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Structural Diversity and Regeneration Pattern of Forest Communities in Parbati Valley, North Western Himalaya, India: Implications for Conservation

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Abstract: The Indian Himalayan Region is the most complex and diversified mountain ecosystem in the world. Topogeographical variations and features causes immense floral and faunal diversity. The present study has been conducted in Parbati Valley to assess the floristic diversity and regeneration of delineated plant communities. Eighty one sites were sampled for compositional and structural diversity of vegetation between 1524-3407 m amsl in each and every accessible aspects and habitats following standard ecological methods. Thirty forest communities were identified based on Important Value Index. These mainly represented by broad leaved evergreen and deciduous, coniferous evergreen and deciduous and mixed type of communities. In the delineated forest communities total density was ranged from 40.00-800.00 Ind ha^{-1}; species diversity 0.01-1.90; Concentration of dominance 0.13-0.84 and total basal area of 0.08-126.29 $m^2 ha^{-1}$. Of the identified plant communities, 12 communities showed highest regeneration of dominant species, 2 with highest regeneration of co-dominant species, 6 showed no/poor regeneration and 10 mixed communities with highest regeneration of one of the dominant species. Decrease in species richness was noticed with increasing altitude. Altitudinal shift of some species clearly states the impact of climate change. Unscientific exploitation of forest resources affected the forest ecosystem, thus, adequate planning, continuous monitoring and appropriate management of them is required to understand and conserve the natural ecosystem.

***Keywords*:** Diversity, Distribution, Density, Plant communities, Regeneration, Parbati valley, Conservation and management