

A contribution to the vegetation of Laljole in Jhargram district of West Bengal

Debabrata Das*

Department of Botany, Government General Degree College Lalgarh,
Lalgarh, Binpur-I, Jhargram-721516 (India)

Author's Email Id: debabratlalgarh@gmail.com

Abstract

Vegetation plays a significant role in the ecosystem services and its multidirectional role actively affects ecosystem processes. Nutrient cycling, hydrological cycles, biomass recycling, microorganism interactions and soil-plant interactions take place in any ecosystem, so integrity and species interactions run their process without any intervention. Plants, animals and microbes play a crucial role to tag them with different ecological factors. In this communication a general view of Laljaole forest vegetation have been presented with their ecological services. Trees, herbs, shrubs, local community and their overall socio-culture aspects have been placed to express their societal status in context to present day scenario.

In any ecosystem major factors are biotic and abiotic one. Among abiotic factors, many subtypes play a vital role to run the ecosystem process, say for example water and soil, altitude and latitude, day light and darkness. In the path of ecosystem services, not only abiotic components, but many biotic components play a major role to make the system unique, quite beneficial and thus make a good community of both plants and animals. In this microclimatic condition a major role plays by different organisms. The producers, consumers and decomposer are the main activators who make the cycling process truly in a sequential way and therefore growth and development of any composite biomass takes place. Everywhere we need biomass for food, fodder,

shelter and other purposes and therefore we are dependent on good gifted green vegetation. The plants and green organisms get productive and produce natural items like food, medicine, cosmetics and so on naturally. Thus producers are the main store house from which we get our daily need based items. We eat, we drink, we use and even we destroy our local vegetation for different purposes. In our city we have a small green patch heterogeneously but in forest or hilly areas we see a large number of plants, animals, hill rocks, plain land with good vegetation, rivers, waterfalls, small tank, big water reservoir etc. that perform a normal environment with good productivity. The local population dependant on these natural resources and use these items round the year

Associate Professor of Botany,

for their own purpose. The simple processes run the ecosystem smooth and functional without any kind of intervention. Therefore, a general study on hill ecosystem of Laljole forest in Jhargam district has been incorporated in this study to know the diversity of resources in a small patch with indigenous rural and marginalized people, their culture, belief and so on, with special context to their own management.

Study area :

Laljole is a small hamlet in between two hills of Banspahari forest range under the district Jhargram in West Bengal. It is aside the metallic road Jhargram-Purulia in West Bengal. The luxuriant vegetation of hills, rice field in valleys and undulated topography extended with cultivated crop lands intermingled with small pond is the characteristic of the vegetation of this area. It is a green core zone of the area but at a glance we see the higher plants and some cryptogams. But in a general view this research emphasizes only the higher plants excluding lower groups. So, overall the kind is synonymous to macro vegetation.

Study was done with the help of local people since 2002 till date with a Ph.D. work particularly for vegetation ecology of forests of South West Bengal with special reference to non-timber forest produce productivity (NTFPs)^{1-6,8,15,18,28}. The continuity of this study emphasizes the present condition after a research work to know the status of the vegetation in a particular way with other associated floral and faunal members. Measuring tape, camera, note book, GPS and binocular were used during study. To identify

the vegetation local flora^{12,18} and Ph.D. thesis was reused⁵. Information from local forest range office and block office was gathered, more information was taken from literature listed in the references^{7,9,10-14,16-18,20-27,29}. In the village, study was done with the help of elderly persons associated with different activities and who have good idea and acted as manager for their community.

After critical study, report was prepared and presented a general view with different heads. These are given below:

- a. Vegetation Sketch:
Vegetation of Laljole consists of various types of plants. *Ventilago*, *Pterocarpus*, *Aegle*, *Pterospermum*, *Erythrina*, *Ziziphus*, *Mangifera* and *Mimusops* sp. etc.
- b. Vegetation of Hills: In hills *Butea*, *Bauhinia*, *Sterculia*, *Flacourtia*, *Shorea*, *Cassia alata*, *Mallotus philippensis*, *Combretum*, *Gardenia gummifera*, *G. latifolia*, *Schleichera oleosa*, *Helicteres isora*, *Terminalia bellerica*, *T. chebula*, *T. crenulata*, *T. arjuna*, *Madhuca longifolia*, *Diospyros malabarica*, *D. melanoxylon*, *Polyalthia serasoides*, *Wrightia tinctoria*, *Holarrhena antidy-senterica*, *Wendenlandia*, *Plumeria* sp. etc.
- c. Vegetation in Rice field: In the rice field many weeds have been found. These are *Ludwigia*, *Ipomoea*, *Enhydra*, *Sphenoclea zeylanica*, *Chloris*, *Cynodon*, *Cyperus*, *Paspalum*, *Paspalidium*, *Andrographis*, *Andropogon*, *Hemigraphis*, *Gnephaliium*, *Anisomeles*, *Anagallis*, *Melochia*, *Ranunculus*, *Sida*, *Boerhaavia*, *Dentella*, *Spermococe*, *Oldenlandia*, *Setaria*,

- Dactyloctenium, Eleusine* etc.
- d. Vegetation of Vegetable gardens: Local people use lower foot hill for economic grass cultivation. They use other land including their home gardens to cultivate various economic and ornamental plants. These are green mung, cabbage, radish, spinach, chilli, brinjal, Malabar spinach or basella, red basella, okra, luffa, ground cucumber, pointed gourd, bitter gourd, snake gourd, black mung etc.
 - e. Vegetable of back yard of home : A large number of vegetables are available in their backyard. These are *Lagenaria, Coccinia, Benincasa, Amaranthus, Basella, Cucurbita, Momordica, Luffa, Artocarpus, Mangifera, Tamarindus* and *Aegle*.
 - f. Road side trees and shrubs: Metallic road to village a few tree species have been noticed, these are banyan (*Ficus benghalensis*), peepal (*Ficus religiosa*), Spanish cherry (*Mimusops elengi*), bushwillow (*Combretum decandrum*) etc.
 - g. Vegetation of aquatic body: A small stream and aquatic body play a vital role to grow a few hydrophytes and associated species round the year. These are *Ipomoea* aquatic, *Nymphaea nouchalii, N. alba, N. rubra, Nymphoides* sp., *Eichhornia* sp. etc.

Vegetation of Laljole is unique *i.e.* it is absolutely free from polluted site and rich in hilly land mass which is more or less managed green patch. A large number of plant species is available in hills, but both the sides of hills (both sides of the village roads) have different categories of vegetation. One forest is dominated by *sal (Shorea robusta* : Fig. 1) tree and other having least number of *sal* species. So,

heterogeneity is the main view point of vegetation at Lalgarh. Valley area having natural weed vegetation along with many fern species and aquatic species (Fig. 2) particularly water grass. Cultivated rice varieties are almost alike because of the availability of seeds supplied nearby shops and rapid incorporation of modernization. Huge applications of chemical fertilizers are applied in rice field though in their home gardens they use huge organic manure and farm yard manure because villagers have huge number of cattle in their house. Culturally they are unique and follow many ceremonies time to time but main festival is *shikar* (hunting). They offer to god for their wellness and pray to *karam (Adina cordifolia)* against evil and are called *karam parab* (karam festival). Transportation, health including educational problems are major problems, though they use many technologies for modernization. Till date people use huge fuel wood and use many indigenous techniques. Non woody forest produce (NWFPs) species provide immense importance on their life. The use NWFP and apply directly in their society but through marketing they earn money. Various types of forest mushrooms, fruits, seeds, fibres, and flosses are a major source of income. People use undulated forest land for their cultivation ground and cultivate '*jhum* or *sabai grass*' *i.e.* Chinese alpine rush (*Eulaliopsis binata*) to make rope which is high demand product of this region.

Detailed study on Laljole forest and natural habitats should be taken into consideration. Special research project may be included on the basis of vegetation. Socio-economic study in details must be included in a separate project. Forest department can run or start training programme. Vegetation of hills if



Fig. 1 *Shorea robusta* (Sal) Vegetation



Fig. 2 *Nymphaea* sp. in aquatic body

conserved, tourism must be incorporated but before that need to know the beauty of Laljole vegetation and its uniqueness. Special training programme like botany study, ecology study, ethno-botany study, socio-cultural study even soft skill or technology based training is required to fulfil the need based goals of their area even to fulfil their demand on societal basis. An eternal beauty of land, hills, agriculture, tribal people, culture and society of Laljole would attract other people from different parts of the globe so that Laljole may be a centre for tourist attraction. This is due to the special natural sketch of Laljole vegetation. Babui cultivation (*Eulaliopsis* sp.) is unique and going on since time immemorial and carrying socio-economic demand due to old practice and application of traditional knowledge. Last but

not least, major research projects may be implemented very quickly to study on the resources and their management in a sustainable basis.

Figures 1-2

I acknowledge my sincere thanks to Dr. M S Mandal, Retired Scientist (Retd. Additional Director), Botanical Survey of India for his help as and when required. Thanks goes to local people of Laljaole who gave me inspiration to conduct such research. Thanks to my senior researchers who helped me during investigation and data collection from field.

Conflict of Interest :

None

References :

1. Anonymous (2005) Medicinal Plant resources of Southwest Bengal, Research Wing, Directorate of Forests, Govt. of West Bengal., Vol-I, pp. 198.
2. Anonymous (2009) Pursuit and Promotion of Science, downloaded material, Plant Sciences, pp. 159, Ch. XV.
3. Anonymous (2010) Medicinal Plant resources of Southwest Bengal, Research Wing, Directorate of Forests, Govt. of West Bengal., Vol-II, pp. 124.
4. Anonymous (2010) State report on National Programme on Promoting medicinal plants conservation and traditional knowledge for enhancing health and livelihood security for West Bengal, Research Circle, Directorate of Forests, Govt. of West Bengal., pp. 148.
5. Das, D (2007) Study of Vegetation Ecology of forests of lateritic Southwest Bengal with special reference to Non Timber Forest Produce (NTFP) productivity,

- Ph.D. Thesis (Vidyasagar University).
6. Das, D. (2014) *Indian J. App. & Pure Biology*, 29 (2): 255-266.
 7. Das, D. and P. Ghosh, (2014) *IOSR-JESTFT*, 8 (6): 48-63.
 8. Das, D., P. Ghosh, and A.A. Das (2020) Conservation of Ethno-medicine in Rarh region of Southwest Bengal, Chapter 14, pp. 195-209, In : Medicinal and Aromatic Plants Utilization and Conservation, Edited by-Shukla, G *et al.*, 2020, pp.1-399, New India Publishing Agency, New Delhi, ISBN: 978-93-89571-87-5.
 9. Das, M., D.C. Das, and D. Das, (2017) Some potentially important medicinal plants of Coastal PurbaMedinipur with special reference to economy development, *IJIRD*, 6th Year (Addl.), II: 26-34.
 10. Das, D. and M. Das, (2014) *IOSR-PHR*, 4 (2): 56-77.
 11. Das, M. and D. Das, (2019a) *IJSART*, 5(7): 67-75.
 12. Das, M. and D. Das, (2019b) *IJIRD*, 1(15): 143-151.
 13. Dhiman, A. K. and P. Kaushik, (2000) Medicinal uses of some spice plants as in ancient literature, Recent trends in spices and medicinal plant research, pp. 19-26, Ed., De, Krishna; Associated Publishing Co., New Delhi.
 14. Dhindsa, M. and J. K. Saini (1994) *J. Biosci*, 19(4): 391-402.
 15. Dombois, M. and H. Ellenberg, (1974). Aims and methods of vegetation ecology, John Willey & Sons inc., New York.
 16. Flora of West Bengal (1997). Vol-I, BSI, Calcutta, 1997, pp. 486.
 17. Ghosh, P. and D. Das, (2014) *Environment & Ecology*, 32 (2): 465-470.
 18. Ghosh R. B. and D. Das (1999) *Jour. Econ. & Taxon. Botany.*, 23(2): 535-538.
 19. Jorgensen, S. E.; Xu, Fu-Liu and R. Costanza (2010) Hand Book of Ecological Indicators for assessment of Ecosystem Health, Second Edition, CRC Press, New-York, pp. 484.
 20. Margalef, R. (1958) Perspective in Ecological Theory., *University of Chicago Press*, Chicago.
 21. Maurya, P.K., S.A. Ali, A. Ahmad, and Q. Zhou, (2020) An introduction to environmental degradation: Causes, consequences and mitigation, doi: 10.26832/aesa-edcrs-01, pp,1-20.
 22. Mishra, R. (1968) Ecology Work Book, Second Indian Reprint, Oxford IBH Pub. Co., pp. 244.
 23. Mishra, T.K., S.K. Banerjee, and D.C Pal (2004) An Omnibus of Non-timber Forest Products of India, IDB Publishers and Distributors, New Delhi. pp. 79.
 24. Mukherjee, S. (2018) Some common medicinal plants for the welfare of the people of West Bngal, India, Dynamics in Biology, Edited by Dr.Ashim Chakraborty, Akinik Publications, New Delhi, pp. 42-46.
 25. Muller-Dombois, D. and H. Ellenburg, (1974) Aims and Methods of Vegetation Ecology. *John Wiley & Sons Inc.*, New York.
 26. Oosting, H.J. (1958) The study of plant communities: An Introduction to plant Ecology, 2nd Edition, Freeman.
 27. Pielou, E. C (1966) *Journal of Theor. Biology*. 10: 370-383.
 28. Prain, D. (1963) Bengal Plants, Vol-I & II, 1963, BSI, Calcutta.
 29. Rajashekara, S. and M. G. Venkatesha (2014) *Journal of Entomology and Zoology Studies*, 2(5): 142-155.