



Title : Recovery of Small Mammal Communities During Restoration of Upland Evergreen Forest in Northern Thailand

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Major : Environmental Science

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ABSTRACT

Chiang Mai University's Forest Restoration Research Unit (FORRU-CMU) has been exploring scientific ways, using the Framework Species Method of Forest Restoration (FSM), to restore tropical forest ecosystems especially in Northern Thailand for over 30 years. Although forest-ecosystem restoration is now becoming highly prioritized for biodiversity conservation, few studies have measured the effects of restoration on the return of mammal species. Recovery of seed-dispersing mammal populations is a vital component of forest restoration, because increased seed dispersal supports recovery of ecological functionality. This study tested the hypothesis that the FSM encourages recovery of small mammal communities when applied to restore upland evergreen forest in northern Thailand. From March to November 2024, mammal surveys were carried out, using automatic camera traps in the upper Mae Sa Valley within Doi Suthep-Pui National Park, placed in evergreen forest of two different ages (12- and 24-year-old), restored by the FSM; a nearby area of reference forest (disturbed primary evergreen forest) and a control site (degraded area), where no restoration interventions had been implemented. To interpret the results, Frequency of Detection (FD) was calculated, using the same formula as in the Relative Abundance Index (RAI) = $(E/TN) * 100$, where E is the number of animal encounters and TN is the total number of trap nights.

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The camera-traps revealed the presence of 18 mammal species across the study area, including the critically endangered Sunda pangolin (*Manis javanica*) in a reference forest. Mammal activity and species richness in restored plots was around 50% that of reference forest, suggesting steady recovery of ecological functionality. Highest mammal activity was recorded in reference forest (FD = 42.69) and the lowest in control habitat (FD = 1.94). FD values in 12- and 24-year-old restoration plots were 43% and 55.3% of the reference forest value, indicating steady increase in mammal activity as restoration progresses.

Keywords: seed-dispersal, the Framework Species Method, biodiversity recovery, mammal communities, forest restoration, camera trapping, Frequency of Detection.

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