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Biodiversity evaluation in tropical agricultural systems – How will rubber cultivation and land use change effect species diversity in SW China

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The Greater Mekong Subregion is a known hotspot of biodiversity, which faces drastic changes due to human impact particularly with regard to infrastructure and economy. Within the framework of the Sino-German research project "Living Landscapes China" (LILAC), we have developed a biodiversity evaluation tool based on the combination of approaches from landscape ecology with detailed empirical data on species diversity and habitat characteristics of tropical plant and arthropod communities in a Geographical Information System. We use field ecological data to assess different spatial and qualitative aspects of the diversity and spatial distribution of species throughout the research area, a watershed in south-western Yunnan province, PR China. In addition, scenarios on the impact of land use change have been analyzed and compared in order to highlight the implications these possible future scenarios would have on species diversity within the research area.
The aim of the presented tool is to provide scientists and policy makers who have to evaluate the consequences of scenarios of future land use with information on the current and likely future state of biodiversity in their research area or administrative region. This will enable them to assess the likely impacts of land use changes on structural and ecological diversity and allow for informed land use planning. The methodology developed for this tool can also be applied outside of the Greater Mekong Subregion, as the model structure allows for an easy adaption to other research areas and challenges, be it oil palm production in Southeast Asia or small scale farming in central Africa or the Amazon basin.