

Does Forest Cover Mean a Forest? Floristic Comparison of Protected and Cardamom Agroforests in the East Usambara Mountains, Tanzania.

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Is shade-grown agriculture an ecologically viable answer to tropical forest restoration and connectivity? The East Usambara mountains may be the most biologically rich in The Eastern Arc ecosystem of Tanzania – itself a globally recognized biodiversity hotspot which has the highest density of endemic species in the world. This study compares the floristic values of protected and cardamom forests. Within the current era of promoting conservation incentives for expansion of forest cover, this shade-grown crop is proposed as a method to utilize private land to increase forest cover in order to both benefit livelihoods and increase ecosystem services. Although most social research from the region concerns the livelihood importance of the locally owned forest areas- almost all of the ecological research has occurred within protected government forests. This study fills a critical data gap by providing empirical floristic evidence of the role of cardamom farms in biodiversity conservation and the ecological functionality of cardamom forests as corridors. Floristic data of stems > 2.5 dbh from 34 half hectare plots from protected areas and active and inactive farms are analyzed to determine the ecology and conservation value of cardamom forests. Compared to protected areas, cardamom farms are poorer in biological aspects including species richness, and endemism, differ in attributes of canopy structure and size class composition, and also tend to be dominated by an invasive exotic. As native trees are slowly replaced with exotic species, agroforestry may not be the best method to increase connectivity of a biodiversity and endemic species hotspot.

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