

## MAPPING THREATENED DRY DECIDUOUS DIPTEROCARP FOREST ECOSYSTEMS IN SOUTH-EAST ASIA FOR CONSERVATION MANAGEMENT

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### ABSTRACT:

Habitat loss is the primary reason for species extinction, making habitat conservation a critical strategy for maintaining global biodiversity. Major habitat types, such as lowland tropical evergreen forests or mangrove forests, are already well represented in many conservation strategies, while others are underrepresented. This is particularly true for dry deciduous dipterocarp forests (DDF), a key forest type in Asia that extends from the tropical to the subtropical regions in South-east Asia (SE Asia), where high temperatures and pronounced seasonal precipitation patterns are predominant. DDF are a unique forest ecosystem type harboring a wide range of important and endemic species and need to be adequately represented in global biodiversity conservation strategies. One of the greatest challenges in DDF conservation is the lack of detailed and accurate maps of their distribution due to inaccurate open-canopy seasonal forest mapping methods. We chose SE Asia for our research because its remaining DDF are extensive in some areas but are currently degrading and under increasing pressure from significant socio-economic changes throughout the region. Phenological indices, derived from MODIS vegetation index time series, served as input variables for a Random Forest classifier and were used to predict the spatial distribution of DDF. The resulting continuous fields maps of DDF had accuracies ranging from  $R = 0.56$  to  $0.78$ . We identified DDF three hotspots in SE Asia with a total area of about  $156,000 \text{ km}^2$ , and found Myanmar to have more remaining DDF than any other country in SE Asia. Further we determined the current conservation and fragmentation status of DDF through SE Asia. Our approach proved to be a reliable method for mapping DDF and other seasonally influenced ecosystems on continental and regional scales, and is very valuable for conservation management in this region.

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