Title: **Bird Species Diversity at Long Term Forest Restoration Plots in Northern Thailand**

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Major: Environmental Science

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ABSTRACT

Tropical forest restoration aims to recover not only tree cover but also the complex ecological interactions that sustain biodiversity. Chiang Mai University's Forest Restoration Research Unit (FORRU-CMU) has widely used the Framework Species Method to restore tropical forest ecosystems, particularly in Northern Thailand, for over 30 years. Birds serve as critical "mobile links" for seed dispersal and pest control, making their return a primary indicator of restoration success. However, despite research on overall bird species richness, little is known about the specific ecological requirements and timeframes needed for the return of habitat specialist bird species to restored forests in Northern Thailand. Therefore, a survey was carried out at restoration plots of Ban Mae Sa Mai in Doi-Suthep Pui National Park area, comparing plots where forest restoration activities had taken place to assess the recovery of biodiversity, birds in particular. Species accumulation curves revealed a significant recovery of taxonomic richness over time. The results were compared with nearby natural forest to evaluate restoration success. A total of 147 bird species were found in all study habitats. The Reference Forest exhibited the highest richness (77 species), followed closely by the 24-year-old plot (71 species), which reached approximately 92% of the reference site's richness. In contrast, the 13-year-old plot (64 species) and the Control Plot (44 species) showed significantly lower diversity. This suggests that bird species richness can largely recover within 24 years using the Framework Species Method. The absence of habitat specialists in older plots highlights the need for continued structural maturation to support the full spectrum of avian ecological roles. This research underscores the importance of long-term monitoring to distinguish between restoration and a fully functional forest ecosystem.

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Keywords: Forest Restoration, Northern Thailand, Bird Species Diversity, Framework Species Method, Mackinnon Species List

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