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The Role of Coffee Agroforestry in the Conservation of Tree Diversity and Community Composition in Native Forests

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Abstract

Agroforestry is considered a promising alternative to conventional agriculture that can both conserve biodiversity and support local livelihoods. Coffee agroforestry may be particularly important for sustaining trees of conservation concern and late-successional stage, but this possibility remains unclear. Here, I examined whether coffee agroforestry systems can serve as conservation reservoirs of tree species native to nearby forests. I compared tree diversity, composition and structure between coffee agroforests and forests in La Selva Biosphere Reserve in Chiapas, Mexico. I found that, although at the landscape level the full set of coffee agroforests appears to conserve comparable tree species richness to nearby native forests, the species composition that is being conserved is different. Coffee agroforests had a lower proportion of trees of conservation concern, a higher proportion of pioneer trees, were dominated by *Inga* spp., harbored lower tree species diversity at the plot level, and were composed of different tree species compared to native forests. I suggest that conservation practitioners and policy makers seeking to promote coffee agroforestry as a conservation strategy should consider how such agroforestry systems differ in species diversity and composition from the native forests of conservation interest. Further, promoting different coffee agroforest management strategies, such as discouraging the replacement of diverse agroforest canopies with single species dominated canopies, would help improve the conservation value of coffee agroforests through more sustainable practices.

Keywords: Agroecology, agroforestry, biodiversity, conservation, tree diversity