

University of Agricultural and Horticultural Sciences, Shivamogga

M. Sc. (Forestry) theses abstracts produced in the

Department of Forest Biology & Tree Improvement

1. Studies on Ethnobotanical Knowledge and Population Structure of Wild Edible Fruit Trees of Kodagu

VINAYAK V. PAI

ABSTRACT

Wild edible fruits are one of the important plant resources helps in providing food supplements in the diet to the rural community. Kodagu district is having many such wild edible fruit trees which fulfil the needs of the local people. Therefore, the present study was carried out to know the ethnobotanical knowledge, diversity, population structure and regeneration status of wild edible fruit tree species in different land scapes of moist deciduous forests of Virajpet taluk, Kodagu. Semi structured questionnaire was used for ethnobotanical survey of wild edible fruits. A total 41 wild edible plants were documented of which, 24 species were fruits followed by leaves (11), tubers (4) and bark (2). The population structure of wild edible fruits was assessed by following simple random sampling technique. Belt transects of 100 m×5 m were laid in natural forest and sacred groves and 50m X 10m plots were laid in coffee based agroforestry system. All trees 30 cm gbh in the main plots were enumerated. Species richness and diversity was more in sacred groves compared to natural forest and coffee based agroforestry system. There was significant difference in mean density and mean basal area wild edible fruit species and associated species in natural forest and coffee based agroforestry system. The regeneration of both wild edible and associated species was more in regeneration class I and class II and followed an inverse 'J' shaped pattern indicating healthy regeneration in deciduous forest. *Grewia teliaefolia* and *Terminaliabelerica* were dominant wild edible fruit species and *Terminalia alata* and *Lagerstroemia microcarpa* were found to be the dominant associated species. The study gives an understanding of the diversity, pattern of population and regeneration of the tree species of deciduous forest of Kodagu which will help in conservation and management of the species.

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(Satish B.N.)
Major Advisor

2. Dynamics of Native Tree Structure and Diversity in Coffee Agroforest

BHAVYA C. K.

ABSTRACT

In tropical landscapes conversion of natural forest for non-forest use due to agricultural intensification is identified as the most prominent drivers of land use change and biodiversity loss. Studies in tropics suggests that agroforestry systems are among the most promising land use for achieving both conservation goals and supporting rural livelihoods at landscape level. Coffee agroforest are one such example of agroforestry systems, managed with traditional management practices. Kodagu district in the Western Ghats, is the largest shade coffee growing region in the country hosting rich biodiversity. In the recent days, the density and diversity of the shade cover in the coffee agroforest are in a continuous change due to land tenure system as well as increase coffee production. With the base line data from Coffee Agro-Forestry Network, the study was conducted in four villages namely, Arekad, Hachinad, Yeduru and Byrambada. Similar sampling procedure and observations were recorded as of base line data. Results revealed that the *Grevillea robusta* remained as the dominant tree species in the coffee agroforest with an increasing importance value index from 36.05 in 2008 to 53.29 in 2017. Existence of significant difference for the tree density was evident in the present study which showed decreasing trend from 2008 (420 ± 349 number of stems ha^{-1}) to 2017 (274 ± 82 number of stems ha^{-1}). In contrast, basal area was found to be increased from 2008 ($27.62 \pm 11.27 \text{ m}^2 \text{ ha}^{-1}$) to 2017 ($30.31 \pm 11.03 \text{ m}^2 \text{ ha}^{-1}$) which was not statistically significant. Compared with, tenure system unredeem land has more no of stems ha^{-1} compared with redeem land. Similarly in different size classes of coffee agroforest, significant changes in tree density and diversity among plantations belonging to all size classes.

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(C. G. Kushalappa)
Major Advisor