

# ACTIVITY NOTEBOOK



**Dr. Basant Kumar Singh**


**Senior Preservation Assistant**

AJC Bose Indian Botanic Garden  
Botanical Survey of India, Howrah

- Designation: Junior Research Fellow
- Project Name: **Co-ordinating Project for Sunderban & Nokrek Biosphere Reserve** funded by MoEF & CC, New Delhi
- Duration: Three years (2006-2009)
- Place of Posting: Industrial Section Indian Museum, BSI, Kolkata
- Principal Investigator: Dr. H.S. Debnath
- Work done in Brief:
  - i) Explored the Nokrek Biosphere Reserve in 7 field tours comprising approximately 150 days of field work.
  - ii) Prepared the UNESCO Nomination Form for inclusion of Nokrek Biosphere Reserve in MAB network. (N.B. Nokrek Biosphere Reserve was included in the UNESCO's global MAB network in 2009)
  - iii) Collected the research data and references and their compilation to find out the research gaps in management implementation.
- Registration of Ph.D. thesis: The University of Burdwan in 2007
- Thesis Title: **A Floristic Account of Nokrek Biosphere Reserve, Meghalaya (INDIA)**
- Guide: Dr. H.S. Debnath & Dr. P.K. Bhattacharyya (Burdwan University)]

**Ph.D. awarded on 21.05.2013 by the University of Burdwan**

**NOKREK BIOSPHERE RESERVE  
MEGHALAYA (INDIA)**  
*(Nomination Form for UNESCO-MAB net)*



Prepared by  
Dr. H.S. Debbarma

With Assistance from  
Mr. Basant Kumar Singh,  
Mr. Govind Chhessa Chaudhary

Board member, Centre  
BOTANICAL SURVEY OF INDIA  
Ministry of Environment and Forests,  
Government of India

January, 2007

UNITED NATIONS EDUCATIONAL, SCIENTIFIC  
AND CULTURAL ORGANIZATION

**MAB**

*Man and the Biosphere  
Programme*

*By decision of the International  
Co-ordinating Council  
of the Programme on Man and the Biosphere.*

**Nokrek, India**

*has been designated for inclusion  
in the World Network of Biosphere Reserves.*

*The world's major ecosystems types and biogeographic realms are represented in the Network  
which is devoted to conservation biological diversity,  
promoting research and monitoring as well as seeking to provide models of sustainable development  
in the areas of biosphere.*

*Participation in the World Network facilitates co-operation and exchange  
at the regional and international levels.*

On  
**26 May 2008**



- Designation: Senior Preservation Assistant
- Date of Joining: 24.05.2010
- Place of Posting: Central Regional Centre, BSI, Allahabad
- Annual Action Plan: **Flora of Ranipur Wildlife Sanctuary, U.P. (AAP 2010-11 for CRC, Allahabad)**
- Work Done: Conducted one field tour to Ranipur WLS and collected **125 Species** under 242 field numbers. All were identified and herbarium label were filled in.

- Designation: Senior Preservation Assistant
- Date of Joining: 01.04.2011
- Place of Posting: AJC Bose Indian Botanic Garden, BSI, Howrah
- AAP Projects: 4 nos.

### **Project # 1**

- Title: **Collection, Introduction and Multiplication of 50 Endemic, Threatened, Medicinal, Ornamental and Economically Important Plants (2012-17)**
- Executing Scientists: All working scientists of AJCBIBG
- Work Done: Conducted four field tours to N.E. India and collected saplings of approximately **60 species** of Endemic, Threatened, Medicinal, Ornamental and Economically Important plants.



## **Project # 2**

- Title: **Collection, Introduction and ex-situ conservation of Rare & Endemic Orchids of NE India (2014-17)**
- Working with: Dr. M.U. Sharief
- Work Done: Conducted Four field tours to Tripura, Gangtok and Itanagar and collected saplings of 65 species of Orchids for ex-situ conservation in the botanic garden. A new species *Bulbophyllum parmjitii* (Orchidaceae) is published in Phytotaxa.

## **Project # 3**

- Title: **GIS Phyto-mapping of Trees & Shrubs of AJCBIBG (2014-17)**
- Working with: Dr. C.M. Sabapathy & Dr. A. Pramanik
- Work Done: **3000 trees and shrubs** of the botanic garden are labeled and marked by the GIS techniques.

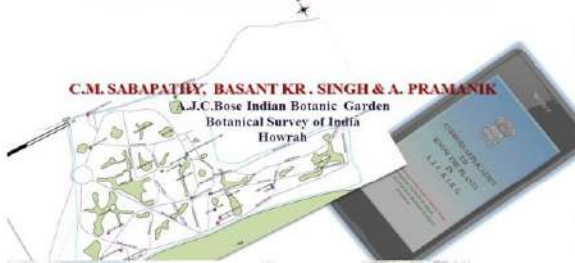
## **Project # 4**

- Title: **Herbaceous Flora (Dicots) of AJC Bose Indian Botanic Garden. (2014-17)**
- Working with: Individual
- Work Done: Literature surveyed and documented approximately **350 herbaceous species** of botanic garden. Final report is under preparation.

**Herbaceous Flora (Dicots) of  
AJC Bose Indian Botanic Garden**



**Project Report  
GIS PHYTO-MAPPING & DIGITIZATION OF  
SHRUBS AND TREES IN  
AJC BOSE INDIAN BOTANIC GARDEN**



**GADGETS UTILIZED**

h Laser Range Finder  
250 VF

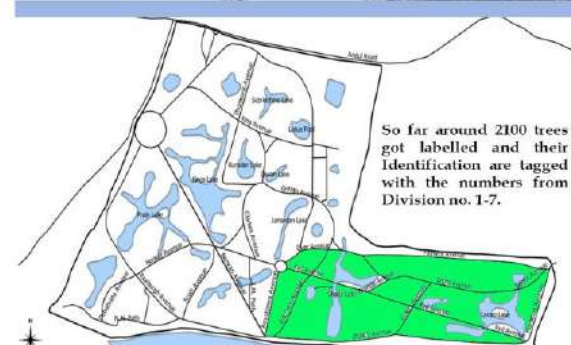
AX R300X Total  
on

oid OS in Sony  
ria E3 with Map  
er, GPX waypoint  
reader etc



**ADVANTAGES OF NUMBERS**

1. Cost effective.
2. Unlimited data accessibility
3. Easy to carryout nomenclatural changes
4. Material used for numbering is Nickel coated Brass Tags with Etching Serial numbers.
5. Allows to enrich database for any individual trees/Shrubs.
6. Hassel free reference for non Botanists in their work.
7. Easy to communicate the information of the particular tree/shrub.



So far around 2100 trees got labelled and their identification are tagged with the numbers from Division no. 1-7.

## Scientific Work (other than the AAP)

### Research Project:

- Working on a project on Sunderban Biosphere Reserve entitled “**Strengthening the community institution, Developing Criteria & Indicators for Participatory Biodiversity Monitoring for Improvement of the Ecosystem Services, Sustainable Livelihood in particular**” in collaboration with IBRAD, Kolkata.
- Undertook a tour to Tripura under the AAP project on Development of Division No. 25 of AJCBIBG from 17.02.2016 to 23.02.2016 and collected **24 species** of different ornamental and economically important plants. **New distributional records viz. *Zeuxine longilabris* & *Eulophia graminea* have been recorded.**

### As a Resource Person:

- **3-days residential training programme** at Viswabharati University, Shantiniketan, Bolpur, organized by West Bengal Biodiversity Board and Botanical Survey of India.
- **Training course on “Herbarium Technique & Methodology”** conducted by ENVIS Centre on Floral Diversity, BSI, Howrah on 02.04.2016.
- One day **training programme** in NMHS funded project “**Biodiversity Assessment through long term monitoring plots in Indian Himalayan Landscape**” on 06.08.2016 at Central National Herbarium, BSI.



## Scientific Work (other than the AAP)

### As an Expert

- 2 members committee to find out the reason behind the sudden large scale death of Rain Tree in Kolkata and adjoining areas.
- Assistance has been provided to Nature, Environment and Wildlife Society (NEWS) as Field Botanist in IUCN project entitled “Bench mark studies on the status of Sunderban Mangrove Forests”.
- Active participation in discussion on the concept development for **new Botanical Gallery at ISIM**. Developed the theme and posters for Angiosperm Bay of the New Gallery.

### EIA Study:

- **Gautam Buddha Wildlife Sanctuary** in Hazaribagh & Gaya Districts for the Dedicated Freight Corridor Corporation of India Ltd. A Govt. of India (Ministry of Railways) Enterprise.
- **Rabindra Sarobar** as per the directives of the National Green Tribunal, Eastern Zone Bench, Kolkata.

### Others:

- Dissemination of information & preparation of reports, introduction of mangrove species for *ex-situ* conservation from Sunderban Biosphere Reserve.
- Assistance to senior scientists in scientific analysis and preparation of reports.



A preliminary report  
on  
Plant Diversity Assessment in selected forest villages  
of  
Gaya district, Bihar & Hazaribagh district, Jharkhand  
For  
Dedicated Freight Corridor Corporation of India Ltd.  
A Govt. of India (Ministry of Railways) Enterprise



By  
Government of India  
Botanical Survey of India  
Ministry of Environment, Forest & Climate Change  
CGO Complex, Salt Lake City  
Kolkata - 700 064, West Bengal, India



## Delivered Lecture as Invited Speaker

- Delivered lecture on “**Role of Biosphere Reserves in Conservation and Sustainable Development**” in the Seminar organized by the department of Botany, **J. K. College, Purulia** on 03.10.2008.
- Delivered lecture on **Plant Conservation (ex-situ & in-situ)** in the State Level Seminar organized by **Bhairab Ganguly College, Belgharia, Kolkata** on 29.02.2016.

## Technical works carried out:

- Assistance to the Technical Section in maintaining files and preparing various reports related to **Audit query, RTI& Parliamentary questions**, etc.
- Compilation of **Monthly& Annual Reports** (Scientific).
- **Demonstration** about AJC Bose Indian Botanic Garden to the students from different organizations, forest trainees, VIPs and dignitaries.
- Participation as **committee member** in different departmental programmes.
- Assistance in various **exhibitions, training**, etc.
- **Other assignments** as per the direction of the Head of Office.

## Administrative/Other Assignments:

- Preparation of reports pertaining to the **court matters**.
- **Photography** during various occasions.



# Publications

**Total No. of Publications:14**

## Published Research Paper

- Debnath, H.S., **B.K. Singh**& P. Giri. 2013. A New mangrove species of *Acanthus* L. (Acanthaceae) from the Sunderban (India). *Ind. J. Forestry* 36(3):411-412.
- **Singh, B.K.**& H.S. Debnath. 2008. Wild plants used by the tribes of Nokrek Biosphere Reserve, Meghalaya and their conservation. *J. Econ. Taxon. Bot.* 32 (Supl.): 364-367.
- Kumar, Ananad&**B.K. Singh**, 2016. Traditional Medical Plant in proposed Eastern Dedicated Freight Corridor passing through the Gautam Buddha Wildlife Sanctuary and its environs, Bihar & Jharkhand in Chourasia, H.K. (ed.) *Conservation of Medicinal Plants: Conventional & Modern Approaches* pp 181-194.
- Agrawala, D.K., M.U. Sharief and **B.K. Singh**2016.*Bulbophyllum paramjitii* (Orchidaceae: Epidendroideae), a new species from Sikkim Himalaya, India. *Phytotaxa* 273(1):072-076.
- Panda, S.P., **B.K. Singh**, M.U. Sharief, S.S. Hameed & A. Pramanik. 2016. The Genus *Zeuxine* Lindl. (Orchidaceae) in Tripura State, *J. Threat. Taxa*8(14):9675-9677.
- Panda, S.P., **B.K. Singh**, H.N. Subudhi& H.K. Patra. 2016. The genus *Acanthus* L. (Acanthaceae) in Bhitarkanika National Park, Kendrapara District of Odisha, India, *Zoos Print* 31(4):9-11.

## Research Article

- **Singh, B.K.**, AnjanSardar& P.V. Sreekumar. 2013. Introduction of *Abutilon ranadei* an endangered plants in AJC Bose Indian Botanic Garden. in ENVIS Newsletter no. 18(2): 4.
- **Singh, B.K.**& H.S. Debnath. 2007. Bamboos in the lives of Garo of Nokrek. ENVIS Newsletter no. 12(1&2): 4-5.

## Popular Article

- Debnath, H.S. &**B.K. Singh**. 2013. Nokrek Biosphere Reserve. *Environ* 12(1): 48-53.
- Pramanik, A. &**B.K. Singh**. 2016. AJC Bose Indian Botanic Garden – A Natural Heritage. *Sylvan* 1(5):52-65.

## Research Paper (Accepted)

- Mahaptra, H.S., **B.K. Singh**& P.V. Sreekumar. Pre & Post De-siltation account of the aquatic and wetland macrophytes in the lakes of AJC Bose Indian Botanic Garden, Howrah.
- Panda, S.P., **B.K. Singh**& A. Pramanik. The Genus *Eulophia* R.Br. (Orchidaceae) in Tripura State, India in *Vegetos*.
- Sabapathy, C.M., **B.K. Singh**& A. Pramanik. The Kite Climbers of AJC Bose Indian Botanic Garden, BSI, Howrah in *Indian Journal of Biological Science*.
- **Singh, B.K.**, C.M. Sabapathy& A. Pramanik. Hemi-epiphytes – a challenge for *ex-situ* conservation in AJC Bose Indian Botanic Garden, Howrah – A case study in the proceedings of National Seminar on Indian Botanic Gardens organized by NBRI, Lucknow.

## Book Chapters

- **Singh, B.K.**, H.S. Debnath& P.K. Bhattacharyya. Nokrek Biosphere Reserve in JS Khuraijam, BS Kholia, Rita Singh (ed.) *Plant Diversity of Northeast India: Volume I* NBRI, Lucknow. (In Press)

## Scientific Reports submitted

- Biodiversity Assessment (Flora) of Gautam Buddha Wildlife Sanctuary in Hazaribagh& Gaya Districts for the Dedicated Freight Corridor Corporation of India Ltd. A Govt. of India (Ministry of Railways) Enterprise.
- Possible reason behind the sudden large scale death of Rain Tree in Kolkata. and adjoining areas

## Abstract Published

- “Studies in the wild economic plants of Nokrek Biosphere Reserve (Meghalaya)” in National Conference on Utilization of Plants and Microbial Resources organized by Vishvabharati University, Bolpur in 2012.
- “Nokrek Biosphere Reserve: Special References to Conservation & Management” in National Seminar on Plants, Microbes and Forestry Research for Sustainable Development organized by Vidyasagar University, Midnapore in 2008.
- “Studies in a naturalized, annual *Tephrosia* of the District Burdwan (W.B.)” in National Conference on Current Researches in Plants and Microbial Sciences, organized by Burdwan University, Burdwan in 2005.

## Article in Official Language

सिंह, बी.के. एवं एच.एस.देवनाथ. 2008. नोकरेक जीवमंडल की बागवानी योग्य जंगली वनस्पतियां. वनस्पति वाणी 17:67-72.

देवनाथ, एच.एस. एवं बी.के. सिंह. 2006. नोकरेक जीवमंडल - एक परिचय. वनस्पति वाणी 15:17-23.

सिंह, बी.के. एवं एच.एस. महापात्रा. 2015. आचार्य जगदीश चंद्र बोस भारतीय वनस्पति उद्यान की झीलों पर प्रदूषण का प्रभाव एवं उसका उपचार. वनस्पति वाणी 24:86-87.

राय, रिजुपालिका, बी.के. सिंह एवं ए. प्रमानिक. 2015. सुर्योदय की घरती, अरुनाचल प्रदेश की एक यात्रा. वनस्पति वाणी 24:92-93.

सिंह, बी.के., सी.एम. सबाफ्थी, ए. प्रमानिक एवं एस. कुमार. 2016. पतंगी मांझे और धागों से भारतीय वनस्पति उद्यान में उत्पन्न खतरे. वनस्पति वाणी 25:97-100.

## **Book under Publication**

Common Plants of Gangetic Plain by H.S. Debnath & B.K. Singh

## **Assistance in Other Publication**

- Census of Plants of AJC Bose Indian Botanic Garden – A Report (Book) by Dr. H. S. Debnath *et. al.*, published by Botanical Survey of India. 2014.
- Mammals, Reptiles and Amphibians of AJC Bose Indian Botanic Garden (Book) by Dr. H. S. Debnath *et. al.*, published by Botanical Survey of India. 2014.
- Birds, Butterflies & Associate Plants of AJC Bose Indian Botanic Garden (Book) by Dr. H. S. Debnath & Sri Biswajit Roychoudhury, published by Botanical Survey of India. 2012.
- Winter Flowers of AJC Bose Indian Botanic Garden (Brochure) published by Botanical Survey of India. 2012.

## **Other fields of Experience:**

- Editing and assistance in the making of the documentary film “A Journey to Nokrek”. (Released by the Director, Botanical Survey of India on 10th January, 2007).
- Editing, translation and assistance in the remaking of the documentary film “Sunderban – Anisshit Bhawishya (Hindi)”.
- Prepared a Hindi Documentary “Acharya Jagadish Chandra Bose Indian Botanic Garden – Bhut, Bhawishyaaur Vartaman” presented on the occasion of Hindi Diwas in 2013.





## Training/ Workshops Attended

Sl. No.	Training/ Workshops	Organised by	Duration (in days)	Date
1.	Vulnerability of Sunderbans in a Changing Climate (Technical knowledge sharing workshop for Bangladesh & India)	South Asia Water Initiative, World Bank	1	03.02.2017
2.	Participatory biodiversity conservation for improved ecosystem services in the context of Climate Change	Indian Institute of Bio-Social Research & Development (IBRAD), Kolkata	2	09.05.2016-10.09.2016
3.	Administrative and Management of e-flora of India and Plant Checklist Database	C-DAC	2	29.09.2014-30.09.2014
4.	2 <sup>nd</sup> Capacity Building Programme for Technical Assistant	Indian Institute of Public Administration, New Delhi	14	18.02.2013-01.03.2013
5.	Coursework on the Botanical Nomenclature	Botanical Survey of India and ENVIS Centre on Floral Diversity	3	11.01.2013-13.01.2013
6.	Workshop on Herbarium Technology and Methodology	Botanical Survey of India and ENVIS Centre on Floral Diversity	2	2006
7.	Workshop on Herbarium Technology and Methodology	Botanical Survey of India and ENVIS Centre on Floral Diversity	2	2005

## Future Plan of Work

- Development of GIS based phyto-mapping and preparation of database on the introduced Tree and shrubs of AJC Bose Indian Botanic Garden
- Documenting the herbaceous plants of AJC Bose Indian Botanic Garden (monocots except Poaceae & Cyperaceae)
- Study on the distributional pattern of mangroves and mangrove associates in the Haliday Island Wildlife Sanctuary of Sunderban Biosphere Reserve.



*Thank you*

*to*

*my teachers, mentors, seniors and colleagues for  
guidance and help in endeavouring my goals.*

