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Plant diversity and ecosystem services in Amazonian homegardens of Ecuador

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Homegardens (HG) play a key role in the conservation of plant diversity and at the same time provide ecosystem services that have a direct and positive impact on human welfare. The relationships among plant diversity, ecosystem services and the factors that influence them formed the subject of study in tropical HG in Sangay, Ecuador. We compiled information from 138 HG in 11 localities and found 484 plant species associated with 20 ecosystem services; the most important of which, according to interviews with the gardeners, is that they provide food, medicine and ornamentation. Influential physical factors on plant diversity in the HG were altitude, precipitation and temperature, while socioeconomic factors, including ethnicity, gender, income and education, were perhaps more important determinants of HG diversity. Three groups of HG were identified by Hierarchical Ascendant Correspondence Analysis: “small HG of recent origin,” - having the fewest species and ecosystem services, “large, transitional HG,” - having a wide range of services, and “medium, established HG,” - mainly supplying food, medicine, ornamentation, shade and fencing. Ethnicity may be a stronger determinant of differences in HG composition: For Shuar people, HG were a main source of food, critical to their subsistence in rural areas; in total, Shuar gardeners cultivated on the whole more plant species. On the other hand, HG belonging to mestizos were more diverse, have more exotic plant species and provide mainly cultural and regulatory services. HG in more urban settings mainly provided ornamentation, fencing and shade. This information can be applied by policy makers to the design of strategies for biodiversity conservation and food security.

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