

# 明湖水庫日週期水位變化對水柳生長之影響

## 摘要

為瞭解明湖水庫日週期水位變化對濱水帶植物生長之影響，本研究於明湖水庫右岸選定水柳作為探討對象，蒐集水柳生長及立地環境等相關資料，並分析其生長差異與日週期水位變化之關係。

研究結果，水柳株高、地徑及冠幅生長與淹水時間呈顯著負相關，顯示3種生長值皆會隨著淹水時間的增長而下降。水柳不定根形成與淹水時間呈顯著正相關，不定根生長被視為水生植物的適應特徵，有助於植物吸收水分，本研究顯示淹水時間越長，水柳不定根形成越旺盛，此符合水柳為水生植物的特質。而水柳枝幹分叉數亦與淹水時間呈顯著正相關，顯示枝幹分叉會隨著淹水時間的延長而增加，淹水時間越長，主幹較不明顯，枝幹分叉數相對較多，淹水時間短，主幹性較佳，枝幹分叉數相對較少。

水柳生長勢評估，其健壯商數 0.31，活力度指數 B 級(生長普通)，顯示水柳栽植經過 24 年(1986-2010)其生長仍屬健壯，已具有良好的濱水適應，能夠朝向正常生長目標。

關鍵字：水柳、日週期水位變化、地徑、不定根

# The effect of daily periodical variation of water level on the growth of *Salix wauburgii* in Ming Hu Reservoir

## Abstract

To understand the effect of daily periodical variation of water level on the plant growth in riparian zone of Ming Hu Reservoir, this study selects *Salix wauburgii* as the discussed subject, collects the relevant data of the growth and the located environment, and analyzes the relations between the growing difference and the daily periodical variation of water level.

The research findings reveal that the height, the stem base, and the crown diameter of *Salix wauburgii* present significantly negative correlation with waterlogging period, showing that the three growth values would decrease with the increase of waterlogging period. The adventitious roots of *Salix wauburgii* appear remarkably positive correlation with waterlogging period. The growth of adventitious roots, which help the plant absorb water, is regarded as the adaptive feature of aquatic plants. It is shown in this study that the longer of waterlogging period, the more luxuriant the adventitious roots of *Salix wauburgii*, presenting the trait of *Salix wauburgii* being an aquatic plant. Moreover, the branches of *Salix wauburgii* reveal notably positive correlation with waterlogging period, showing that the branches increase with the extension of waterlogging period. When waterlogging period is longer, the trunk is not apparent and the branches are relatively increased; contrarily, when waterlogging period is short, the trunk is clear and the branches are less.

Regarding the growth potential evaluation of *Salix wauburgii*, the sturdiness quotient 0.31 and the vitality index Level B (ordinary growth) show that the growth of *Salix wauburgii* still appears the sturdiness after planting for 24 year (1986-2010) that it presents excellent waterfront adaptation and could achieve standard growth target.

Key words: *Salix wauburgii*, daily periodical variation of water level, stem base, adventitious roots