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The Agroecological Transition in Malaysia

Introducing TRAILS project in Kinabatangan district, Sabah

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Abstract

Southeast Asia is home to 20% of the remaining tropical forests, yet it suffers from the highest rates of deforestation globally due to the expansion of agroindustrial and smallholder tree crop plantations, particularly oil palm plantations. This development has led to the decline of emblematic species such as orangutans, but also of critical functional groups, including soil fauna and fungi. Through the loss of structurally complex habitats, biodiversity is drastically reduced in oil palm-dominated landscapes and deforestation impairs key ecosystem services. Despite its commercial success, intensive oil palm monoculture has now reached its social and environmental limits.

The TRAILS Project has established an international consortium linking a research organization (CIRAD), a community-based environmental NGO (HUTAN), a Malaysian University (Universiti Putra Malaysia), and a commercial oil palm plantation (Melangking Oil Palm Plantations). The consortium has set up experimental oil palm-based agroforestry plots in a commercial plantation located in Sabah, Malaysia, a global hotspot of biodiversity. TRAILS has planted a series of field experiments aimed at: i) evaluating the feasibility of intercropping, associating oil palms and forest trees, ii) assessing the potential for agroforestry of 17 native forest species and, iii) characterizing biological interactions between oil palm plants and some of these tree species.

Our overarching goal is to ascertain synergies and trade-offs between biodiversity, ecosystem services, and sustainable palm oil production. This article describes three original planting designs, paving the way for a new generation of climate-smart and resilient plantations.

Keywords

Agro-biodiversity, alley cropping, climate-smart systems, regenerative agriculture, resilient agrosystem.

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