庆市大足区和永川区喀斯特生境中的天然桢楠种群可能存在一定的更新困难。

以重庆大足桢楠天然次生林为对象, 采用典型样地法研究不同林分密度 (、450、800、1200、1500、1800 株/hm²) 对林下物种多样性和土壤理化性质及林下物种多样性与土壤理化性质相关性的影响。结果表明: 共发现高等植物 168 种, 隶属 75 科 140 属。随林分密度的降低, 灌木层多样性指数呈先增后减的单峰变化, 在密度 1200 株/hm² 出现峰值, 草本层多样性指数呈先增后减再增再减的双峰变化, 在密度 1200 株/hm² 和 1500 株/hm² 出现峰值。同时发现光照为影响林下植物多样性的重要因素。林分密度对土壤全氮、全钾、速效钾、有机质影响显著, 有机质、全氮、全钾、速效钾随林分密度降低呈先增后减的变化趋势。钾、氮、有机质与林下植被物种多样性关系最密切。结论: 林分密度 1200 株/hm² 为重庆大足桢楠林最适密度, 该密度能较好的提高林下物种多样性和土壤肥力。

Community characteristics and soil physicochemical properties of secondary forests of different densities of *Sedum* in Dazu, China

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Abstract: *Sedum* is a rare and endangered tree species in China, and a national second-grade protected plant. It is mostly found in subtropical broad-leaved evergreen forests below 1500 meters above sea level in the wild. The karst habitat is characterized by exposed rocks, shallow and infertile soil, and frequent karst droughts, which are theoretically not suitable for the growth and seedling renewal of *Sedum*, which is a humid and shade tolerant species and prefers acidic soil. Therefore, it is not suitable for the growth and seedling regeneration of *Sedum* in the Dazu and Therefore, the natural *Sedum* populations in the karst habitats of Dazu and Yongchuan Districts in Chongqing may have some difficulties in regeneration. The effects of different stand densities (450, 800, 1,200, 1,500, 1,800, 1,800 plants/hm²) on understory species diversity and soil physicochemical properties, as well as the correlation between understory species diversity and soil physicochemical properties were studied in the natural secondary forests of *Sedum* in Dazu District of Chongqing, China, using the typical sample plot method. The results showed that 168 species of higher plants were found, belonging to 75 families and 140 genera. With the decrease of stand density, the diversity index of the shrub layer showed a unimodal change of increasing and then decreasing, with a peak at the density of 1200 plants/hm², while the diversity index of the herb layer showed a bimodal change of increasing, then decreasing and then increasing again, with peaks at the densities of 1200 plants/hm² and 1500 plants/hm². Light was also found to be an important factor influencing the diversity of understory plants. The effects of stand density on soil total nitrogen, total potassium, quick-acting

potassium and organic matter were significant, and organic matter, total nitrogen, total potassium and quick-acting potassium showed a tendency of increasing and then decreasing with the decrease of stand density. Potassium, nitrogen and organic matter were most closely related to the species diversity of understorey vegetation.

Conclusion: The stand density of 1200 plants/hm² is the most suitable density for Chongqing Dazu Sedum forest, and this density can improve the species diversity and soil fertility of the understorey