Assessing the contribution of wet zone home gardens to biodiversity conservation: A case study in Vilegoda GN Division, Kalutara, Sri Lanka

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Home gardens in Sri Lanka, particularly in the wet zone, represent vital traditional agroforestry systems that significantly contribute to biodiversity. Within the lush landscapes of Sri Lanka's wet zone, a hidden tapestry of biodiversity thrives in traditional home gardens, serving as living libraries of plant species. This study, guided by the principles of the Agroecology Framework, views these gardens as complex, resilient ecosystems. It delves into their ecological richness, specifically within the Vilegoda GN Division of Kalutara, to assess their role in biodiversity conservation. The study used mixed methods and judgmental sampling of 30 home gardens to characterize agroforestry systems. Data collection involved primary data acquisition through direct observations and interviews. A rigorous quantitative analysis, utilizing Excel for descriptive statistics and crop composition visualisation via pie charts, alongside the calculation of the Shannon diversity index using SPSS to assess crop diversity levels, revealed a spectrum ranging from high to low diversity. A significant number of home gardens (40%) exhibited high diversity ($H > 2.0$), 50% of the gardens displayed moderate diversity ($1.8 < H < 2.0$), while 10% presented low diversity ($H < 1.8$), indicating either a limited number of species or a strong dominance by a few. Overall, the majority of surveyed home gardens exhibited moderate to high crop diversity, with perennial fruit cultivation dominating (47%), followed by vegetables (14%) and spices (12%), although some gardens displayed lower diversity, potentially increasing their vulnerability. In conclusion, the home gardens in Vilegoda are crucial for maintaining plant diversity and serve as important sites for biodiversity conservation. The findings underscore their ecological significance and highlight the importance of understanding and preserving these unique agroforestry systems.

Keywords: *Agroforestry, Biodiversity, Conservation, Home gardens, Kalutara*