Innovative agroforestry designs for oil palm-dominated landscapes

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ABSTRACT

TRAILS stands for "climaTe Resilient lAndscapes for wIldLife conServation"; it is a multidisciplinary research project aimed at assessing innovative solutions for wildlife and people in oil palm-dominated landscapes in Sabah, Borneo Island, Malaysia. Mixed-tree forests can provide habitat in a context of industrial agriculture, as pioneer native tree species proved efficient in restoring healthy riparian forests and providing food and shelter for wildlife. Biodiversity corridors also contribute to climatic resilience, as agroforestry systems mitigate climate change through the sequestration of atmospheric carbon dioxide in plants and soil. Mixed plantations are also able to improve livelihoods: it is key to understand ecosystems services and wellbeing values attributed by local communities to the reforestation of riparian areas and the transition from monoculture plantations towards mixed-planted systems. TRAILS objective is to install oil-palm-based agroforestry systems, using selected oil palm seedlings and native forest tree species grown in locally-run village nurseries. The project aims at monitoring the dynamics of recolonization by wildlife in areas covered with mixed-planting, riparian corridors, and oil palm plantations. TRAILS was allocated an area of ca. 100 ha by the MOPP plantation, from which 22 ha were planted in September 2022, using 15 different native forest species for a total of 3,000 saplings. Three specific planting designs were installed. A 15-ha extension of the project is planned for 2023 on the same site, involving the plantation of 3,000 more trees. The project monitors the agronomic performance of oil palms planted under agroforestry designs. TRAILS also aims at understanding key characters of climate resilience through the monitoring of bioclimatic condition of the parcels and their ability to provide environmental services. TRAILS builds on a complementary partnership, linking academic, NGOs, private and public stakeholders, thus enabling integrated approaches arising from various science fields, from agronomy and forestry to veterinary sciences, including a detailed socioeconomic approach.

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