

BSI NEWSLETTER

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Kolkata – 700 064



HEAD QUARTERS, KOLKATA

For projects, Studies on Wild Mushrooms of Sikkim, Studies on the Macrofungi of AJC Bose Indian Botanic Garden, Wood rotting fungi of Rajmahal hills, Revision of the family Metzgeriaceae in India, Liverworts and Hornworts Flora of Darjeeling District, West Bengal, scientists made identification of specimens, prepared camera lucida drawings and also taken microphotographs.

Dr. (Ms.) Monalisa Dey, Scientist 'B' studied and photographed the specimen, *Trocholejeunea meghalayensis* Ajit P. Singh & V. Nath A.P. Singh 208657-B (Holotype) obtained on loan from National Botanical Research Institute, Lucknow, India (LWG).

Dr. R.K. Gupta, Scientist 'D' prepared algal database of 127 species of Koderma district of Jharkhand.

Sri Arvind Parihar, Bot. Asst. accessioned and incorporated 11 specimens (including one Holotype, *Ganoderma keralense* Vinjusha & T.K.A. Kumar (Ganodermataceae) - Accession No. – CAL 1543) received from Dr. Arun Kumar T.K., Assistant Professor, Department of Botany, The Zamorin's Guruvayurappan College, Kozhikode, Kerala.

Public service rendered

Dr. A.B.D. Selvam, Scientist 'D' pharmacognostically studied and authenticated a rhizome as *Valeriana jatamansi* (Valerianaceae), which was received from Wildlife Crime Control Bureau, Mumbai.

Dr. Selvam pharmacognostically studied and authenticated a rhizome as *Nardostachys jatamansi* (Valerianaceae), which was received from CSIR-IICB, Kolkata.

Dr. Selvam pharmacognostically studied and authenticated a wood samples as *Pterocarpus santalinus* L. (Papilionaceae), which was received from the Directorate of Revenue Intelligence (DRI), Kolkata.

Dr. Kanad Das, Scientist 'D' reviewed a manuscript on the genus *Agaricus* for the journal KAVAKA. Dr. Das also supervised the summer internship project "Systematics of Wild Mushrooms: Classical and Molecular Approach" of Mr. S. Santhosh (M.Sc. student, Madras Christian College, Tambaram) from 15th to 31st May 2017.

Meeting attended /lecture delivered

Dr. Devendra Singh, Scientist 'D' attended a 'National seminar on Polar Sciences' and presented a lecture on 'Diversity of Bryophytes of Larsemann Hills, East Antarctica' organized by National Centre for Antarctic and Ocean Research, Ministry of Earth Science, Headland Sada, Vasco-da-Gama, Goa from 16th to 17th May 2017 and also received certificate and memento for the participation in 35th Indian Scientific expedition to Antarctica.

Dr. (Ms.) Monalisa Dey, acted as a panel member in the selection committee for selection of candidates for the Green Skill Development Programme, held on 17.05.2017 and 24.05.2017 at Central National Herbarium.

The scientists and scientific staff of Headquarters attended the celebration International Day of Biodiversity on 22.05.2017 and launching of Green Skill Development Programme on 29.05.2017.

Visitors/students

Sri Aniket Ghosh, Department of Botany, HNB Garhwal Central University, Sreenagar, Pauri Uttarakhand to Cryptogamic unit, CNH Building, Howrah.

Publication

Hembrom, M.E., Das, K., Adhikari, S., Parihar, A. & Buyck, B. 2017. First report of *Pterygellus* from Rajmahal hills of Jharkhand (India) and its relation to *Craterellus* (Hydnaceae, Cantharellales). *Phylotaxa* 306(3): 201–210.

CENTRAL NATIONAL HERBARIUM, HOWRAH

Dr. Vinay Ranjan, Scientist 'D', Dr. Gopal Krishna and Sri Anant Kumar, Bot. Assts. identified seven field numbers collected from Neora Valley National Park, Darjeeling district, West Bengal.

Dr. O.N. Maurya, Scientist 'C' identified four field numbers collected from Vikramshila Gangetic Dolphin Wildlife Sanctuary, Bhagalpur, Bihar.

Dr. Avisek Bhattacharjee, Scientist 'B' Identified a specimen of *Gastrochilus* as *G. calceolaris* (Buch.-Ham. ex Sm.) D. Don

Sri P.P. Ghoshal, Botanist identified six field numbers collected from Betla National park, Latehar, Jharkhand.

Public Service rendered

Scientific officials of CNH identified 40 plant specimens: 28 species by Dr. T.K. Paul (ex-Scientist); one species by Dr. R. Gogoi, Scientist 'D'; four species by Sri Anant Kumar and seven species by Sri Shyam Biswa, Bot. Asst., which have come from Division of Medicine, I.V.R.I., Izatnagar, Uttar Pradesh; ICAR-CRIJAF, Barrackpore, West Bengal; Department of Pharmaceutical Technology, Advanced Pharmacognosy Research Laboratory, Jadavpur University, Kolkata; JNTUH, Hyderabad, Telangana; Department of Biotechnology, School of Life-Sciences, Sambalpur University, Burla, Odisha; University of Gour Banga, Malda, West Bengal; Gayatri College of Pharmacy, Jamadrapali, Sambalpur, Odisha and Department of Veterinary Medicine, College of Veterinary Sciences and Animal Husbandry, Central Agricultural University, Selesih, Aizawl, Mizoram.

Dr. Subir Bandyopadhyay, Scientist 'B' provided scanned PDF from *Mem. New York Bot. Gard.* 35(2): 1982; *Taxon* 17: 1968, *Kew Bull.* 24: 1970; *Kew Bull.* 25: 1971, *Fl. Trop. East Africa*, Vol. 3 and *Adansonia* Ser 2., Vol. 12 containing taxonomic treatments on Leguminosae to Dr. M. Sanjappa, former Director, BSI; from *Indian Forester* 141(11): 2015 to Dr. Dinesh Albertson, Research Scientist 'B', C.E.M.D.E., University of Delhi; from *Bull. Bot. Surv. India* 46: 2004 on Noteworthy pteridophytes from Apalchand Reserve, Jalpaiguri district, West Bengal to Dr. Jaideep Mazumdar, Krishna Chandra College, Hetampur, Birbhum, West Bengal.

Meetings/Seminar/conference attended

Dr. V. Sampath Kumar, Scientist 'D' attended the sub-committee meeting regarding "Green Skill development Programme/Skilling Parataxonomists" by the ENVIS, MoEF&CC on 01.05.2017 at New Delhi.

Dr. P.V. Prasanna, Scientist 'F' & HoO attended meetings with CPWD officials (Civil & Electrical) on 01.05.2017 and 15.05.2017 to review the status of the sanctioned capital works.

Dr. Prasanna also attended meeting of committee for Commercial utilization of Bio-resources at West Bengal Biodiversity Board on 17.05.2017.

Dr. V. Ranjan attended the meeting Commercial utilization of Bio-resources at West Bengal Biodiversity Board, Kolkata.

Dr. Pushpa Kumari, Scientist 'D' attendent meeting with PCCF in connection with development of Lead botanic garden in Gaya, Bihar.

Dr. A. Bhattacharjee and Dr. K. Avinash Bharti, Scientist 'B' attended 2-day exhibition in connection with the 'International Day for Biological Diversity, 2017' at the Kala Academy, Panjim, Goa organised by MoEF&CC in association with NBA and State Biodiversity Authority, Goa on 22.05.2017 and 23.05.2017.

Dr. Bhattacharjee prepared the theme poster and banner and set up exhibition of BSI activities in the celebrations of International Day for Biological Diversity, 2017 at Panjim, Goa along with Dr. Bharti.

Glimpses of Workshop on “Herbarium techniques and Plant Nomenclature” at Bethune College, Kolkata on 4th and 5th July 2017



Lecture delivered /programme celebrated

Central National Herbarium in collaboration with Bethune College, Kolkata organised a workshop on “Herbarium techniques and Plant Nomenclature” held at Bethune College, Kolkata from 04.05.2017 to 05.05.2017. In this two day programme Drs. V. Sampath Kumar, Subir Bandyopadhyay, Aris Dason, Gopal Krishna, Sangita Das Chowdhury delivered lectures on various topics.

Central National Herbarium organised three days Training programme on Arc-GIS from 10th to 12th May 2017. Nominated Scientists, Scientific staff and research scholar participated in this training.

Central National Herbarium celebrated International Day for Biological Diversity 2017 on 22.05.2017. In this celebration, chain of lectures and an elocution competition for the University students were arranged in which 15 students from five universities in and around Kolkata participated. Dr. Gogoi delivered a talk on Biodiversity and Sustainable Tourism-case study from Northeast India, a global biodiversity hotspot at Central National Herbarium, BSI on the occasion of International Biodiversity Day.

Central National Herbarium organised inauguration of Green Skill Development Programme (GSDP), on 29.05.2017 in which Directors and scientists of BSI and ZSI participated.

Visitors

25 students from Uluberia high school, West Bengal on 16.05.2017.

32 students from Panchayat College, Dharamgrah, Odisha on 16.05.2017.

Sri Sujit Mondol, North Bengal University, West Bengal on 16.05.2017 and 17.05.2017.

Sri Abhinandan Kashyap, Guwahati, Assam on 25.05.2017.

Dr. R.T. Maruthi, Scientist, ICAR-CRIJAF, Barrackpore, Kolkata on 25.05.2017.

Publications

Prasad, V.P. 2017. Merrill's Fimbri - *Fimbristylis merrillii* (Cyperaceae) – First record of *Fimbristylis merrillii* from northern India. *Zoo's print - Plantasia* 32(5): 20–21.

Basumatary, S.K., Gregory McDonald, H. and Gogoi, R. 2017. Pollen and non-pollen palynomorph preservation in the dung of the Greater One-horned Rhino (*Rhinoceros unicornis*), and its implication to palaeoecology and palaeodietary analysis: A case study from India. *Rev. Palaeobot. Palynol.* 244: 153–162.

– Dr. P.V. Prasanna
Scientist 'F' & HoO

CENTRAL BOTANICAL LABORATORY, HOWRAH

Sri A.C. Halder and Sri P.K. Baske, Botanists, identified 60 plant species collected from Baudh district; Sri Halder, Sri Baske and Dr P.A. Dhole, Bot. Asst. identified 46 plant species collected from Nayagarh district of Odisha. Sri R. Saravanan, Bot. Asst. collected the data of 328 endemic trees from recently published book on Endemic Vascular Plants of India. Dr. Monika Mishra, Bot. Asst. studied vegetative and reproductive characters of *Tiliacora racemosa* (Menispermaceae) counted chromosome number $2n=26$. Ms. Sagari Chaudhury, SPF identified five plants and analysed Nutraceutical study (total phenolic content, DPPH Radical scavenging activity, ABTS Radical scavenging assay, Estimation of Flavonoid content, Flavonol content estimation, Estimation of Reducing property) of two plants.

Lecture delivered/training attended

Dr. K.A. Sujana delivered a lecture on Biodiversity and sustainable tourism in Kerala in connection with the celebration of International Day for Biological Diversity on 22.05.2017. Sri P.K. Baske, Sri R. Saravanan, Dr. P.A. Dhole, Dr. Monika Mishra and Ms. Sagari Chaudhury also attended the programme.

Sri R. Saravanan and Dr. P.A. Dhole attended Training programme on “Introduction to Arc GIS” from 10th to 12th May 2017 (3 days) at CNH, BSI.

Sri R. Saravanan attended training programme on “Roll out of Employees information System (EIS)” at Regional Training Centre, Kolkata on 15th and 16th May 2017.

– Dr. Harish Singh
Scientist 'D' & HoO

INDUSTRIAL SECTION INDIAN MUSEUM, KOLKATA

As a part of preparing a database of herbarium specimens at BSIS, 90 numbers of Dicot herbarium specimens were listed and documented.

Updating of nomenclature of digitized Herbarium Specimens at BSIS

498 numbers of Digitized Herbarium specimens were updated with valid botanical names, basionyms/synonyms.

Public service rendered

Under the Narcotic Drugs & Psychotropic Substances (NDPS) Act, Four samples received from West Bengal Police were identified.

Visitors/students

Students from Motijhil Girls' High School, Dum Dum, West Bengal visited Botanical Gallery and J.D. Hooker Gallery in connection with exhibition on 'J.D. Hooker: Botanical trailblazer and the botanical heritage of India' on 13.05.2017 and attended a lecture on 'Ethnobotany in Human welfare' delivered by Dr. A.K. Sahoo, Scientist 'D' followed by a group discussion on the topic as ongoing collaborative awareness programme of BSI with CWEH, University of Sussex, England. Dr. M. Bhaumik, Scientist 'D' & HoO and Sri B.C. Dey, Presv. Asst. explained the students about botanical gallery exhibits and J.D. Hooker's exhibition during their visit.



Photo: ISIM

Dr. M. Bhaumik explaining students of Motijhil Girls' High School, Dum Dum about J.D. Hooker's exhibition



Sri B.C. Dey explaining school students regarding various exhibits at Botanical Gallery, ISIM

Programme/training attended

The first preparatory meeting regarding proposed "International Seminar on Indigo" during 9th to 11th November 2017 at Kolkata with the representatives of NGO Sutra in the presence of the Director, BSI, Dr. M. Bhaumik and Dr. A.K. Sahoo was held at ISIM on 16.05.2017.

Dr. M. Bhaumik and Sri S.K. Sharma participated in International Biodiversity Day (IBDA) celebration at CNH, Howrah and Dr. Bhaumik deliver a lecture on 'Rhododendron diversity in different landscapes to promote tourism in Arunachal Pradesh' on 22.05.2017.

Smt. Geeta Chaudhury, Botanist & DDO attended a Training Programme on "Role out of Employees' Information System (EIS) for online Salary/GPF application Rearrangement" under PFMS portal & e-payment functionality in CDDOs at Kolkata on 17th and 18th May, 2017.



Photo: ISIM

Deliberation after the lecture on *Rhododendron* diversity by Dr. M. Bhaumik on IBDA celebration at CNH

– Dr. Manas Bhaumik
Scientist 'D' & HoO

ANDAMAN & NICOBAR REGIONAL CENTRE, PORT BLAIR

Dr. C.P. Vivek, Bot. Asst. identified six herbarium specimens.

Digitization of herbarium specimens

Herbarium sheets Scanned: 267 numbers of family Lauraceae, Monimiaceae and Myristicaceae.

Herbarium details computerized in Excel format: 51 herbarium specimens of families Hernardiaceae (39) and Thymetiaceae were fed in the computer in a prescribed format.

Meeting attended

Dr. Lal Ji Singh, Scientist 'D' & HoO attended meeting with Department related Parliamentary Standing Committee on Science & Technology, Environment, Forest & Climate Change of Andaman and Nicobar Islands at Havelock Island on 06.05.2017.

Dr. C.P. Vivek performed as one of the members in the tender committee formed by Anthropological Survey of India, Port Blair, for engaging an agency to monitor safety of assets, exhibits etc. and attended meeting there on 16.05.2017 and 18.05.2017.

Study visit of the Parliamentary Standing Committee on Science & Technology, Environment & Forests to Andaman and Nicobar Regional Centre, Port Blair

The departmental Parliamentary Standing Committee on Science & Technology, Environment and Forests was on a study visit to Andaman and Nicobar Islands from 6th and 7th May 2017. The committee comprised of 19 Members, both from Lok Sabha and Rajyasabha, Headed by Honourable Member of Parliament Smt. Renuka Chowdhury. Officers from Ministry Environment, Forest and Climate Change, New Delhi also accompanied the committee.

In the meeting, Dr. Paramjit Singh, Director, Botanical Survey of India gave a presentation on the different research activities carried out by Botanical Survey of India and functioning of Andaman and Nicobar Regional Centre (ANRC), Port Blair by covering following points–

- ◆ The objective of BSI and the thematic area of research,
- ◆ Achievements of ANRC, BSI, Port Blair,
- ◆ Conservation of Endemic and RET plants in the Botanical Garden,
- ◆ Documentation of Traditional knowledge and medicinal practices,
- ◆ Digitization of herbarium specimens,
- ◆ Need and importance of modern and classical taxonomic knowledge in the current changing scenarios.

During the interaction session, Smt. Renuka Chowdhury, the chairperson of the committee and members evinced keen interest in the different conservation programmes of BSI and expressed their appreciation on the progress and the long journey made by ANRC, BSI. The honourable chairperson said that the knowledge of Taxonomy is fast deteriorating, so the department like BSI and ZSI should be strengthened both by infrastructure as well as by trained manpower. Many of the members opined that, the infrastructure of these oldest organizations of the country on Taxonomy should be strengthened immediately. Honourable chairperson stressed upon the need of documenting and utilizing Aboriginal plant wealth knowledge for treating diseases and complications faced during pregnancy and child delivery. The Chairperson also discussed about utilizing this ethnobotanical knowledge for the economic gains for the tribes and the country. The honourable chairperson and the committee members showed their interest in the recent

discoveries of wild banana species (*Musa indandamanensis* L.J. Singh), ginger relative species (*Zingiber pseudosquarrosus* L.J. Singh & P. Singh), Karaunda species (*Carissa andamanensis* L.J. Singh & Murugan), living fossil dinosaur age tree species (*Cycas pschannae* R. C. Srivast. & L.J. Singh) and bamboo straw.



Photo: Kumar



Photo: G.A. Ekka

Dr. Paramjit Singh, Director, BSI presenting the different research activities carried out by Botanical Survey of India and functioning of ANRC, BSI during the visit of the departmental Parliamentary Standing Committee on Science & Technology, Environment, Forest and Climate Change at Havelock Island



Photo: G.A. Ekka



Hon'ble MP Smt. Renuka Chowdhury, Chairperson and Members of Parliamentary Standing Committee on Science & Technology, Environment and Forests at Havelock Island (left) and at ANRC, BSI, Port Blair (right)



Photo: G.A. Ekka

Hon'ble MP Smt. Renuka Chowdhury planting sapling of *Bentinckia nicobarica* at BSI, ANRC, Port Blair



Honourable Member of Parliament, Shri. Nanabhau Falgunrao Patole at DEGCA, ANRC, Port Blair

Honourable Member of Parliament Sri Nagendra Singh discussed about lack of coordination between decision making authorities which is hampering the utilisation of the knowledge and information gathered by the scientific institute. Honourable Member of Parliament, Sri Nanabhau Falgunrao Patole raised questions about pending vacancies in the Regional Centre on which the Director BSI, replied that process of

filling of vacancies has already been started and the vacant post will be filled soon. Members queried wide ranging questions covering the functioning of Botanical Survey of India, Conservation of RET plants and Publications, which were responded by the Director, BSI.

On the second day, the chairperson along with committee members visited the office of Botanical Survey of India, Andaman and Nicobar Regional Centre. The chairperson and committee members did the plantation of *Bentinckia nicobarica* an endemic palm, in office premises. Later on the committee members visited the herbarium, e-herbarium unit and the library. The honourable chairperson and the members expressed their happiness and satisfaction on the overall functioning of Botanical Survey of India, Andaman and Nicobar Regional Centre.

International Day for Biological Diversity, 2017

The Botanical Survey of India, Andaman & Nicobar Regional Centre, Port Blair, celebrated International Day for Biological Diversity on 22.05.2017 at Dhanikhari Experimental Garden-cum-Arboretum (DEGA), Nayashahar.

Inaugurating the function, Dr. Lal Ji Singh briefed about the objectives and activities of BSI in conservation of biodiversity. The garden having the rich collections and have potential of *ex-situ* conservation of plant diversity in these islands. On this occasion Dr. Singh also motivated the school children for more plantations and create awareness to conserve the biodiversity and keep clean and healthy environment.

On this occasion, a drawing competition for school students was organized. More than 80 students from different schools of Port Blair participated in the competition. All the Scientists, Officers, staff members of the center and local people participated.

Visitor

Sri Nanabhau Falgunrao Patole, Honorable Member of Parliament visited DEGA, Nayasahar on 08.05.2017 apart from the visit of the Parliamentary Committee members to ANRC, BSI.

Photo: C.P. Vivek



Dr. Lal Ji Singh addresses the gathering during celebration of International Day for Biological Diversity

Photo: C.P. Vivek



Sit & draw competition during the celebration of International Day for Biological Diversity 2017

– Dr. Lal Ji Singh
Scientist 'D' & HoO

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Dr. V.K. Rawat, Scientist 'D' Processed and Identified the collected specimens during his last tour. He also prepared ecological notes of some species for the final manuscript in connection with the project "Taxonomic study of family Polypodiaceae of North East India".



Aerides odoratum (ORCHIDACEAE)

Photo: S. Borah



Photo: S. Borah

Gastrochilus calceolaris (ORCHIDACEAE)



Vanda cristata (ORCHIDACEAE)

Dr. Krishna Chowlu, Scientist 'B' identified and made description along with coloured photo plates for four species of Orchids and entered collection data in thirty herbarium sheets in connection with 'Red listing of orchids of Arunachal Pradesh as per IUCN criteria'.

Sri B.B.T. Tham, Botanist have collected 12 live plants belonging to Musaceae, Zingiberaceae, Elaeocarpaceae from EBG (Umiam), ERC, BSI, Shillong and introduced in APRC, BSI campus and recorded phenological data for 23 species in connection with "ex-situ conservation of endemic, endangered and threatened plants of the region and recording of phenology of flowering/fruitleting of species in garden".

Dr. Souravjyoti Borah, Botanist, prepared taxonomic key for 38 species in connection with 'Flora of Lohit District and Flora of Kamlang WLS, Arunachal Pradesh'.

Dr. Manish K. Kandwal, Scientist 'D' identified 11 field numbers in connection with Grass flora of Arunachal Pradesh.

Dr. Umesh Kumar L. Tiwari, Scientist 'B' identified 25 field numbers in connection with Flora of East Kameng district, Arunachal Pradesh.

Sri Brajesh Meena, Pres. Asst. documented 362 nos. of existing herbarium sheets in register and in EXCEL format 514 sheets under guidance of Dr. U. Tiwari.

Meeting/Programme attended/course organised

One meeting was organised between representatives of ZSI & BSI, Itanagar in BSI, APRC to discuss different matters related to Green Skill Development Programme on 23.05.2017.

Two days orientation course for the trainers of pilot programme on “Skilling Para-taxonomists” of the Ministry of Environment, Forest & Climate Change, GoI, under Green Skill Development Programme (GSDP) was jointly conducted by the Botanical Survey of India (BSI) and Zoological Survey of India (ZSI) on 25th and 26th May, 2017. The trainers comprised of scientists, faculty and research scholars from various institutes, including Rajiv Gandhi University; Arunachal Pradesh State Biodiversity Board; GB Pant National Institute of Himalayan Environment & Sustainable Development; Dera Natung Government College, Itanagar; Forest Department, Itanagar and State Remote Sensing Application Centre; Department of Science and Technology, GoAP and from both the BSI and ZSI, Itanagar.

Dr. V.K. Rawat attended Project proposal review and Wildlife Board Meeting at PCCF Office, Itanagar on dated 15.05.2017.

Dr. M.K. Kandwal, Dr. U.K. Tiwari, Dr. S. Borah and B.B.T. Tham provides training to the students participating in the Green Skill Development Programme.



Photo: APRC



Photo: APRC

Orientation Course under National Green Skill Development Programme

Publication

K. Chowlu, Mahar, K.S. and Das, A.K. 2017. Ethnobotanical studies on orchids among the *Khamti* communities of Arunachal Pradesh. *Indian J. Nat. Products Resources* 8(1): 89–93.

– Dr. V.K. Rawat
Scientist 'D' & HoO

ARID ZONE REGIONAL CENTRE, JODHPUR

Dr. C.S. Purohit, Scientist 'B' conducted one Herbarium consultation tour to Govt. Dungar College, Bikaner from 21st to 30th May 2017 in connection with Flora of Todgarh-Raoli WLS, Rajasthan.

Dr. M.K. Singhadiya, Botanist and Sri Ravi Prasad, Bot. Asst. identified specimens of 15 field numbers for Flora of Sariksa Tiger Reserve, Alwar Dist., Rajasthan.



Albiziab amara (MIMOSACEAE)

Photo: P. Hari Krishna



Barleria prionitis var. *dicantha* (ACANTHACEAE)

Plant Conservation

Recorded phenological data for 30 plants species of desert botanic garden, AZRC, Jodhpur.

Meeting attended

Sri Vinod Maina, Scientist 'D' & HoO attended 12th meeting of Rajasthan State Forest Dept. on Desert Biosphere Reserve declaration related at Jodhpur on 31.05.2017.

Photo: P. Hari Krishna



Seddera latifolia (CONVOLVULACEAE)

Green Skill Development Programme

Meeting conducted regarding GSDP Syllabus and Course structure at AZRC, BSI, Jodhpur on 25.05.2017 along with Scientific officials of DRC, ZSI, jodhpur. All the scientific officials of BSI participated opening ceremony of Green Skill India Development Programme at DRC, ZSI, Jodhpur on 29.05.2017. BSI officials delivered 9 lectures and conducted practical classes.

International Day for Biological Diversity, 2017

Celebrated Biodiversity day on 22.05.2017, all the officers and staff members of AZRC participated. On this occasion Dr. M.K. Singhadiya delivered a lecture on "Cultivated Plants of Rajasthan".



Dr. M.K. Singhadiya, Botanist delivered a lecture on 'Cultivated Plants of Rajasthan'

Public service rendered

Identified one plant specimen *Piper hymenophyllum* (Piperaceae) for Gujarat Ayurved University, Jamnagar (J.S. Ayurved Mahavidyalaya, Nadiad, Gujarat).

Visitors

Dr. Dheeraj Panwar, Lecturer, Dept. of Botany, Govt. College, Osian visited this office on 05.05.2017 for consulting Herbarium.

Dr. Sanjeev Kumar, Scientist 'D', Dr. H.S. Baniyal, Scientist 'D', Dr. Farah Syed, Scientist 'C', Sri Sandeep Serawat, Sr. Zool. Asst., Sri Jitendra Kumar, Sr. Zool. Asst., Miss Kashmeera Shah, Jr. Zool. Asst. from Zoological Survey of India visited AZRC Library on 25.05.2017.

– Sri Vinod Maina
Scientist 'D' & HoO

CENTRAL REGIONAL CENTRE, ALLAHABAD

Dr. Arti Garg, Scientist 'D' conducted a tour to the Upper Ganga Ramsar site region from 5th to 9th May 2017 and collected 20 specimens along with flowering specimens of *Ficus benghalensis* L. which was reported as world's tenth largest tree. Dr. Garg also interacted with forest department regarding its protection measures.

Identification service rendered

A total of 44 specimens were identified in to 36 species for the projects, 'Floristic Diversity of Bhoj Wetland, M.P.' and 'Floristic Diversity of Chandraprabha Wildlife Sanctuary, U.P.'

Completed taxonomic description of 50 species for the ongoing projects 'Flora of Chhattisgarh Vol. I', 11 species for 'Floristic Diversity of Parvati Aranga Wildlife Sanctuary and adjoining Tikri forest area, Gonda, U.P.' and 32 species for 'Flora of Chhattisgarh' Vol. II.

In addition, 49 earlier collected specimens housed at BSA were also identified.

Public service rendered

Sri Vineet Kumar Singh, Dr. Nitisha Srivastava and Dr. A.P. Tiwari, Bot. Assistants authenticated 38, 14 and 24 herbarium specimens received from National Centre for Natural Resources, Pt. Ravishankar Shukla University, Raipur, Chattisgarh in to 21, 7 and 12 species respectively.

Dr. Arti Garg reviewed Indo-French collaborative project (an 80 page project) between French Institute, Pondicherry and Universite de Bordeaux, France on 'Indian vegetation and monsoon response to climate variability during the past one million years', received from the Indo French Centre for the promotion of advanced research, New Delhi.

International Biodiversity Day

International Biodiversity Day was celebrated on 22.5.2017 along with tree plantations in the associated garden of the centre.

Green Skill Development Programme (GSDP)

Dr. Sheo Kumar, Scientist 'E' organized orientation programme of trainers of GSDP Foundation course on 24th and 25th May 2017. Drs. Sheo Kumar, Arti Garg, A.N. Shukla, Scientist 'B' and Neelam Gautam, Scientist 'B' acted as members of selection committee under chairmanship of Dr. G.P. Sinha, Scientist 'E' on 17.5.2017 for selection of trainees under Green Skill Development Programme.

Inaugural function of Foundation Course under GSDP was organised on 29.05.2017.



Photo: Arti Garg

Ficus benghalensis in Upper Ganga Ramsar Site - world's tenth largest Banyan tree



Photo: A.N. Shukla

Plantation drive on International Biodiversity Day at CRC, BSI, Allahabad



Photo: A.N. Shukla

Inaugural function of GSDP on 29th May 2017 at CRC, BSI, Allahabad

Publications

Tiwari, A.P., Dubey, P.C., Sikarwar, R.L.S. and Khanna, K.K. 2017. Vascular plants of Kshipra river bank and its tributaries, Madhya Pradesh, India. *Indian For.* 143(5): 451–458.

Verma, A.K. and Gautam, N. 2017. Antibacterial efficacy of *Catharanthus roseus* leaf extract on sewage water. *Int. J. Curr. Microb. Appl. Sci.* 6(5): 238–241.

– Dr. G.P. Sinha
Scientist 'E' & HoO

EASTERN REGIONAL CENTRE, SHILLONG

One field visit to Soon valley, Puriang area, Khasi hills on 07.05.2017 by Dr. Ashish Venkatesh Prabhugaonkar, Scientist 'B' and Dr. Murugesan, Scientist 'B'. During this period identified 108 species of Amchang Wildlife sanctuary, Kamrup, Assam by Dr. A.A. Mao, Scientist 'F' & Nandita Sarma, Sr. Presv. Asst., Flora of Eastern Nagaland by Dr. N. Odyuo, Scientist 'D' and Dr. R. Daimary, Bot. Asst., for Flora of West & south-West Khasi hills district, Meghalaya with reference to the sacred groves by Dr. Chaya Deori, Scientist 'D' and Sri S.R. Talukdar, Bot. Asst. and documented 32 species for Flora of Yangoupokpi Lokchao WLS, Manipur by Dr. A.A. Mao and Sri L.R. Meitei, Bot. Asst. Identified 2 samples of *Riccia frostii* and *Riccia cavernosa* collected from Jharkhand by Dr. S.K. Singh, Scientist 'D'. Taxonomic description completed of two species namely *Riccia cavernosa* and *Riccia frostii* from Jharkhand.

Studied the protologue of all 5 synonyms of *Riccia frostii* namely *Riccia watsonii* Austin, *Riccia frostii* var. *major* Underw., *R. becleriana* Steph., *R. microspora* Steph. and verified form the existing collections. Recorded phenological data of flowering and fruiting of 63 plant species viz., *Acanthephippium striatum*, *Aerides multiflora*, *Aesculus assamica*, *Ageratum conyzoides*, *Allamanda cathartica*, *Alpinea malaccensis*, *Artocarpus heterophyllus*, *Artocarpus lakoocha*, *Arundina graminifolia* var. *gramnifolia*, *Baccaurea ramiflora*, *Bougainvillea glabra*, *Callistemon citrinus*, *Caryota urens*, *Cerasus cerasoides*, *Citrus medica*, *Coelogyne corymbosa*, *Coelogyne prolifera*, *Coelogyne punctulata*, *Coelogyne suaveolens*, *Cunninghamia lanceolata*, *Curcuma angustifolia*, *Curcuma caesia*, *Cymbidium aloifolium*, *Cymbidium devonianum*, *Dendrobium acinaciforme*, *Dendrobium densiflorom*, *Dendrobium devonianum*, *Dendrobium falconeri*, *Dendrobium gibsonii*, *Dendrobium moschatum*, *Dendrobium transparens*, *Dracaena angustifolia*, *Epiphyllum oxypetalum*, *Epipogium roseum*, *Eria ferruginea*, *Eria muscicola*, *Eria tomentosa*, *Eurya accuminata*, *Gloriosia superba*, *Gmelina arborea*, *Gnetum gnemon*, *Hibiscus rosa-sinensis*, *Itea macrophylla*, *Jacaranda mimosifolia*, *Melastoma malabathricum*, *Mesua ferrea*, *Micromelum integerrimum*, *Micropera rostrata*, *Ocotea lancifolia*, *Papilionanthe teres*, *Phaius tankarvilleae*, *Phalaenopsis manii*, *Pholidota imbricata*, *Rauvolfia serpentina*, *Renanthera imschootiana*, *Schima wallichii*, *Schefflera wallichiana*, *Schoenorchis gemmata*, *Smitinandia micrantha*, *Sthalianthus involucratus*, *Syzygium jambos*, *Tabernaemontana divaricata* and *Thunia alba* by Dr. M. Murugesan, Scientist 'B' and Sri L.R. Meitei.

Approximately 1000 seedlings of *Cymbidium tigrinum*, one nepenthes, 300 *cymbidium elegans*, are transferred from lab to land.

Seed germination experiment of *Illex khasiana*. Data analyze, interpretation, literature survey for *Armadorum senapatianum*, *Cymbidium tigrinum*. Subcultured *Armadorum senapatianum*, *Nepenthes*, callus of *Cymbidium tigrinum*, *R. coxianum* under the project Micro-propagation of RET Plants of Northeast India by Dr. A.A. Mao and L. Ibemhal Chanu, Bot. Asst.. Under Micropropagation, Phytochemical Screening of Medicinal Plants and Molecular Characterization of Selected Species by Dr. Deepu Vijayan, Scientist 'B', Transferred *in vitro* raised plants of *Pyrenaria khasiana* to green house for acclimatization (40 nos). Subculture and maintenance of *in vitro* raised *Pyrenaria khasiana* on Woody Plant Medium.

Fungi isolated during period *Pythium aphanidermatum*, *Didymobotryum* sp., *Stachybotrys echinata*. Isolated one interesting fungus from sample collected at AJC Bose Indian Botanic Garden, Kolkata, prepared photoplate and description. Fungal cultures of interesting fungi isolated last month *Agarwalomyces indicus*, *Minimedusa* sp. were monitored further by Dr. Ashish Venkatesh Prabhugaonkar.

Public service rendered

Identified about five samples of specimens received from various institutions.

International Day for Biological Diversity, 2017

A plantation programme was conducted in Botanical Garden, Barapani, to celebrate International Day for Biological Diversity on 22.05.2017. Dr. A.A. Mao, all other scientists and staff of ERC, BSI, Shillong and Barapani participated in this programme. On this occasion, 57 seedlings of 21 wild edible fruit species were planted in the wild edible fruits section of the Botanical Garden. Also, planted *Averrhoa carambola* (2 seedlings), *Pyrus communis* (3 seedlings) and *Litchi chinensis* (3 seedlings). Dr. Seema R., Assistant Professor, NERIE, NCERT, Barapani, also participated in this programme.



Photo: ERC

Dr. A.A. Mao, Scientist 'F' & HoO planting a plant saplings at Barapani Experimental Garden during celebration of International Day for Biological Diversity

Visitors/students

One Professor, five research scholars, ten students and five other visitors from various Institutions, Colleges and Universities visited the Centre

Publications

Odyuo, N. and ROY, D.K. 2017. Notes on recollection and extended distribution of *Rhynchotechum alternifolium* C.B. Clarke (Gesneriaceae) in eastern Himalaya, Bhutan. *Int. J. Environ.* 6(2): 1–8.

Mir, A.H., Upadhaya, K. and Roy, D.K. 2017. Rediscovery, Distribution and Conservation Implications of *Cleyera grandiflora* Wall. ex Choisy (Pentaphylacaceae): An Endangered and Endemic Tree Species of Meghalaya, Northeast India. *Nat. Acad. Sci. Letter.* (online publication).

– Dr. A.A. Mao
Scientist 'F' & HoO

NORTHERN REGIONAL CENTRE, DEHRADUN

Identified total 33 species and made descriptions for 26 species of plants under the projects on Flora of Himachal Pradesh Vol. I; Assessment of Phytodiversity in Chail Wildlife Sanctuary; Flora of Binsar Wildlife Sanctuary; Floral diversity and Ecological studies in Kangra district; Flora of Sechu-Tuan Nala Wildlife Sanctuary; Trees of Dehradun city and its vicinity; Revision of genus *Adiantum* in India.

Meetings/Seminar/Workshop/Conference attended:

Dr. Kumar Ambrish, Scientist 'D' & HoO attended 3rd meeting of State Board for Wildlife, UT Chandigarh, on 19.05.2017 at Punjab Raj Bhavan, Chandigarh.

Drs. G.S. Panwar, K.S. Dogra and Puneet Kumar, Scientists attended inaugural function of Green Skill Development programme at ZSI, Dehradun on 29.05.2017.



Photo: K.S. Dogra

Dr. G.S. Panwar attending inaugural function of Green Skill Development programme at ZSI, Dehradun



Photo: R. Thakur

Students participating in Drawing competition organized at NRC, BSI on occasion of Biodiversity day



Photo: K. Kharkwal

Diploknema butyracea planted by officials of NRC, BSI in memory of Late Environment, Forest & Climate Change Minister Sri Anil M. Dave



Photo: R. Thakur

Padam Sri Anil P. Joshi delivering a talk on Biodiversity conservation



Zanthoxylum armatum planted by Sri Anil P. Joshi at NRC, BSI, Garden

International Day for Biological Diversity, 2017

Celebrated International Day for Biological Diversity on 22.05.2017 wherein Padam Shree Anil P. Joshi was invited as Chief Guest. On this occasion a drawing competition and plantation programme was organized by the centre. *Diploknema butyracea* was planted by staff of BSI, NRC in memory of Late Environment & Forest Minister Sri Anil M. Dave.

Visitors/students

15 visitors from Doon University, Dehradun have visited the museum and the garden of the centre.

Dr. Kumar Ambrish
Scientist 'D' & HoO

SOUTHERN REGIONAL CENTRE, COIMBATORE

Dr. C. Murugan, Scientist 'D' & HoO and Dr. S. Arumugam, Bot. Asst. identified 50 field nos. from previous collections in connection with Floristic Assessment of Meghamalai WLS, Tamil Nadu. Dr. K.A.A. Kabeer, Scientist 'D' and Sri A. Ravi Kiran, Bot. Asst. identified 77 field numbers for Kodaikanal WLS, Tamil Nadu. Dr. J.H. Franklin Benjamin, Scientist 'C' and Sri Rakesh G. Vadhyar, Bot. Asst. identified 52 field numbers from Kanniyakumari WLS, Tamil Nadu. For flora of Tamil Nadu: Cyperaceae, Dr. C. Murugan, Dr. J.V. Sudhakar Bot. Asst. and Dr. S. Arumugam identified 15 Field numbers from previous collections. Similarly; for Flora of Kerala: Dr. M.Y. Kamble, Scientist 'D' and Dr. T.S. Saravanan, Bot. Asst. are finalising manuscript for the families from Bromiliaceae to Burbaniaceae. Whereas, Sri R.K. Singh, Botanist and Dr. S. Pradeesh, Bot. Asst. completed nomenclature for 55 species and databased 8 genera of the family Commelinaceae.

Ex-situ conservation

Dr. S. Kaliamoorthy, Scientist 'D', and his team (Dr. M.Y. Kamble, Scientist 'D', Dr. T.S. Saravanan and Sri B.S. Elango, Bot. Asst.) introduced a total of 129 samples of orchids, belonging to 30 species from Sanyasimalai R.F., Kuppanur Ghat Road and Manjakuttai Forest areas into the National Orchidarium and Experimental Garden (NOEG), Yercaud. They also multiplied 140 samples belonging to 25 taxa, transplanted 26 samples, developed 25 cuttings and recorded the phenological data of 24 species of orchids.

Digitisation of Herbarium specimens

During this month, a total of 8,602 herbarium sheets were barcoded by Sri S. Arivazhagan, Pres. Asst. and K. Chandran, MTS. Five R. Wight collections were segregated from general herbarium and incorporated into the R.Wight herbarium. Data base of 200 herbarium sheets (50 numbers of the family Commelinaceae and 150 numbers of the family Ebenaceae) was completed.

Scanning Electron Microscopy (SEM)

With the help of SEM Technician, Dr. J.V. Sudhakar completed 40 SEM images of seed micromorphology of 3 species of *Ficus* (*Ficus rumphii*, *F. guttata* and *F. ampolcarpa*) and Dr. Sudhakar and Mrs. Anantha Lakshmi, Sr. Pres. Asst. completed 40 SEM images from the nutlets of 12 species Cyperaceae. Dr. J.H.F. Benjamin, Scientist 'C' completed Pollinia micromorphology of five orchids.

Conference attended

Dr. J.V. Sudhakar attended the International Day for Biological Diversity held at Goa on 22.05.2017. On this occasion, a book titled 'Figs of Eastern Ghats, India' was released by the Hon'ble Chief Minister of Goa, NBA Chairman and other dignitaries from UNDP and MoEF & CC, New Delhi.

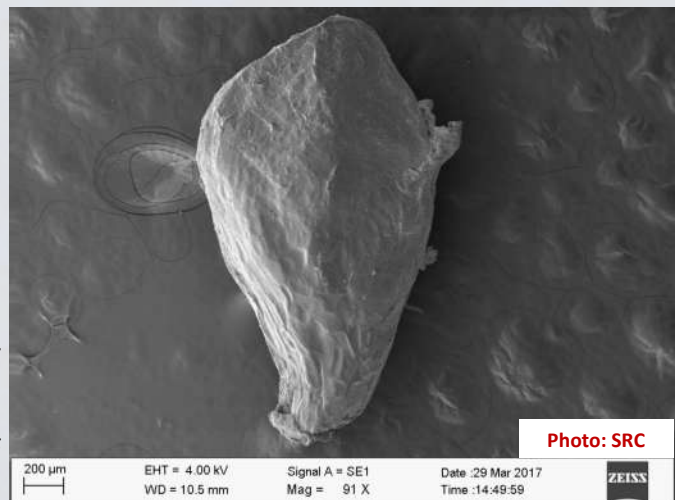


Photo: SRC

Ficus virens Aiton – nutlet



Photo: SRC

Figs of Eastern Ghats India book released during IBD celebrations at Goa

Public service rendered

Dr. S. Kaliamoorthy is supervising the Internship programme in Plant Tissue Culture techniques to Seven students of M.Sc., Biotechnology, St. Joseph's College, Tiruchirappalli.

Visitors/students

During this month, 8 scientific personnel/officials/scholars visited the museum, herbarium and library of this regional centre whereas 2933 persons under 248 parties visited the NOEG, Yercaud.

Publications

Kabeer, K.A.A., Ravi Kiran, A. and Franklin Benjamin, J.H. 2017. The Status and Extended Distribution of *Streblochaete sanjappae* Kabeer and V.J. Nair (Poaceae). *Indian For.* 143(4): 387.

Sudhakar, J.V., Reddy, Chandra Mohan N., and Murthy, G.V.S. 2017. *Figs of Eastern Ghats, India*. Pragati Offset, Hyderabad. Pp. 1149. ISBN 9781684183524.

– Dr. C. Murugan
Scientist 'D' & HoO

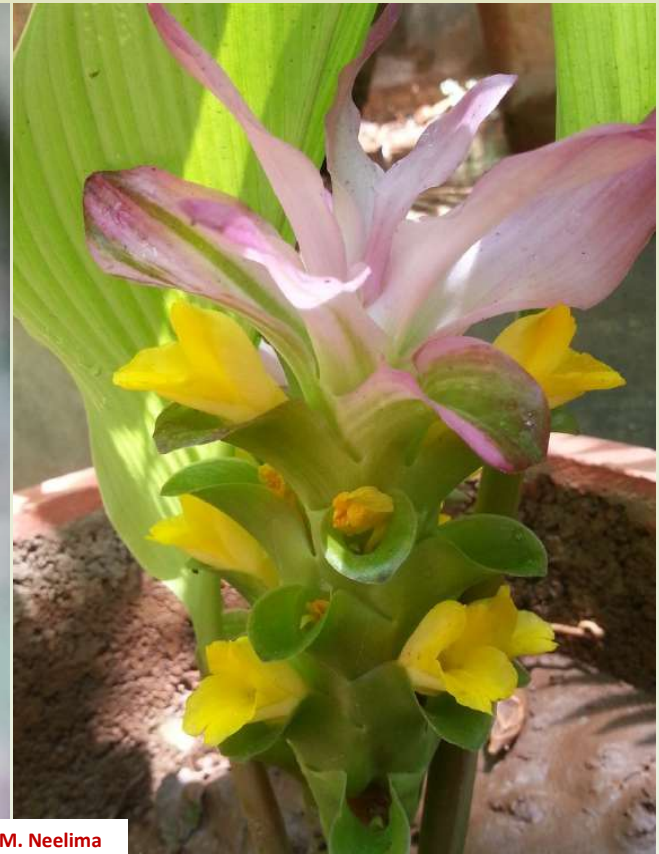
WESTERN REGIONAL CENTRE, PUNE

Dr. P. Lakshminarasimhan, Scientist 'E' & HoO' conducted one Herbarium consultation tour to Southern Regional Centre (SRC), BSI Coimbatore during 29th May to 2nd June 2017 and studied the *Diospyros* specimens.



Photo: A.M. Neelima

Cottonia peduncularis (ORCHIDACEAE)



Curcuma pseudomontana (ZINGIBERACEAE)

Identification of herbarium specimens

Dr. J. Jayanthi, Scientist 'D' identified 65 field numbers for the project, "Floristic diversity of Biligiri Rangaswamy Temple Wildlife Sanctuary, Karnataka".

Dr. Jeewan Singh Jalal, Scientist 'D' prepared orchid species richness map of different protected area of Goa with help of ArcGIS 10.5 under the project "An assessment of Orchid diversity of Central Western Ghats: Goa".

Dr. Priyanka Ingle, Scientist 'B', identified 15 field numbers for the project, "Floristic diversity of Wan Wildlife Sanctuary, Maharashtra".

Dr. C.R. Jadhav, Botanist identified 35 field numbers for the project, "Floristic diversity of Someshwar Wildlife Sanctuary, Karnataka".

Sri S.C. Patil, Bot. Asst., identified twelve field numbers for the project, "Flora of Pushpagiri Wildlife Sanctuary, Karnataka".

Dr. A. Benniamin, Scientist 'D' identified four field numbers for the project, "Ferns of Karnataka".

Sri D. Jesubalan, Bot. Asst. identified four field numbers for the project, "Pteridophytic flora of Pushpagiri Wildlife Sanctuary, Karnataka with 10% periphery".

Sri D. Tripathi, SPF identified four field numbers for the project, "Pteridophyte flora of Kudremukh National Park, Karnataka with 10% periphery".

Dr. S. Bhakta, Bot. Asst. identified eight species of algal samples for the project, "Biodiversity assessment of microalgae from thermal springs of Maharashtra".

Dr. Rashmi Dubey, Scientist 'D' processed three litter samples by particle plating method; processed six fungal samples from wooden logs and taken microscopic photographs of 5 samples for the project, "Taxonomic Studies of Micro fungi of Sanjay Gandhi National Park along with its 10% peripheral area".

Smt. Shreya Sengupta, SPF examined 71 slides of micro fungi for the project, "Microfungi of Biligiri Rangaswamy Temple wildlife Sanctuary, Karnataka".

Public services rendered

During this month 24 plant specimens identified and issued authentication certificates to students from B. Pharm, M. Pharm. colleges, Ph.D. and P.G. students from different institutions.

Dr. P. Lakshminarasimhan reviewed research manuscripts for the Journals *National Academy Science*, *Journal of Economic and Taxonomic Botany*.

Dr. J. Jayanthi sent two type images of *Eugenia kanarensis* Talbot to Dr. James W. Byng, Research Fellow, Naturalis Biodiversity Center, The Netherlands.

Meetings/seminars/programmes attended

On behalf of BSI set up a stall at Kala Academy, Goa on 22.05.17 and 23.05.17 in connection with the national level celebration of International Day for Biological Diversity organised by MoEFCC, NBA & SBA, Goa. BSI displayed posters on Floral Diversity viz., including all groups of Plants (Angiosperms, Gymnosperms, Pteridophytes, Liverworts, Hornworts, Algae & fungi); Plant diversity of the states of Maharashtra, Karnataka and Goa; Endemic Plants of India; Floral diversity of some protected areas of Goa and Orchids of Goa; besides botanical paintings and BSI publications were also displayed. The team includes P. Lakshminarasimhan, Rashmi Dubey, J.S. Jalal, S. Bhakta, Madhuri Pawar, D.S. Thakar & M.R. Padale of BSI, WRC, Pune and Avishek Bhattacharjee & Avinash Kumar Bharati from CNH, BSI, Howrah.



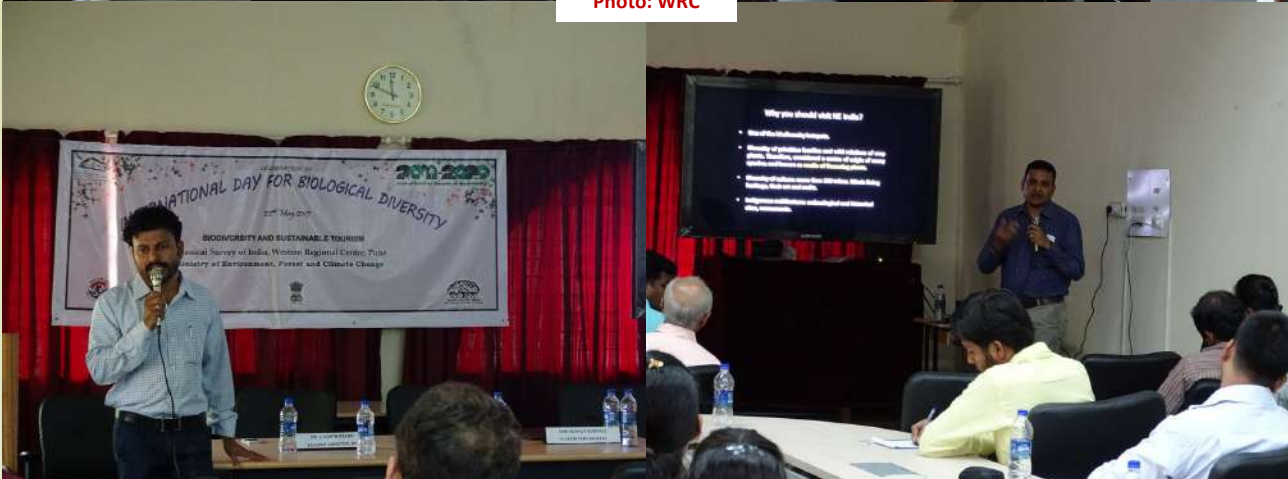
Photo: WRC

BSI Stall at Goa with display of various posters depicting Floral diversity

Dr. Jeewan Singh Jalal attended three days ArcGIS training at CNH, Kolkata from 10th to 12th May 2017. During the training basic GIS training was given on fundamentals of GIS, Essential tasks-create edit,



Photo: WRC



Celebration of International Day for Biological diversity on 22.05.2017 at WRC, BSI, Pune

manipulate, Georeferencing and Digitization, Cartographic elements, prepare geospatial data and Preparing Maps/Layouts.

Dr. P. Lakshminarasimhan attended the discussion during the Study – Visit of the Department – related Parliamentary Standing Committee on Science & Technology, Environment & Forests held on 06.05.17 at Havelock Island, South Andamans on the functioning of BSI & ZSI in Andaman & Nicobar Islands and also at BSI, ANRC, Port Blair 07.05.17 [Director/BSI, Director/ZSI, scientists of BSI & ZSI were also present].

The International Day for Biological Diversity was celebrated at BSI, WRC, Pune on 22.05.17. Six lectures were presented on this occasion.

Dr. Lakshminarasimhan and Dr. R. Dubey attended the Nagar Rajbasha Hindi Samiti meeting at C-DAC, Pune on 25.05.2017.

Sri Amit Pandey attended “5th National Workshop On Taxonomy, Biodiversity, *Ex Situ* Conservation And Applications Of Fungi”, held at MACS’ Agharkar Research Institute, Pune, from 22nd to 31st, May 2017.

Visitors/students

Two Research Scholars visited WRC for Herbarium consultation viz. Dr. K.G. Apte, APT Research Foundation, Pune consulted *Uraria picta*, Leguminosae and Dr. M.C. Mahajan from Fergusson College, Pune consulted the family Caesalpiniaceae.

Ms. Suman Gopinath, Manager: Archival & Museum Fellowships visited WRC Museum and herbarium on 31.05.2017.

Dr. P. Lakshminarasimhan
Scientist ‘E’ & HoO



International Day for Biological Diversity Observed By BSI

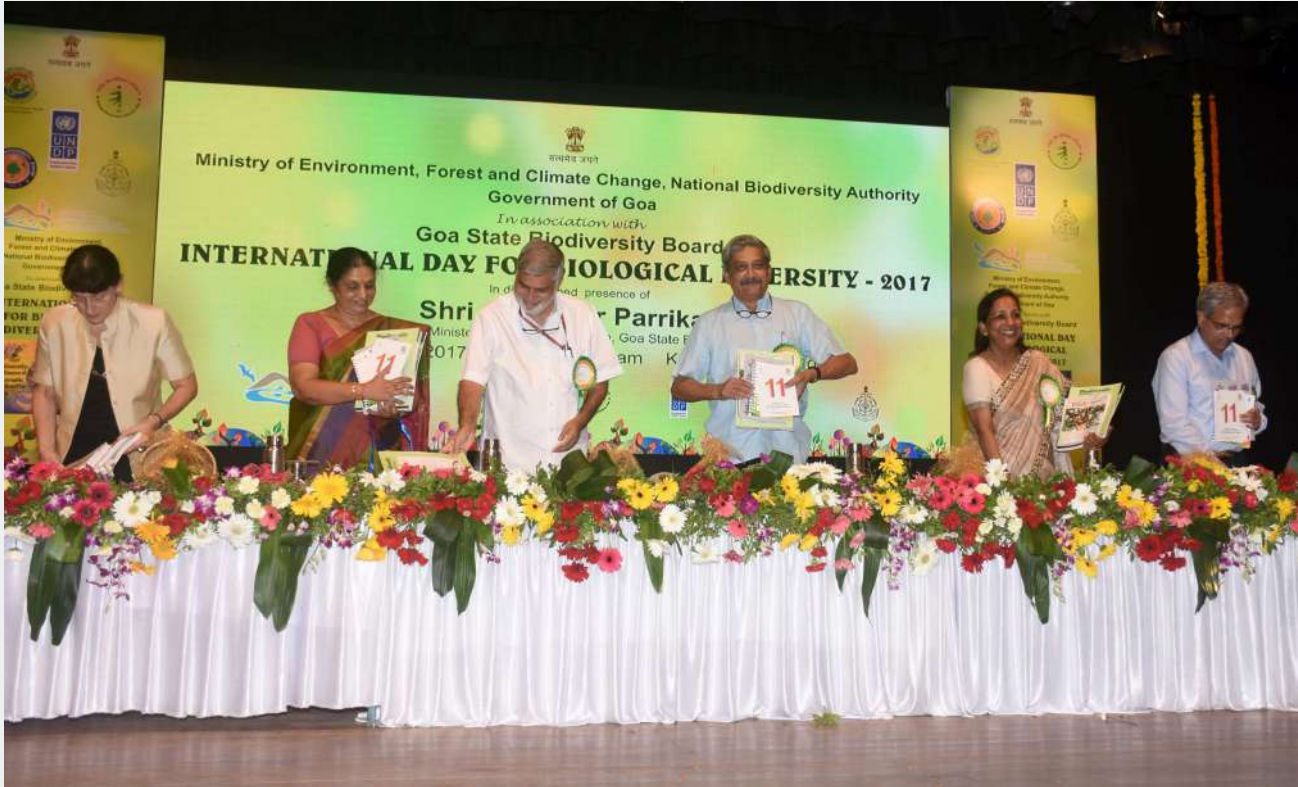


children for more plantations and create awareness to conserve the biodiversity and keep clean and healthy environment. On this occasion, a drawing competition for school students was organized. More than 80 students from various schools of Port Blair participated in the competition. All the Scientists, Officers, staffs members of the center and local people participated and showed keen interest for

PORT BLAIR: The Botanical Survey of India, Andaman & Nicobar Regional Centre, Port Blair, celebrated International Day for Biological Diversity on 22nd May, 2017 at Dhanikhari Experimental Garden-cum-Arboretum, Nayashahar. Inaugurating the function, Dr. Lal Ji Singh, Deputy Director & H/O, briefed about the objectives and activities of BSI in conservation of biodiversity. Dr. Singh said among all the units of BSI, Andaman & Nicobar Regional Centre holds the credits of covering one of the remote and insular floristic hotspots of the country. BSI garden is one of the excellence collections



and have potential of *ex-situ* conservation of plant diversity in these islands, and BSI garden recognized not only in India but also at global level. On this occasion Dr. Singh also motivated the school conservation of Biodiversity. The program was conducted by Shri Gautam Anuj Ekka, Preservation Assistant and vote of thanks was delivered by Dr. Sanjay Mishra, Scientist-B & Garden In-Charge.



The book 'Figs of Eastern Ghats India' released during International Day for Biological Diversity celebrations at Goa by Hon'ble Chief Minister of Goa Sri Manohar Parrikar on 22.05.2017

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Scientist 'D', CNH, BSI, Howrah