

灰系統理論在生物學之應用：

(5)大肚山氣候因子對其林火頻率與面積之灰關聯分析

邱祈榮⁽¹⁾ 曾仁鍵⁽²⁾ 楊棋明⁽³⁾ 黃文達^{*(4)}

摘 要

本研究整理 1991-2002 年間大肚山地區之林火次數及面積、日照率、平均相對溼度、累積降雨量、累積全天日照量與平均氣溫之月平均值。並以灰關聯理論分析此五種氣候因子對當地林火頻率及面積之影響。結果顯示，在大肚山台地這五種氣候因子對林火頻率之貢獻度及灰序為：相對溼度 > 日照率 > 氣溫 > 日照量 > 降雨量；而對火燒面積之貢獻度為：日照率 > 相對溼度 > 氣溫 > 日照量 > 降雨量。綜合研判，影響大肚山地區之林火頻率及面積之當地氣候因子中，以日照率及相對溼度為最直接因素。

關鍵詞：大肚山、林火頻率、林火面積、氣候因子、灰關聯分析、貢獻度、灰序

(1) 國立台灣大學森林學系助理教授

(2) 國立台灣大學森林學系研究生

(3) 中央研究院生物多樣性研究中心副研究員

(4) 國立台灣大學農藝學系講師

*通訊作者：Tel: 886-2-33664762；Email: wendar@ntu.edu.tw

Application of Grey System Theory on Biology: (5)Grey Relational
Analysis of the Climate Factors and Forest Fire Frequency and Area in
Mt. Dadu Area

Chyi-Rong Chiou⁽¹⁾ Jen-Jane Zhen⁽²⁾ Chi-Ming Yang⁽³⁾ Wen-Dar Huang^{*(4)}

Abstract

The grey system theory was hired to pinpoint the effects of five climate factors

on the forest fire frequency and area covering from 1991 to 2002. The grey orders indicating the contribution degrees of climate factors to fire frequency are: monthly mean relative humidity > daily insolation percentage > monthly mean temperature > daily cumulative irradiance > monthly cumulative precipitation. The orders for fire area are: daily insolation percentage > monthly mean relative humidity > monthly mean temperature > daily cumulative irradiance > monthly cumulative precipitation. The data further suggest that monthly mean relative humidity and daily insolation percentage play more important role in forest fire frequency and area than other climate factors in Mt. Dadu area.

Key words : climate factors, contribution degree, forest fire frequency, forest fire area, grey order, grey relational analysis, Mt. Dadu area.

(1) Assistant Professor, Department of Forestry, National Taiwan University.

(2) Graduate Student, Department of Forestry, National Taiwan University.

(3) Associate Research Fellow, Research Center for Biodiversity, Academia Sinica.

(4) Lecturer, Department of Agronomy, National Taiwan University.

*Corresponding author: Tel: 886-2-33664762 ; Email: wendar@ntu.edu.tw