

POPULATION STRUCTURE OF VEGETATION IN URBAN ENVIRONMENT OF SARGUJA, CHHATTISGARH, INDIA

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Abstract: The present study was conducted in different directions (east, west, north and south) of Ambikapur to explore the urban vegetation in terms of species status, population structure and regeneration potential of species. A total of 10 tree species distributed into 6 families were recorded in east direction, 9 tree species with 4 families in west direction, 12 tree species comprised of 9 families in north direction, and 11 tree species belonging to 8 families were recorded in south direction. The tree density ranged between 170-240 trees/ha across the site being highest under north direction and least at east direction. The rarity and commonness of the species in urban setup reflected that majority of the species are rare in occurrence in different stratum while the intermediate, moderately high and common (high frequency) species class was almost negligible in the entire site in most of the vegetation stratum. Population structure of the species also revealed the younger vegetation stand in all the direction due to absence of the different size classes of the species. The regeneration of the species was not found up to the mark in all the direction. Therefore, there are needs for the conservation priority to manage the urban landscape for better management and planning.

Keywords: Structure, Population dynamics, Regeneration, Urban vegetation

REFERENCE

- Agbelade, A.D., Onyekwelu, J.C. and Oyun, M.B.** (2017). Tree Species Richness, Diversity, and Vegetation Index for Federal Capital Territory, Abuja, Nigeria. *International Journal of Forestry Research*. Article ID 4549756, 12 pages, <https://doi.org/10.1155/2017/4549756>.
- Baldauf, R. and Nowak, D.** (2014). Vegetation and Other Development Options for Mitigating Urban Air Pollution Impacts. *Global Environmental Change*. Pp. 479-485.
- Francesco, F. and Alessio, F.** (2011). Sustainable management techniques for trees in the urban areas. *Journal of Biodiversity and Ecological Sciences*, 1(1):1-20.
- Gavali, R.S. and Shaikh, H.M.Y.** (2016). Estimation of Carbon Storage in the Tree Growth Solapur University Campus, Maharashtra, India. *International Journal of Science and Research*, 5(4):2319-2367.
- Hewit, N. and Kellman, M.** (2002). True seed dispersal among forest fragments: dispersal ability and biogeographical controls. *Journal of Biogeography*, 29(3):351-363.
- Jim, C.Y. and Chen, W.Y.** (2009). Diversity and distribution of landscape trees in the compact Asian city of Taipei. *Applied Geography*, 29:577-587.
- Jhariya, M.K., Bargali, S.S., Swamy, S.L. and Kittur, B.** (2012). Vegetational structure, diversity and fuel loads in fire affected areas of tropical dry deciduous forests in Chhattisgarh. *Vegetos*, 25(1), 210-224.
- Jhariya, M.K. and Oraon, P.R.** (2012). Regeneration Status and Species Diversity along the Fire Gradients in Tropical Deciduous Forest of Chhattisgarh. *Journal of Plant Development Sciences*, 4(1): 49-54.
- Jhariya, M.K.** (2014). Effect of forest fire on microbial biomass, storage and sequestration of carbon in a tropical deciduous forest of Chhattisgarh. *PhD thesis*. Indira Gandhi Krishi Vishwavidyalaya, Raipur, India.
- Jhariya, M.K. and Yadav, D.K.** (2018). Biomass and carbon storage pattern in natural and plantation forest ecosystem of Chhattisgarh, India. *Journal of Forest and Environmental Science*, 34(1):1-11. DOI:10.7747/JFES.2018.34.1.1.
- Jhariya, M.K., Banerjee, A., Meena, R.S. and Yadav, D.K.** (2019). Sustainable Agriculture, Forest and Environmental Management. Springer Nature Singapore Pte Ltd., 152 Beach Road, #21-01/04 Gateway East, Singapore 189721, Singapore. eISBN: 978-981-13-6830-1, Hardcover ISBN: 978-981-13-6829-5. DOI: 10.1007/978-981-13-6830-1. Pp. 605.
- Khan, M.L., Rai, J.P.N. and Tripathi, R.S.** (1987). Population structure of some tree species in disturbed and protected sub-tropical forests of north-east India. *Acta Oecologia*, 8:247-255.
- Kittur, B.H., Swamy, S.L., Bargali, S.S. and Jhariya, M.K.** (2014). Wildland Fires and Moist Deciduous Forests of Chhattisgarh, India: Divergent Component Assessment. *Journal of Forestry Research*, DOI:10.1007/s11676-014-0471-0.
- Kumar, A., Jhariya, M.K., Yadav, D.K. and Banerjee, A.** (2017). Vegetation dynamics in Bishrampur collieries of northern Chhattisgarh, India: eco-restoration and management perspectives. *Environ Monit Assess*, 189:371.

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- Ogwu, M.C., Osawaru, M.E. and Obayuwana, O.K.** (2016). Diversity and Abundance of Tree Species in the University of Benin, Benin City, Nigeria. *Applied Tropical Agriculture*, 21(3):46-54.
- Oraon, P.R.** (2012). Structure and dry matter dynamics along the disturbance gradient of tropical dry deciduous forest in Boramdeo Wildlife Sanctuary, Chhattisgarh. Ph.D. Thesis, I.G.K.V., Raipur (C.G.).
- Oraon, P.R. and Jhariya, M.K.** (2018). Regeneration and Species Status in Boramdeo Wildlife Sanctuary of Chhattisgarh, India under Different Anthropogenic Disturbance Regimes. *Bull. Env. Pharmacol. Life Sci.* 7(5):30-36.
- Pandey, R.K. and Kumar, H.** (2018). Tree Species Diversity and Composition in Urban Green Spaces of Allahabad City (U.P.). *Plant Archives*, 18(2):2687-2692.
- Raunkiaer, C.** (1934). The Life Form of Plants and Statistical Plant Geography. *Clarendon Press* ISBN 9978-40-943-2, Oxford.
- Saral, A.M., Selcia, S.S. and Devi, K.** (2017). Carbon storage and sequestration by trees in VIT University campus. IOP Conf. Ser.: Mater. Sci. Eng. 263 022008 doi:10.1088/1757-899X/263/2/022008.
- Sarkar, M. and Devi, A.** (2014). Assessment of diversity, population structure and regeneration status of tree species in Hollongapar Gibbon Wildlife Sanctuary, Assam, Northeast India. *International Journal of Society for Tropical Research*, 1(2):26-36.
- Saxena, A.K. and Singh, J.S.** (1984). Tree population structure of central Himalayan forest associations and implications concerning their future composition. *Vegetatio*, 54:61-69.
- Tripathi, B.C., Rikhari, H.C., Bargali, S.S. and Rawat, Y.S.** (1991). Species composition and regeneration in disturbed forest sites in the oak zone in and around Nainital. *Proceedings of Indian National Science Academy B*, 57:381-390.
- Yadav, D.K. and Jhariya, M.K.** (2017). Tree community structure, regeneration and patterns of diversity in natural and plantation forest ecosystem. *Res. Environ. Life Sci.*, 10(4):383-389.
- Yadav, D.K., Ghosh, L. and Jhariya, M.K.** (2017). Forest Fragmentation and Stand Structure in Tropics: Stand Structure, Diversity and Biomass. Lap Lambert Academic Publishing. Heinrich-Bocking-Str. 6-8, 66121, Saarbrücken, Germany. Pp. 116. ISBN: 978-3-330-05287-1.