

## 庞泉沟自然保护区寒温性针叶林的种群结构与分布格局

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**摘要:** 庞泉沟自然保护区寒温性针叶林依据优势树种可分为华北落叶松纯林、青杆纯林和华北落叶松青杆混交林。分别以纯林与混交林研究了其种群结构和分布格局。结果表明不同林分种群结构特征差异明显。混交林中, 华北落叶松幼苗数量少或缺失, 为衰退型种群; 青杆幼苗充足, 为增长型种群, 随时间推移, 混交林可能逐渐演替为青杆林。华北落叶松和青杆纯林均表现为增长型种群, 单优种群的现状在较长时间内将维持不变。整体来看, 寒温性针叶林种群格局为聚集分布, 混交林中华北落叶松和青杆的聚集程度都分别大于相应的纯林, 主要因为华北落叶松与青杆种群对光照的需求存在差异。随着立木径级增大, 寒温性针叶林聚集程度降低, 华北落叶松幼苗在林窗下高度聚集, 成体聚集程度减弱; 青杆幼苗聚集度较大, 成体在纯林为聚集分布, 在混交林为随机分布。

**关键词:** 庞泉沟自然保护区; 华北落叶松; 青杆; 种群结构; 分布格局

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## Population Structure and Distribution Pattern of Cold Temperate Coniferous Forest in the Pangquangou National Nature Reserve

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**Abstract:** *Larix principis-rupprechtii* and *Picea wilsonii* were dominant tree species of cold temperate coniferous forest in Pangquangou National Nature Reserve. In this paper, population structure and distribution types of mixed forest and single forest were studied. Analysis of size structure showed in mixed forest, *Larix principis-rupprechtii* populations were declined, *Picea wilsonii* populations were increased. Because of sufficient saplings of *Picea wilsonii* and few saplings of *Larix principis-rupprechtii*, the mixed forest would change into *Picea wilsonii* forest in certain time. Single forest of *Larix principis-rupprechtii* and *Picea wilsonii* were both increased for sufficient saplings, so they would retain current structures in long periods. The whole population distributions of cold temperate coniferous forest were clumping distributions. The clumping degree in mixed forest was stronger than in single forest, which greatly because of different demands of sunlight between the two populations. The clumping degree of old temperate coniferous forest was decreased as size class increased. Of *Larix principis-rupprechtii* populations, saplings were greatly clumped under gaps, clumping degree dropped down in adults. Of *Picea wilsonii* populations, saplings were greatly clumped in both single and mixed forests; while adults were clumped in single forests and random distributed in mixed forests.

**Key words:** Pangquangou National Nature Reserve; *Larix principis-rupprechtii*; *Picea wilsonii*; Population structure; Distribution pattern

种群是组成群落和生态系统的基本成分。种群结构及分布格局反映种群在生物群落或生态系统中所处的地位和作用、不同种群间相互关系的发生与发展、种群利用环境资源的状况等<sup>[1,2]</sup>。森林群落内具有复杂的种群结构及特征, 了解这些特征, 特别

是认识优势树种的种群特征, 可为森林资源保护及森林生态系统经营管理提供基础理论依据。

庞泉沟国家级自然保护区位于山西省西部吕梁山脉中段的关帝山林区内。由华北落叶松 (*Larix principis-rupprechtii*) 和云杉 (青杆 *Picea wilsonii* 和白

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