

# SUMMARY OF THE INTERACTIVE TALKS AND WORKSHOP ON ESSENTIALS IN PLANT REVISIONARY STUDIES AND FLORA WRITING

1st to 3rd DECEMBER 2016

AT BSI, WRC, PUNE



ORGANIZED BY

NAOROJI GODREJ CENTRE FOR PLANT RESEARCH (NGCPR)  
SHIRWAL

Celebrating Birth Centenary of Shri. N. P. Godrej

IN COLLABORATION WITH

BOTANICAL SURVEY OF INDIA,  
WESTERN REGIONAL CENTRE, PUNE



## Inaugural Function

The programme was inaugurated on 1st December 2016 (10 am) by **Mr. Achyut Gokhale** (Ex-Secretary of Govt. India), **Mrs. Smita Godrej Crishna** (Director, Naoroji Godrej Centre for Plant Research) and **Dr. Vilas Bardekar** (Chairman, Maharashtra State Biodiversity Board).



Dr. Mayur Nandikar (Scientist, NGCPR) introduced the guests and Dr. P. Lakshminarasimhan (Head, BSI, WRC, Pune) welcomed them. After the traditional lighting of the lamp and garlanding the photograph of Shri Naoroji Godrej by invited guests, **Mr. Achyut Gokhale**, in his inaugural talk shared his experience on plant species from Nagaland and the importance of local names. He has developed a website named “www.signaturesofplants.com”. This website enables access to an underlying database which has more than 6000 records, one for a species, and data on each species is entered in appropriate columns with headings each of which describes a particular attribute from among more than 200 attributes. The data base contains data taken from Brandis “Indian Trees”, Kanjilal “Flora of Assam”, Backer “Flora of Java” and Hooker “Flora of British India”. The user of the site can use the facilities of this website to obtain valuable comparisons of families, genera and species. And of course the user can use it as a reverse dictionary in the sense that from a description of an observed plant, the user can go fairly quickly close to the scientific names of the plant under observation. He demonstrated the webpage and its applications.

**Mrs. Smita Godrej Crishna** highlighted the journey and foresight of her father, Shri. Naoroji Pirojsha Godrej, who’s birth centenary was on 3<sup>rd</sup> December 2016. She emphasized the inception, contribution and role of NGCPR in biodiversity conservation and the field of Plant Taxonomy. She also highlighted the programmes that were scheduled during this birth centenary celebration.

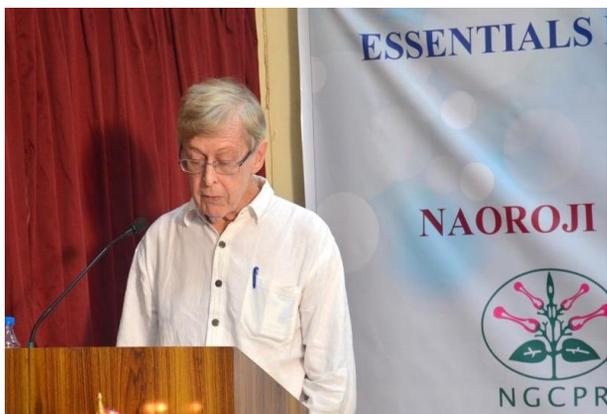


**Dr. Vilas Bardekar** wished the Workshop all success and appreciated the joint efforts taken by NGCPR and BSI in organizing the event.

Apart from our distinguished guests and most of the resource persons (Dr. Bruce Maslin, Dr. S. Karthikeyan, Shri M.K. Vasudeva Rao, Prof. M.K. Janarthanam, Dr. D. Narasimhan, Prof. Milind Sardesai, Dr. Ritesh Choudhary, Dr. Aparna Watve, Dr. Subir Bandyopadhyay and Dr. Avishek Bhattacharjee) also present were Mrs. Gokhale, Mr. Madhav Gogate, number of retired scientists from BSI, Pune (Dr. S.Y. Kamble, Dr. P.G. Diwakar, Dr. B.G. Kulkarni, Mr. S. Moorthy and Shri K.M. Rao), Dr. Sachin Punekar, Dr. Mandar Datar, Dr. Karthick Balasubramanian and Dr. Mahesh Shindikar.

## Technical Sessions

After the inaugural session, the first lecture of the session was delivered by **Prof. M.K. Janarthanam**, Goa University, on the **Botanical History of India and Present Status**. In his hour-long talk he effectively explained the history of Botany right from Garcia de Orta, Van Rhee de to the present status of botany in India. He also suggested that the participants should read old archive books and journals like Himalayan Botany.



The second talk on **Taxonomic Process: Its Role and Relevance in Revisionary Studies and Flora Writing** was delivered by **Dr. Bruce Maslin**, Senior Principal Research Scientist, W.A. Herbarium, Western Australia. He explained how the applied and other subjects of botany like ecology, cytology, nomenclature and palynology were essential to revise the taxa or any group. He shared his experience in solving the complexes in the genus *Acacia s.l.* in Australia and briefly explained the electronic key. He requested participants to register for his Lucid demonstration session scheduled on 2<sup>nd</sup> December 2016.

The afternoon session started with the talk by **M. K Vasudeva Rao**, Retd. Scientist, BSI. He explained the **Type Concept in Plant Taxonomy**. He emphasized that the first recorded documents are vital in plant taxonomy, thereby highlighting the necessity of typification and nomenclature in plant systematics.



It was followed by a lecture on **Herbarium Techniques** by **Dr. P. Lakshminarasimhan**, Scientist 'E', BSI, Pune. He indicated the proper and systematic methods of herbarium preparation, their storage and preservation. He conveyed the importance of having a proper herbarium and their relevance in taxonomic studies by highlighting the major herbaria of the world.

The last lecture of Day 1 by **Dr. S. Karthikeyan**, Retd. Scientist, BSI, Pune focused on **Flowering Plants of India: An Appraisal**. The lecture was very informative. He carried the participants through the history of Indian flora and to the Flora of British India by J.D. Hooker and travelled to the present taxonomic scenario i.e. the APG system and its impact on the old system of classification. His rich research experiences and achievements motivated the gatherings.



The day started with the lecture of **Dr. D. Narasimhan**, Associate Professor, Madras Christian College, Chennai. He delivered the talk on **Developing Inference for Floristic Studies**. Being a Floristic expert, he discussed the lacunae that we face in floristic studies and also the areas which need specific attention while carrying out floristic work. The need of field exploration, proper description, illustration, geography, local names and the medicinal uses are very important while conducting such studies. These are lacking in most studies. One major void that most of the floristic works display is the unreality of data interpretation. He concisely explained the need of original interpretation of data in a floristic study.



The second lecture was delivered by **Prof. S. R. Yadav**, Shivaji University, Kolhapur. He discussed the **Role of Cytological Studies in Plant Taxonomy**. Sharing his experience of 30 years in Cytology and Plant Taxonomy he advised that most of the complexes of highly evolved taxa could be solved using cytotaxonomic tools and karyomorphology. He gave a pictorial account of chromosomes of the genera like *Ledebouria*, *Crinum*, *Dipcadi*, etc. and their relationships with their sister groups. He further explained cytological evidences in the genus *Aponogeton* from India and its ancestral relationship with the flora of Africa and Madagascar.

**Dr. Subir Bandyopadhyay**, Scientist, Central National Herbarium, Botanical Survey of India, Howrah, gave a talk on **The important websites for doing research in Taxonomy and Identification and naming of Plants**. For all botanists, taxonomic literature is important for identification and naming of plants. He briefly explained the major Plant Taxonomic websites such as Tropicos, IPNI, Index Herbariorum, The Plant List, Botanical Heritage Library, Taxonomic Literature II, GRIN by sharing notes and their URLs.



**Dr. Aparna Watve**, Tata Institute Social Sciences, Tuljapur covered ecological aspects in the post lunch session. By her expertise in ecology of rocky outcrops on lateritic plateau, she discussed the **Essentials of Ecology in Plant Taxonomy**. Ecology is one of the main aspects of biodiversity conservation. She pointed out the important micro habitats that are present in the ecosystem, the need for conservation and their use in Flora writing and revisionary studies. She also highlighted the Habitat classification, Ecotype concepts, variation in plants etc.

**Basics of Plant Taxonomic Revisions** was explained by **Dr. Avishek Bhattacharjee**, Scientist, Central National Herbarium, Botanical Survey of India, Howrah through his experience in the revision of Orchid group in India. He highlighted the process in Taxonomic Revisions viz. how to begin with revisionary study, use of protologue, types, various latin terminology, herbarium consultation, field visits, writing description, photography, illustration in brief. Some examples in typification and nomenclature were also part of his presentation.



**Demonstration of Lucid Key** by **Dr. Bruce Maslin** was an interesting part of the Workshop. He advised on how to build the characters, which characters could be classified as qualitative and which needed to be omitted as well as mistakes that should be avoided while writing the key. He briefly explained the use of characters to key out 1300 *Acacia s.l.* species from Australia with only 27 informative characters. His experience with digitization of keys, field visits and consultation of herbaria was found to be most inspiring to the young participants.

One of the important aspects of the workshop viz. How to write a flora? was discussed by **Prof. Milind M. Sardesai**, Savitribai Phule University of Pune with his own experience in writing Flora of Kolhapur and Gadchiroli districts. His talk, **Essentials of Flora Writing**, highlighted his own expertise in the area of exploration of flowering plants, and he gave glimpses of many national and regional Flora's. He cited differences between Flora and Enumeration. He explained how the description, citation, illustrations, geography, distribution and notes can play an important role to conclude any Flora writing. Basic notes were shared and some easy techniques were explained to the participants.



A practical session of **Plant Illustrations** by **Dr. Shrikant Sutar**, Asst. Prof. Wadia College, Pune, started the sessions on Day 3. Prior to this, his illustrations were exhibited for the participants. In his lecture he demonstrated how to start with plant illustrations and the basic concepts behind the drawing. He unfolded the History of botanical illustrations, types and the differences between general drawing and botanical illustrations. He conducted a round table practical for different groups of participants. Live demonstrations on illustrations proved to be very helpful to the participants. He further explained various kind of shadings, use of ink pen, scale and editing.



**Dr. C. Sudhakar Reddy**, National Remote Sensing Centre, Hyderabad gave a talk on **Applications of GIS in Plant Taxonomy, Distribution and Ecology**. He explained how the ideas of writing flora and revisionary studies are changing. Use of species Distribution Modeling, World Climate layers, Climate soil and topography, how many populations or readings are required for SDM, Hyperspectral data (which has more than 1000 colors), LiDAR analysis to determine the exact height and canopy of the tree and forest layers and gaps in Botanical Explorations. Forest fires and the present role of NRSC, Hyderabad. He explained the use of remote sensing in species conservation in brief to the audience.

Molecular phylogeny, recent techniques in DNA sequencing was vocalized by **Dr. Ritesh Choudhary**, ARI, Pune in his talk on **Introduction to Molecular Phylogeny and applications in Taxonomic Revisions**. He briefly explained the importance of this recent application to solve taxonomic problems. His own experience in East Asian *Polygonum* was shared with the participants and he also explained the basics of phylogeny. He emphasized that revisionary studies must be accompanied by the molecular phylogeny, and the Angiosperm Phylogeny Systems needs to be absorbed in writing flora and revisions.



The Director, Botanical Survey of India, Kolkata **Dr. Paramjit Singh** interacted with participants on **Plant Diversity in India: Challenges**. He unfolded the history of Botanical Survey of India with all the Directors of the BSI and briefly explained their contribution. He spoke about all the Regional Centre of BSI, herbarium collections and the recent digitization services offered by the BSI. He then discussed the present status of Flora of India and the hinderances with the student participants.



### Valedictory Function

**Dr. Narasimhan**, Madras Christian College, Chennai was the Chief Guest at the Valedictory Session, while **Dr. Paramjit Singh**, Director, BSI, Kolkata was the President. **Prof. S.S. Deokule**, Savitirbai Phule University of Pune, **M. Vasudeva Rao**, Retd. Scientist, BSI, **Dr. S. Karthikeyan**, Retd. Scientist BSI and **Dr. Bruce Maslin**, Western Australia were Guests of Honour.



**Dr. Mayur Nandikar**, NGCPR summarized the Workshop sessions briefly to the delegates and conveyed to them that the present programme was conducted on the occasion of Birth Centenary of Shri. Naoroji Godrej. **Dr. P. Lakshminarasimhan**, Head, WRC, BSI, Pune welcomed all the dignitaries on the dais. Invited guests shared the views about the Workshop, and congratulated both the organizations for conducting such a Workshop. Dr. Paramjit Singh added that such an activity in collaboration with another institution was beneficial to the institutions as well as to the participants. He appreciated the efforts taken by NGCPR in hope of further implementation of such activities at various different BSI centers.



Teacher participants **Dr. R.M. Mulani**, Professor, Botany Research Laboratory School of Life Sciences, S.R.T.M.University, Nanded and **Dr. Dr. Kiran Ramchandra Ranadive**, Assistant Professor of Botany at Department of Botany, Waghire College, Saswad, Pune gave their feedback saying, 'the workshop is a complete workshop and they congratulated the NGCPR and BSI for organizing this workshop'.



Student participant **Mr. Danish Husain**, National Botanical Research Institute, Lucknow added 'all the sessions were informative, nicely coordinated by the invited speakers and the organizers, and would definitely be helpful to carry out taxonomic research'. He thanked the organizers for arranging such workshop.

**Dr. J. Jayanthi**, Scientist, Botanical Survey of India, Pune proposed the Vote of Thanks and the programme concluded by 'Pasayadan' sung by Dr. Kiran Ranadive (which literally means 'offerings' composed by a well-known Saint in Maharashtra Sant Dnyaneswar) followed by the National Anthem.



In all there were 58 candidates who attended this workshop. There was a positive feedback received from the candidates. Certificates were distributed to all the participants.