

解析氣候變遷下河蟹復育策略：以日本絨螯蟹為例

Analysis of river crab restoration strategies under climate change :

A case study of Japanese mitten crab

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摘要

氣候變遷下，淡水生態系統生物多樣性和生態平衡遭受衝擊。為了解氣候變遷下河蟹之保育策略，本研究使用 MaxEnt 模型模擬臺灣北海岸河川中之日本絨螯蟹(*Eriocheir japonica*)的潛在分佈區域，並分析影響棲地適宜性的環境變數。研究結果顯示，最熱季節的降水量、降水季節性變化和年平均溫度為影響日本絨螯蟹分佈的重要因子。透過 MaxEnt 我們可推估未來高碳排及低碳排兩種情境下日本絨螯蟹的適合生存區域，並找出適合

復育工作的重點河川流域。日本絨螯蟹為流域指標物種，透過選定適合復育的流域，可以幫助政府和民間投注保育資源於適合場域，提高河川的生態系服務。

關鍵字:日本絨螯蟹、生態復育、氣候變遷、最大熵模型

ABSTRACT

In today's society, rapid expansion of urban development, man-made pollution, and climate change pose major threats to ecosystems. Climate change has triggered a series of extreme weather events, which in turn has affected biodiversity and ecological balance. This study focuses on the Japanese mitten crab restoration strategy in north coast rivers, uses the MaxEnt model to simulate and predict its potential distribution area, and explores the environmental variables that affect its survival. Research shows that climate variables such as mean monthly precipitation amount of the warmest quarter, precipitation seasonality and mean annual air temperature are important factors that affect the distribution of Japanese mitten crabs. This study uses MaxEnt to predict the suitable survival areas of Japanese mitten crabs under high and low carbon emissions in the future. The model prediction results show that high-suitability areas for the restoration of Japanese mitten crabs. The Japanese mitten crab is a watershed indicator species. Selecting watersheds suitable for restoration can help the government and private sector invest conservation resources in suitable sites and improve the river's ecosystem services.

Keywords: Japanese mitten crab, ecological restoration, climate change, MaxEnt