

# Dynamics Effects of Selective Cutting Intensity on the Species Composition and Diversity of Natural Forest

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**Abstract:** The dynamics effects of cutting intensity on the tree layer species composition and diversity of natural mixed stand of conifer and broad-leaved trees ( low intensity 13.0%; middle intensity 29.1%; high intensity 45.8%; over-high intensity 67.1% ) were surveyed and quantitatively analyzed. The results show that through 10 years restoration the selective cutting of low and middle intensities caused a light variation to the tree layer flora, but the selective cutting of high and over-high intensities caused changes to some extent. The more intensive of cutting, the more changes of the tree species and importance value. The rational selective cutting ( low intensity and middle intensity) benefits the restoration and maintenance of species, but the cutting operation results in adverse influences. Species richness peaked at low intensity and species diversity peaked at middle intensity. Selective cutting operation is propitious to the development of tree layer species diversity, but the clear cutting results in greatest destruction, and the tree layer species diversity decreases. Evenness index increase with intensity of cutting while domination index showed the opposite trend. By these explanations, selective cutting operation, especially low intensity and middle intensity is favorable to management of natural forest.

**Key words:** natural mixed stand of conifer and broad-leaved trees; selective cutting intensity; species composition; importance value; species diversity

## 封面图片：泸沽湖畔

泸沽湖跨越四川云南两省，面积 50 多  $\text{km}^2$ ，海拔 2 690 m，平均水深 45 m，最深处达 93 m。其无与伦比的清澈与美丽，与周边居民（约 4 万摩梭人）的母系文化，一起构成世界上极具特色的自然—人文景观。

（张百平）