

# 疏伐作業對杉木人工林之組成結構和微環境影響之研究

## Influence of thinning operation on microsite and stand structure of *Cunninghamia* plantations

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### 研究計畫中英文摘要：

#### (一) 計畫中文摘要

人工林疏伐及其後之經營措施對森林生態系之功能及結構有著重要影響。為探討疏伐撫育作業對杉木人工林林分結構、生長、與微環境之影響，作為整合計劃之子計劃，本計劃在蓮華池地區杉木人工林內進行試驗區區劃、測量，林分現況之調查，疏伐強度之釐定，並設置標準地調查疏伐處理前林分之組成、結構、地被植物、雨量、微環境光度、溫度、濕度和土壤溫度之監測。在預定的四年計劃期間，第一年主要做疏伐前相關基本資料之分析調查，以作為日後比較之基礎。第二年進行疏伐作業和疏伐後相關基本資料變化之對比研究，第三四年繼續前年之研究路線，並做論文撰寫、報告整理。另外，也將提供相關基本資料與其他子計劃分享，同時需要獲得其他子計劃之資料支援來解釋說明本子計劃相關基本資料的變化及原因，最後整合其他子計劃結果，提出相關森林經營之科學依據及因應措施，為林業經營決策提供基礎依據。

#### (二) 計畫英文摘要

The artificial forest thinning and associated managements can influence the functions and structure of forest ecosystems. To investigate the effects of alternative thinning strategies on the tree structure, growth, and microsite environment on *Cunninghamia lanceolata* plantations, as one part of the integrated project, this proposal will be conducted in Lienhwachi area. In the plan, current stand status will be surveyed to determine the thinning intensity associated each treatment. Three intensities with removing trees of 12.5%, 25% and 50% will be involved. Monitoring plots will be set up to collect data regarding the change on microsite factors including light intensity, temperature and humidity; the change on species composition, stand structure and timber growth pattern, and the change on ground vegetation coverage pattern. In the first year, the data collected will be served as a

base line for the comparison purpose. At the second and later years, the comparison of the interested contents and dynamics mentioned above before and after the thinning operation will be done subsequently. Final reports will be written according to the data. Furthermore, we need data obtained from other related proposals to better elucidate and explain the associated variables and processes. Also, we will provide the associated parameters to other proposals for production of an integrate report that can propose scientific data and corresponding measurements of the specific forest management for the decision and policy makers of forest management.