



BIODIVERSITY ASSESSMENT AT BANKA FOREST DIVISION, BANKA, BIHAR - A PHYTOSOCIOLOGICAL APPROACH

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ABSTRACT: Forest ecosystem has its own characteristics that is determined by forest structure and composition that indeed is influenced by several edaphic factors and biotic interference. Therefore, phytosociological studies of a forested land are one of the pre requisite for developing forest management strategies. The study was conducted at Banka Forest Division of Banka district, Bihar. This work resulted in a significant study on floral structure and composition spreaded over the whole forest division. In this study, 43 tree species were recorded with 38 genera and 19 families. Highest Importance Value Index is recorded for *Shorea robusta* (54.33) followed by *Madhuca indica* (32.91), *Acacia auriculiformis* (29.91), *Tectona grandis* (24.12), *Terminalia tomentosa* (16.85), *Acacia catechu* (11.28), *Buchanania latifolia* (11.15), *Butea monosperma* (7.87), *Cochlospermum religiosum* (7.72) and *Soyemida febrifuga* (6.70). Shannon Weiner Index (H') and Simpson Index value is 2.162 and 0.177 respectively. Tree density is found to be 800 trees/ha. Basal cover of the area is 7659.79 cm²/ha. This study would also help other forestry practitioners, foresters, environmentalists, ecologists, conservationists, scientists, social workers with knowledge who works for ecosystem management.

Keywords: Basal cover, dominance, importance value index, phytosociology, species diversity

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The word 'phytosociology' means 'sociology' of plants. Phytosociological study of a community

deals with the analysis of plant association in terms of density, frequency and dominance. Forest structure is determined by evaluating the forest type and its dominant and co-dominant species. Phytosociological studies are not only essential for protection of biodiversity and species specific habitat but also understanding the changes in the community structure. This basic study on plant community structure is studied in most of the developed countries (Hamzaoglu 2005, Tel et al. 2010). Large number of global biodiversity is maintained through tropical forest ecosystems supporting diverse forms of life (Shi & Singh 2002). Several ecosystem processes like nutrient cycling, biomass production are controlled by plant community where community structure and plant diversity plays a key functional role (Gower et al. 1992). A strong correlation between structural and species diversity also exists (Sahu et al. 2008). In due course of time, tropical forests are dwindling in an alarming state. Several factors viz. habitat fragmentation, forest fires, overexploitation, illegal felling, hunting of animals have caused destruction of forests pertaining to both habitat and biodiversity loss (Kumar et al. 2006, Biswas et al. 2013, Rao et al. 2013, 2015). Study on dry deciduous

forest is lacking and they are among the most exploited and endangered ecosystems in comparison to other tropical forest types (Murphy & Lugo 1986, Gentry 1992). Banka forest division is also not an exceptional in growing biodiversity loss and is under immense anthropogenic disturbance that require scientific management intervention to maintain overall biodiversity and sustainability. To adapt appropriate management strategies, documentation of plant community pattern is necessary (Villasenor et al. 2007). Therefore in our present study, phytosociology and species diversity was taken into consideration for understanding the floral characteristic and set a reference for forest inventory which would help foresters, researchers and policy makers to obtain significant data in other places.

MATERIALS AND METHODS

Study Area

Banka Forest Division lies in between latitude 24°30'00" N to 25°15'00" N longitude 86°30'00" E to 87°15'00" E. Banka Forest Division comprises of three ranges, viz., Banka Range, Katoria Range and Baunsi Range. Each ranges further subdivided into Beats and sub-beats. They are namely Bhitia, Belhar and Banka beat of Banka range; Suiya, Chandan and Katoria beat of Katoria range and Baunsi and Kadhar beat of Baunsi range.