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A Biodiversity Evaluation Tool for the GMS - Modelling Concept for Conservation and Planning

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Abstract

Within the framework of the “Living Landscapes China” LILAC project, we have developed a biodiversity evaluation tool based on the combination of approaches from landscape ecology and empirical data into a Geographic Information System. Detailed data on floral species diversity and distribution has been combined with quality criteria like endemism or invasiveness to form spatially explicit indices for different land use type in various elevation classes. Similarly, data on arthropod diversity and movement patterns have been assessed in key location, to enable us to draw conclusion on insect distribution throughout the research area, a watershed in south-western Yunnan province, PR China. Habitat characteristics and distribution was included into the analysis of the land use map derived from remote sensing to allow the assessment of fragmentation and landscape matrix structure.

Similar approaches have proven useful in extending field observations in areas where topography or other factors constrain more detailed empirical analyses. Our assessment covers a multitude of land use systems and natural land cover types, including rapidly expanding low-land rubber cultivation in various stages of development.

All throughout the Greater Mekong Subregion, natural landscapes are under great pressure from developing infrastructure and rubber plantations, its' impact on local species diversity might prove considerable.

The aim of this tool is to provide scientists and policy makers with information about the current state of biodiversity in their research area or administrative region and enable them to predict the likely impacts of agricultural land use changes on structural and ecological diversity when evaluating possible future land use scenarios.

Keywords: Biodiversity indices, conservation, ecology, landscape metrics