

## 小兴安岭阔叶红松林物种组成及主要种群的空间分布格局

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Species composition and main populations spatial distribution pattern in Korean pine broadleaved forest in Xiaoxing' an Mountains of Northeast China.

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摘要

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摘要

研究了黑龙江省凉水国家自然保护区阔叶红松林的物种组成和径级结构,并应用点格局分析方法对其主要种群的空间分布格局及空间关联性进行了研究.结果表明:该保护区内阔叶红松林中胸径 $\geq 1$  cm的乔木共有16种,种群密度差异性很大,针叶树种红松和冷杉处于明显的优势地位;种群的径级结构近似倒“J”形,林分更新良好;主要种群的分布格局多呈聚集分布,只有红松在19~21 m和44 m尺度上以及青楷槭在接近所研究的最大尺度上时才呈现出随机分布.其中,红松在所研究尺度上一直都接近于随机分布,聚集强度也最小,冷杉、紫椴和青楷槭的分布格局都呈现出随机分布的趋势;除红松和冷杉在2~3 m的小尺度上,以及冷杉和青楷槭在37~81 m尺度上呈显著正相关外,其余种群的空间关联性均不显著.所有树种的总体联结关系均表现为不显著的正关联.

关键词: 小兴安岭 阔叶红松林 物种组成 径级结构 点格局分析 种间关联

Abstract:

Taking the Korean pine broadleaved forest in Liangshui Nature Reserve of Heilongjiang Province, Northeast China as test object, this paper studied the species composition and diameter class structure, and by using point pattern analysis, analyzed the spatial distribution pattern and spatial association of the main populations. In the Reserve, there were a total of 16 species with diameter greater than 1 cm in tree layer, and great differences were observed in the densities of main populations. Coniferous trees such as *Pinus koraiensis* and *Abies nephrolepis* were dominant. The diameter class structure of the populations presented as an inverse “J” curve, indicating a good regeneration across the community. The main populations were mostly in aggregated distribution pattern, except that the *P. koraiensis* populations at the scales of 19-21 m and 44 m as well as the *Acer tegmentosum* populations close to the largest research scale were in random distribution. The *P. koraiensis* populations at all research scales were approximately in random distribution, and had the minimum aggregation. *A. nephrolepis*, *Tilia amurensis*, and *A. tegmentosum* populations all presented a random distribution trend. Except that the *P. koraiensis* and *A. nephrolepis* at 2-3 m scale and the *A. nephrolepis* and *A. tegmentosum* populations at 37-81 m scale had significant positive association, no significant associations were observed between other populations. All the tree species presented an overall non-significant positive association.

Key words: Xiaoxing' an Mountains Korean pine broadleaved forest species composition diameter class structure point pattern analysis interspecific association.

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