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Quantifying contributions towards reducing species extinction risk through sustainable agriculture in tropical landscapes

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Abstract

Land use and land cover change (LUCC) is a primary driver of biodiversity loss in tropical landscapes, with annual and perennial non-timber crop production accounting for a significant proportion of threats to endangered vertebrates worldwide. Species rich tropical forest provide often ignored valuable services to food production systems and although the links are not always evident, these services represent the basis for alternative ways of producing food. Agroecology, farming systems that apply ecological concepts and principles, contributes to climate change mitigation by reducing emissions, recycling resources, and prioritising local supply chains, and provides a balance between productivity and biodiversity conservation.

The IUCN's Red List of Threatened Species (RL) is the world's largest and most comprehensive data source on the conservation status of species for global biodiversity. Derived knowledge tools from the RL, such as the Species Threat Abatement and Recovery metric (STAR), the Red List Index (RLI) and the Integrated Biodiversity Assessment Tool (IBAT), are all built from this knowledge to provide updated, scientifically robust and standardised information for conservation action and sustainable development decision making. Particularly useful is the freely accessible geospatial information from the RL that is available for every assessed species. A scenario development will be performed using the STAR metric to compare agricultural landscape and forest cover to measure the contribution to reducing species extinction risk of endangered species. The objective of the case study is to highlight the vital contributions that sustainable agricultural practices provide to biodiversity conservation in tropical landscapes in a spatially explicit manner. Special attention will be given to Endangered species that are national endemics, to showcase the critical role they play in sustaining human societies and the need of adapting farming systems to not only reduce the impacts on biodiversity but to be nature positive, creating value for humans and for biodiversity.

Keywords: Biodiversity conservation, Red List, species extinction risk, STAR metric, sustainable farming