



BSI NEWSLETTER

The monthly electronic newsletter of Botanical Survey of India

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Director's column

During this month, scientists and scientific staff of BSI conducted field tours in connection with various ongoing projects which can broadly be categorized under documentation of flora, ethno-botanical study and *ex-situ* conservation of RET species in the BSI gardens.

In this month, the scientific officials of BSI described a new species, *Impatiens dalaiensis* (Balsaminaceae) from Arunachal Pradesh, reported the genus *Heterotis* (Melastomataceae) and the species *Phyllanthus gracilipes* (Euphorbiaceae) from Andaman and Nicobar Islands and *Ormosia fordiana* (Fabaceae) from Western Himalaya as additions to Indian flora. Besides these, the genus *Oropetium* (Poaceae) was reported for the first time from Andaman and Nicobar Islands, whilst the species *Impatiens khasiana* was recollected almost after 130 years.

International Day for Biological Diversity was celebrated in all the units/regional centres of BSI on 22nd May 2015. On this occasion, various programmes like lectures, plantation of saplings and quiz and drawing competitions for school students were organized. The prizes were also distributed to the winners and consolation prizes to the participants.

Happy browsing!

Paramjit Singh
Director, Botanical Survey of India



HEAD QUARTERS, KOLKATA

In connection with the 'Algal Flora of Jharkhand', 'Studies on wild mushrooms of Sikkim', 'Wood rotting fungi of Rajmahal hills' and 'Revision of the family Metzgeriaceae in India (Bryophyte)', identification, descriptions and illustrations are being made by the Scientists, Botanists and scientific staff of the Cryptogamic section. Dr. Monalisa Dey, Scientist 'B' prepared database of 262 liverwort specimens in connection with Cataloguing of Epiphyllous Liverworts of Eastern Himalaya after preparing the herbarium labels for each packet.

Workshop attended

Dr. Devendra Singh, Scientist 'C' attended the National workshop on Evaluation of Research Proposal for Planning the XXXV Indian Scientific Expedition to Antarctica organized by ESSO-NCAOR, Goa on May 21 – 22, 2015 and presented a research proposal entitled, "Studies on diversity of Bryophytes of Larsemann Hills, East Antarctica"

Visitors

Dr. V. P. Mali, Head of the Department of Botany, Anandrao Dhonde Alias Babaji Mahavidyalaya, Kada, Beed, Maharashtra, and his Ph. D. students Sri Vijay Gore and SRI Faisal Hamad Chouse visited Cryptogamic section, to whom Sri M.E. Hembrom, Botanist provided training in identification and documentation of wood rotting fungi from 21st to 29th May 2015. Sri Hembrom also provided training to them to make section cuttings and slide preparations of about 30 specimens, as well as microscopic observations and taking photomicrographs of the specimens.

AJC BOSE INDIAN BOTANICAL GARDEN, HOWRAH

Dr. S.S. Hameed, Scientist 'D' conducted tour to Uttarakhand under the project 'Indigenous palms of India' and collected 4 indigenous palms and 18 other endemic and rare species for *ex-situ* conservation in the garden.

The Great Banyan Tree, an iconic identity of AJC Bose Indian Botanic Garden developed 4 new roots. 15 encaged roots were repaired with new bamboo caging.



Phoenix vegetation on the hill slopes of Dehradun, Uttarakhand



Saplings collected during the tour

Visitors/students

Scientists and students from different academic institutions and schools visited the botanic garden during this month.

Publication

Subudhi, H.N., Panda, S.P., Behera, P.K. and Chitra, P. 2015. A checklist of weeds in rice fields of Coastal Orissa, India. *J. Agri. Sci.* 7(6): 207–216.

CENTRAL NATIONAL HERBARIUM, HOWRAH

Sri Anant Kumar and Sri Gopal Krishna, Sr. Pres. Assts., conducted one tour to Aurangabad, Nawada and Baanka districts of Bihar from 23rd April to 9th May 2015 and collected specimens of 207 field numbers. During this field trip, from Kauakol, Nawada district, seeds of a rare species, *Canavalia gladiata* were collected and introduced in AJCB Indian Botanical Garden for propagation. Apart from this, they also collected *Balanites roxburghii* near Jhunjhuna Pahad, Aurangabad, which is the only represented species for this genus in India.



Balanites roxburghii

In connection with the Revision of *Bambusoideae* (Poaceae) and Revision of the genus *Fimbristylis* (Cyperaceae) for Flora of India, Flora of Bihar and Jharkhand states, Flora of Buxa Wildlife Sanctuary (ca 252 sq. km), Flora of Jaldapara Wildlife Sanctuary (ca 216.51 sq. km), Flora of Vikramshila Gangetic Dolphin Wildlife Sanctuary (ca 60 km segment of Ganges), and Flora of Gautam Buddha Wildlife Sanctuary (ca 259 sq km) the identification and description of the specimens are being carried out by the Scientists and scientific staff of CNH. The scientists of this unit are also engaged in editing of the monocot families for Flora of West Bengal (Vol. 5).

Dr. Avishek Bhattacharjee, Scientist 'B' prepared a database of 541 specimens of the genus *Calanthe* (Orchidaceae) housed at CAL (general herbarium).

Dr. Kumar Avinash Bharati, Scientist 'B' incorporated data of 146 type specimens in the software of virtual herbarium.

Holotype specimen of *Cinnamomum mohananii* was received for deposition in CNH from Dr. S.P. Mathew, Scientist 'E I', Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Thiruvanthapuram.

Celebration of International Day for Biodiversity

As a part of the celebration of International Day for Biodiversity on 22.05.2015, the following lectures were arranged in CNH.

- ◆ Biodiversity for food security and sustainable development -- by Prof. Sudhendu Mandal, Viswabharati University, Shantiniketan, West Bengal.
- ◆ Indigenous palms of India and sustainable use -- by Dr. S.S. Hameed, Scientist 'D', AJCBIBG, BSI.
- ◆ Traditional knowledge: a great tool for biodiversity conservation -- by Dr. Avinash Bharti, Scientist 'B', CNH, BSI.
- ◆ Bryophytes: Uses, threats and sustainable development -- by Dr. Monalisa Dey, Scientist 'B', Hqrs., BSI.
- ◆ Orchids and their role towards sustainable development -- by Dr. Avishek Bhattacharjee, Scientist 'B', CNH, BSI.
- ◆ Biodiversity and conservation -- by Dr. Debabrata Saha, Scientist, Institute of Ayurveda & Integrative Medicine - FRLHT, Bangalore.
- ◆ Diversity and utilization of grasses -- by Dr. Sangita Daschowdhury, AJCBPDF, CNH, BSI.
- ◆ Sustainable development through phycoresources -- by Dr. Debjyoti Das, SERB-Young Scientist, CNH, BSI.
- ◆ Phytodiversity of Koderma Wildlife Sanctuary, Jharkhand and utilization of its forest products -- by Sri Shyam Biswa, Sr. Pres. Asst., CNH, BSI.
- ◆ Plant diversity of Dalma Wildlife Sanctuary, Jharkhand and its utilization -- by Dr. C.R. Magesh, Sr. Pres.Asst., CNH, BSI.
- ◆ Buxa National Park, Jalpaiguri - its role in biodiversity conservation and wise utilization of plant resources -- by Sri Gopal Krishna, Sr. Pres. Asst., CNH, BSI.
- ◆ Plant diversity of Palkot Wildlife Sanctuary, Jharkhand and its role in sustainable development -- by Sri Vijay Mastakar, Sr. Pres. Asst., Hqrs., BSI.
- ◆ Thermal Algae of Jharkhand: A video presentation -- by Dr. R.K. Gupta, Scientist 'D', Hqrs., BSI.



Dr. Paramjit Singh, Director, BSI addressing during celebration of International Day for Biological Diversity (IDB)



Prof. Sudhendu Mandal addressing the audience on IDB

Public service rendered

Dr. P. Lakshminarasimhan, Scientist 'E' & HoO acted as an external expert in the open defence Ph.D. viva-voce exam of Sri Radharaman Bar, Dept. of Botany, University of Kalyani on 11.05.2015.

Dr. Subir Bandyopadhyay, Scientist 'B' provided information regarding authors of 4 plant names [Sri Lalawmkima Darlong, Drs. Debjyoti Bhattacharyya, Deepa Mishra and Pratibha Jalmi] for incorporation in the Author Query database of IPNI.

The protologue *Saxifraga lilacina* Duthie (Gard. Chron. 3, 1: 290. 1904.) was sent to Dr. S.K. Srivastava, Scientist 'E' & HoO, NRC, BSI.

Provided 24 pages from various publications of M. Chandrabose and V. Chandrasekaran to Dr. K.N. Gandhi, Harvard University herbaria in connection with incorporation in IPNI.

Sent scanned type images of *Cymbidium whiteae* (Orchidaceae) to Sri Vikas Madhukar, Research Scholar, NRC, BSI.

Sent scanned images of the type of *Anaphyllum beddomei* and *A. wightii* (Araceae) to Prof. M. Sivadasan, Department of Botany & Microbiology, College of Science, King Saud University, Riyadh, Kingdom of Saudi Arabia. Also sent four scanned images of type of *Mezoneuron andamanicum* to Ms. Ruth Clark, Research Fellow, Asia (Leguminosae), Herbarium, Royal Botanic Gardens, Kew, UK.

Scientists of CNH verified the list of plants proposed for the notification of Threatened Species of Plants in Maharashtra State u/s 38 of Biological Diversity Act, 2002 prepared by Maharashtra State Biodiversity Board, made certain modifications and sent to the Director, BSI with comments along with an additional list of endemic species proposed by Botanical Survey of India for inclusion in the list of threatened plant species of Maharashtra for onward transmission to Sri Hem Pande, Addl. Secretary, MoEF & CC, New Delhi. Similarly, verified the list of threatened plants of Sikkim proposed by Sikkim Biodiversity Board for inclusion u/s 38 of the Biological Diversity Act, 2002, made required modifications and sent to the Director, BSI with comments along with an additional list containing 52 Angiosperms, 68 Pteridophytes and 36 Bryophytes proposed by BSI. On the other hand, prepared a List of Threatened Plants of Jharkhand for inclusion u/s 38 of Biological Diversity Act, 2002 and sent to the Director, BSI for onward transmission to Sri Rajiv Ranjan, Member Secretary, Jharkhand Biodiversity Board, Ranchi.

Identified total 65 plant samples from different institutes/students/researchers and custom departments and issued identification certificates.

Scanning Electron Microscopy

Total 19 samples were studied under scanning electron microscope by various scientists and research scholars, which include algal, bryophyte and angiospermic materials as well as *Ocimum* seeds received from Plant Quarantine Directorate, Mumbai for authentication.

Meeting attended

Dr. P. Lakshminarasimhan attended the evaluation committee meeting of MoEF & CC funded project entitled, 'Photographic Digitisation of Economic Herbarium specimens at Industrial Section Indian Museum of BSI, Kolkata' under e-governance programme of the Ministry at ISIM, BSI on 15.05.2015.

Visitors/students

Dr. Samik Mitra, Dept. of Botany, SBDI College, Shibpur, Howrah.

Sri Debabrata Prusty, Research Scholar, Utkal University, Vani Vihar, Bhubaneswar, Odisha.

Dr. Mahasin Ali Khan, PDF, Palaeobotany-Palynology Laboratory, Dept. of Botany, University of Calcutta, Kolkata.

B.Sc. students from Ranigunj Girl's college, Ranigunj, West Bengal.

B.Sc. students from Barasat Government College, Barasat, West Bengal.

CENTRAL BOTANICAL LABORATORY, HOWRAH

A field tour was conducted by Dr. K.A. Sujana, Scientist 'C' along with Sri R. Saravanan and Ms. Monika Mishra Bot. Assts. to Kuldiha wildlife sanctuary under the project, 'Flora and Ethnobotany of Balasore district' (Odisha). A total of 184 specimens were collected during this field tour besides Ethnobotanical survey conducted at the tribal settlements of Santal, Kalho, Sabra and Bhumija residing around the Kuldiha Wildlife Sanctuary. Altogether 146 information bits on ethnobotanical uses were also documented. A study also conducted with the assistance of Odisha forest department for the protection and conservation of 29 narrowly distributed, globally/regionally threatened plants by locating its natural habitat, population and distributional sites in Kuldiha wildlife sanctuary. A total of 1200 (10 m x 10m) quadrats plotted in Kuldiha Wildlife sanctuary for studying plant population structure and data documented for further analysis.



Water harvesting system in Kuldiha Wildlife Sanctuary



***Erycibe paniculata* (Convolvulaceae)**



***Polyalthia cerasoides* (Annonaceae)**



***Uvaria hamiltonii* (Annonaceae)**



Firmiana colorata (Sterculiaceae)



Plant collection at Kuldiha WLS

Hindi Karyashala

A Hindi Work shop (*Hindi Karyashala*) on “Administrative management and work system in Office” organized at CBL on 18.05.2015. Certificates were distributed to the winners of the different competitions held during *Hindi Diwas Samaroh*.

Visitors/students

Students and teachers from Raniganj Girls College, Raniganj, Burdwan Dist. visited the Ethnobotany museum in CBL.

Publication

Bhogaonkar, P.Y., Chavhan, V.N. and Dhole, P.A. 2015. Some New reports for the Flora of Yavatmal District (M.S.), India. *Biosci. Discov.* 6: 18–21.



Inaugural session of Hindi Karyashala



Certificate distribution during Hindi Karyashala

INDUSTRIAL SECTION INDIAN MUSEUM, HOWRAH

Herbarium specimens (97 nos. of dicots, 10 nos. of monocots) and specimens collected by I.H. Burkill (1741 nos.) were documented with relevant field notes in connection with the Databasing of specimens at BSIS. Further, nomenclature of 30 digitized Herbarium specimens (BSIS00061–BSIS00090) were updated.

Public service rendered

Dr. Manas Bhaumik, Scientist ‘D’ identified 22 grass species for two JRF fellows from University of Calcutta.

Publication

Daimary, R. and B.K. Sinha 2014 (2015). New Distributional Record of a rare species *Amomum pauciflorum* Baker (Zingiberaceae) from Assam, India. *J. Non-Timb. Forest Prod.* 21(3): 179–180.

ANDAMAN AND NICOBAR REGIONAL CENTRE, PORTBLAIR

Dr. T.A.M. Jagadeesh Ram, Scientist 'D' studied chemistry of 160 specimens of Lichens of Nicobar Islands by TLC method. Phenology of 29 Tree species of Dhanikhari Experimental Garden cum Arboretum (DEGA) was observed by Dr. Lal Ji Singh, Scientist 'D' & HoO.

Ex-Situ Conservation

Seedlings / Cuttings of two plant species – *Ricinus communis* (medicinal) and *Tarlmounia elliptica* (ornamental) were collected and introduced in the Dhanikhari Experimental Garden cum Arboretum as a part of ex-situ conservation.

Celebration of International Day for Biological Diversity

The centre celebrated International Day for Biological Diversity on 22.05.2015 at Dhanikhari Experimental Garden cum Arboretum (DEGA), Nayashahar. On this occasion, a drawing competition was organized, in which more than 50 students from various schools participated. Dr. Omkar Singh, Principal Chief Conservator of Forest & Principal Secretary (Environment & Forests) was invited as Chief Guest. Dr. Singh also planted *Bentinckia nicobarica* at DEGA, a rare and endemic palm of Nicobar Islands.

Publication

Singh, L.J. and Ranjan V. 2015. *Heterotis* Benth. (Melastomataceae): a new addition to Indian flora from Andaman Islands. *Geophytology* 45 (1): 101–106.



Students participating in drawing competition at DEGA



Plantation of *Bentinckia nicobarica* by Dr. Omkar Singh

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Dr. P. Satyanarayana, Scientist 'D' & HoO, Sri B.B.T. Tham, Botanist prepared descriptions for 11 species for Flora of Pakke Tiger Reserve and Wild Life Sanctuary.

Dr. Vineet Kumar Rawat, Scientist 'C', identified specimens of 12 field numbers for the family Polypodiaceae of North East India.

Dr. Manish Kandwal Scientist 'C' identified specimens of 11 field numbers for Grass flora of Arunachal Pradesh.

Dr. Souravjyoti Borah, Botanist identified specimens of 10 field numbers for Flora of Lohit District and Kamlang Wildlife Sanctuary.

Celebration of International Day for Biological Diversity

Celebrated International Day for Biological Diversity on 22.05. 2015 under the theme 'Biodiversity for Sustainable Development'. On this occasion Scientists, Officers and Research Scholars from different organizations like State Forest Research Institute (SFRI), Arunachal Pradesh Forest Department, Ayurveda Regional Research Institute (ARRI) at Itanagar were participated.

Meetings/workshops attended

Dr. P. Satyanarayana attended a meeting of Standing Committee of State Board for Wildlife, Arunachal Pradesh on 8th May 2015 in the Conference Hall of state PCCF's Office, Itanagar. Dr. P. Satyanarayana also attended a meeting of Technical Committee for Wildlife Protected Areas, Arunachal Pradesh on 11th May 2015 in the Office of PCCF (WL & BD), Itanagar.

Dr. Satyanarayana also participated in two National Workshops on "Understanding Ecosystem Services Perspectives for effective resource Management in the Far Eastern Himalayan Landscape (Hi-Life India)" from 25th to 27th May 2015 and on "Developing Livelihood Interventions for the Far Eastern Himalayan Landscape (Hi-Life India)" from 28th to 29th May 2015 at Itanagar organized jointly by G.B. Pant Institute of Himalayan Environment and Development, Itanagar and International Centre for Integrated Mountain Development, Katmandu, Nepal.

Visitor

Sri B.M.S. Rathore, Chief Policy Advisor, International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal visited the centre.

Publication

Gogoi, R. and Borah, S. 2015. *Impatiens dalaiensis* (Balsaminaceae) a new species from Arunachal Pradesh, India. *Phytotaxa* 207 (3): 286–290.



Dr. Satyanarayana delivering welcome address and welcoming Dr. A. Boarang, SFRI on the occasion of Intl' Day for Biodiv.

ARID ZONE REGIONAL CENTRE, JODHPUR

Sri Vinod Maina, Scientist 'D' and Sri Ravi Prasad, Bot. Asst. identified 20 plant species from their previous tour materials in connection with Ethnobotany of Dang District, Gujarat.

Dr. S.L. Meena and Dr. Harikrishna Peddi also identified 10 plant species from their tour materials of Schoolpaneshwar Wildlife Sanctuary.

Ex-situ conservation

In connection with *ex-situ* conservation, several species namely *Anacardium occidentale*, *Haldina cordifolia*, *Mitragyna parvifolia*, *Phoenix dactylifera*, *Pterocarpus marsupium*, *Terminalia bellirica* and *T. chebula* were introduced in the Botanic garden.

Celebration of International Day for Biodiversity

The International Day for Biological Diversity was celebrated on 22.05.2015. On this occasion plantation and a competition on Biodiversity as well as an open quiz competition were organized for the students participated from different schools of Jodhpur. Dr. Sanjeev Kumar, HoO of ZSI, Jodhpur was the Chief guest and Dr. V. Singh, Ex-Scientist 'F' of BSI acted as the President. Sri P.J. Parmar, Ex-Scientist of BSI and Dr. H. S. Baniyal, Scientist 'C' of ZSI, Jodhpur were invited as special guests.



Celebration of International Day for Biological Diversity in which students from different schools participated



Publication

Reddy, S., Rajashekar, G., Hari Krishna, P., Jha, C.S. and Dadhwal, V.K. 2015. Multi-date mapping of deforestation in central India (1935-2010) and its implication on standing phytomass carbon pool. *Ecol. Indicat.* 57: 219-227.

CENTRAL REGIONAL CENTRE, ALLAHABAD

In connection with the ongoing projects on Floral diversity of Upper Ganga Ramsar site, Uttar Pradesh, Floristic diversity of Parvati Aranga Wildlife Sanctuary and adjoining Tikri forest area, Gonda, Uttar Pradesh and Lichens of Rajasthan, Kutch, Gujarat, 41 species were identified. Similarly, for the Taxonomic studies on lichenised non thelotremoid Indian Graphidaceae, Revisionary studies on family Roccellaceae and Lichens of Terai region, Uttar Pradesh a total of 49 species were identified. In addition to this, 149 earlier collected specimens housed at BSA were also identified.

Celebration of International Day for Biodiversity

International day for Biological Diversity was celebrated on 22.05.2015 at this centre by organising a Sit and Draw competition among the school students on the theme "We and the Environment". A Press note on the celebration was also published in local Hindi newspaper *Hindustan* for public awareness on 23.05.2015.

Identification/Authentication services rendered

Authenticated a plant specimen as *Passiflora caerulea* brought by Ms. Neelam Verma, Research Scholar, Department of Pharmaceutical Sciences, SHIATS, Allahabad.



Students during the International Day for Biological Diversity



Students participating in the Sit and Draw competition

Visitors /students

31 students along with Principal and two teachers of Kalyan Seva Ashram, Daraganj, Allahabad visited herbarium, Library and Garden of CRC on occasion of International Day for Biological Biodiversity Day and they were informed about activities of BSI and importance of Biodiversity/ Plant diversity in human life and strategies of its conservation.

Public service rendered

Dr. G.P. Sinha, Scientist 'E' & HoO acted as external examiner for M.Sc. Botany, Part- II students, examined dissertation thesis of 6 students and conducted their *Viva-voce* on 19.05.2015 at Botany Department, Allahabad University, Allahabad.

Dr. G.P. Sinha delivered a lecture entitled, 'Organization and Policy Initiatives for Environmental Protection and Climate Change in India' to Accounts Officer Trainees at Regional Training Office, Allahabad on 26.05.2015.

Publications

Garg, A., Joshi, B. and Singh, R.K. 2015. Floral- faunal mutualism and its role in sustenance of Upper Ganga Ramsar Site in Uttar Pradesh, India. *Geophytology* 45(1): 87–94.

Gupta, P. and Sinha, G.P. 2015. Foliicolous lichens new to Uttar Pradesh. *Geophytology* 45(1): 77–80.

Gupta, P. and Sinha, G.P. 2015. Addition to the lichen flora of Sikkim, India. *Geophytology* 45(1): 95–100.

DECCAN REGIONAL CENTRE, HYDERABAD

Ms. P. Annamma, JRF and Dr. M. Sankara Rao, Pres. Asst. conducted one field tour to Kawal Tiger Reserve from 15th May to 19th May 2015 and collected specimens of 30 field numbers and identified 20 species.

Dr. P.V. Prasanna, Scientist 'F' identified 20 species from Seshachalam Biosphere Reserve, while Dr. L. Rasingam, Scientist 'C' documented 15 species collected from NSTR WLS, Sri K. Chandra Mohan, JRF identified 41 species from Satkosia Tiger Reserve.

Celebration of International Day for Biodiversity

On the occasion of International Day for Biological Diversity, as a part of the celebration, organized a painting competition for school children on 22.05.2015. Sri S. Nagaraju, Bot. Asst., delivered a lecture on "Biodiversity conservation and sustainable development" during this celebration.

Publication

Halder, S. and Venu, P. 2015. Lectotypification of *Typha elephantina* (Typhaceae). *Ann. Bot. Fenn.* 52: 265–267.



Sri J. Swamy explaining about the museum exhibits to the students



Students from Vijetha Vidyalaya participating in the drawing competition

Visitors/students

School students from Vijetha Vidyalaya, Hyderabad, Research Scholars of Telangana University, Nizamabad and Dr. Vikas Tyagi, Scientist, DSR, Jabalpur visited the centre during this month.

EASTERN REGIONAL CENTRE, SHILLONG

One field tour was conducted by Dr. N. Odyuo, Scientist 'D' to Eastern Nagaland from 22nd May to 7th June 2015. Dr. Odyuo, also consulted 620 specimens at Nagaland University in connection with the preparation of Checklist of Flora of Nagaland.

In this month, Identified 56 species and documented 12 species in connection with Flora of South Garo Hills Dist., Meghalaya (by Sri Dilip Kumar Roy, Bot. Asstt.), Flora Eastern Nagaland (Dr. R. Daimary, Bot. Asstt.), Amchang Wildlife Sanctuary, Assam (by Ms. Nandita Sarma, Sr. Pres. Asstt.); Yangoupokpi Lokchao Wildlife Sanctuary, Manipur (by Sri. R. Meitei, Bot. Asstt.).

In connection with Micro-propagation of RET Plants of Northeast India, Dr. A.A. Mao, Scientist 'E' & HoO and L. Ibemhal Chanu, Bot. Asstt. carried out subculture and lab to land transfer of approximately 1000 plants of *Armorum senapatianum* and lab to land transfer of about 50 plants of *Cymbidium tigrinum* from greenhouse to garden.

For Micropropagation of Rare, Endemic and Threatened plants of NE India; Phytochemical Screening of Medicinal Plants and Molecular Characterization of selected species of NE India, Dr. Deepu Vijayan, Scientist 'B' carried out regular subculturing and maintenance of *in vitro* raised seedlings of *Pyrenaria khasiana*. Transferring of 5 *in vitro* raised seedlings to green house for acclimatization studies and subculturing of callus induced *in vitro* raised leaf explants of *Pyrenaria khasiana* into fresh medium were done. Regular maintenance of initiated cultures of *Paris polyphylla* in MS medium was also carried out.

Public service rendered

Identified about twelve samples of specimens received from various institutions.

Visitors /students

Two Scientists from Bangladesh National Herbarium, 7 Professors, 6 Research Scholars, 43 Students visited the Centre.

Publications

Rao C.S. and Singh S.K. 2015. *Wild Orchids of Meghalaya – A pictorial guide*. Meghalaya Biodiversity Board, Shillong.

Odyuo, N., Deori, C. and Gogoi, R. 2015. Rediscovery of *Impatiens khasiana* Hook.f. after more than a century. *Telopea* 18: 85–89.

NORTHERN REGIONAL CENTRE, DEHRADUN

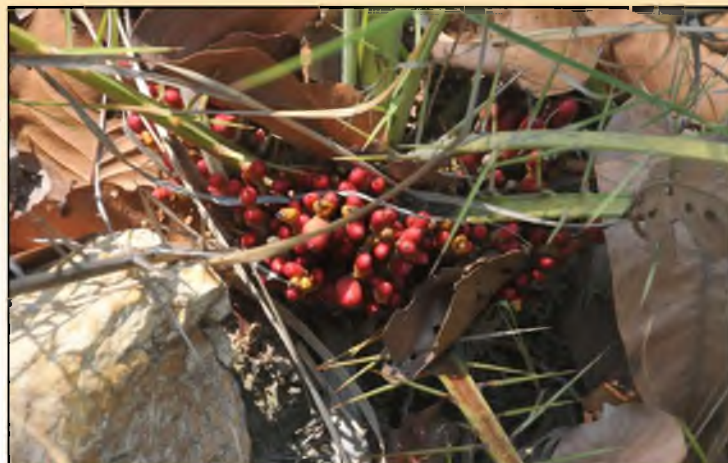
Dr. R. Manikandan, Scientist 'D' conducted a field tour to Sonanadi Wildlife Sanctuary from 14th to 20th May 2015 and collected specimens of 213 field numbers (ca 800 specimens) of about 180 species and also 18 live plants.

Identified 69 species and described 26 species of Angiosperm in connection with the 'Flora of Uttarakhand Vol. V', 'Floristic Diversity and Phytosociological study of Simbalbara National Park', 'Flora of Nandhour Wildlife Sanctuary', 'Flora of Sonanadi Wildlife Sanctuary', 'Revisionary study Bignoniaceae', 'Tree ferns of India' and 'genus *Lepisorus* (Sm.) Ching in India'.

In connection with the project on digitization of Herbarium specimens at BSD, 52 specimens of Fumariaceae and some Pteridophytes were scanned.



A view of Palian river



Phoenix acaulis (Arecaceae)

Celebration of International Day for Biological Diversity

The International Day for Biodiversity was celebrated on 22.05.2015 by arranging a sit and draw competition. About 15 students from different schools participated in competition.



Students and BSI officials on the International Day for Biological Diversity



Mulberry plantation by Dr. S.K. Srivastava at Mulberry Grove

Public service rendered

14 plant specimens (*Ageratum conyzoides*, *Berginia ciliata* f. *ciliata*, *Casearia tomentosa*, *Equisetum ramosissimum*, *Inula racemosa*, *Parthenium hysterophorus*, *Persicaria hydropiper*, *Primula floribunda*, *Ranunculus muricatus*, *Rhododendron pancticum*, *R. arboretum*, *Rubus niveus*, *Saussurea costus*, *Vicia sativa*) were identified for researchers of different universities and institutions of Uttarakhand.

Visitors/students

About 20 delegates of a NGO from Pune, headed by Dr P.G. Diwakar, former Scientist, BSI visited the centre. Students from various schools of Dehradun also visited the centre.

Publication

Roy, D.K. and Verma, D. 2015. *Ormosia fordiana* (Fabaceae), An Addition to the Flora of India. *J. Jap. Bot.* 90 (2) 124–128.

SIKKIM HIMALAYAN REGIONAL CENTRE, GANGTOK

Dr. M. Gangopadhyay, Scientist 'D' & HoO prepared and finalized nine drawings of Rubiaceae members in connection with the project, 'Family Rubiaceae for Flora of India (Amplification of the description of ca. 65 poorly known species supplemented with illustration and possible photographs)'.

Dr. D.K. Agrawala, Scientist 'C' studied 20 orchid specimens and finalized their identity, assigned geo-coordinates and entered the data in excel sheet for the project, 'Red listing of Orchids of Eastern Himalaya as per IUCN criteria'. Dr. Agarwala identified and illustrated Orchid species for documentation.

The "International Day for Biological Diversity" was celebrated at this centre on 22.05. 2015 by delivering lectures on various topics.



Dendrobium transparens — an interesting orchid flowered at SHRC campus

Meetings attended

Dr. M. Gangopadhyay attended the meeting on "Raster modelling of Oak Forests distribution" under changing climate condition held on 19th May 2015 at Forest Secretariat, Derali, Gangtok.

Dr. D.K. Agrawala attended "International Conference on Conservation of Natural and Cultural Values of Khangchendzonga National Park", Gangtok, Sikkim held on 15th and 16th May 2015.

Dr. Agrawala also attended the 14th meeting of Institute Research Committee of National Research Centre for Orchids, Pakyong from 19th to 20th May 2015.

Dr. Agrawala attended "Co-ordination meeting" with Sikkim Youth Development Board, Gangtok on 22.05.2015.

Visitors / students

Students from CEPT University, Ahmadabad, Gujarat visited this center for learning herbarium techniques and *ex-situ* conservation practices.

SOUTHERN REGIONAL CENTRE, COIMBATORE

Under the fragile ecosystem project, Dr. G.V.S. Murthy, Scientist 'F' & HoO, Dr. S. Kaliamoorthy, Scientist 'D' and Sri K. Yarrayya, Sr. Pres. Asst. prepared a checklist of the Karaivetti Wildlife Sanctuaries, Tamil Nadu. Dr. M. Palanisamy, Scientist 'D' and Sri S.K. Yadav, Bot. Asst. carried out microscopic studies of seaweeds, prepared 60 microscopic images and identified specimens of 10 field numbers from the earlier collections for Seaweed Flora of Karnataka Coast.

Under the ongoing project *ex-situ* conservation of endangered and threatened plants, Dr. S. Kaliamoorthy and his team multiplied a total of 125 plants (including 63 samples of ornamental orchids, 9 samples of endemic orchids *Coelogyne prolifera* and *Eria pseudoclavicaulis* and 47 samples of other plants), developed seedlings (46 numbers), cuttings (2 numbers), re-potted 5 number and recorded the phenology of total of 23 species including 11 species of orchids at National Orchidarium and Experimental Garden (NO & EG), Yercaud.



Chaetomorpha spiralis (Chlorophyta)

Scanning Electron Microscopy

Sri G. Gnanasekaran, Bot. Asst. took 25 SEM images of seeds of the genus *Haplanthodes* and 4 taxa of the genus *Ficus*. Two species of *Sporobolus* specimens were studied under SEM by Dr. K.A.A. Kabeer, Scientist 'D'.

Public Service Rendered

Identified total 70 plant samples received from other institutions and prepared 47 pages of photocopies for library visitors.

Dr. J.H. Franklin Benjamin, Scientist 'B' inspected the Malabar Botanic Garden on 29.05.2015 and submitted the evaluation report to the HoO.

Visitors/students

Total 25 students/research scholars /lecturers /scientists visited the herbarium and library of the SRC, whilst a total of 1461 persons in 194 parties visited NO & EG, Yercaud.

Training programmes conducted

Conducted a "Training Programme on Herbarium Methodology" from 18th to 29th May 2015. Seven participants from different organizations attended the programme.

Provided Internship training on Database work of the family Anacardiaceae specimens pertaining to MH, Coimbatore to Ms. Pavithra, M.Sc. Student of Madras Christian College, Chennai from 18th to 29th May, 2015.



Participants of the training programme on Herbarium methodology during field trip and processing of the plant specimens collected in the field

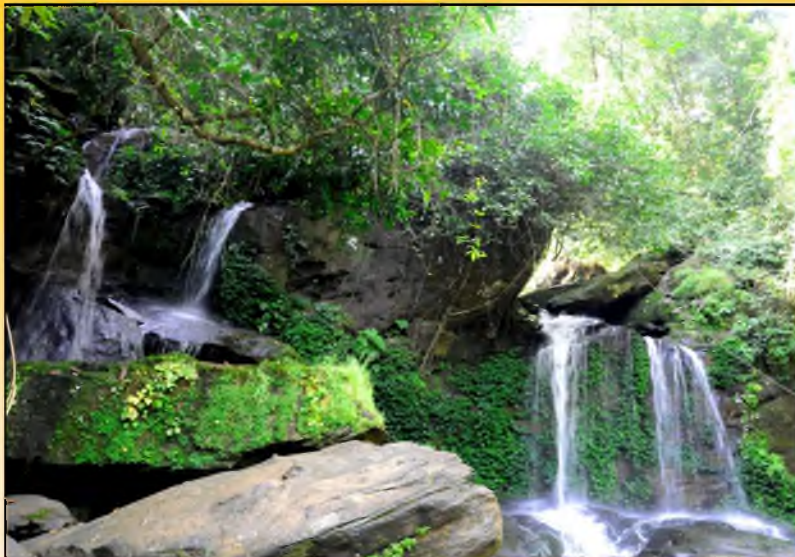
Publications

Yadav, S.K., Palanisamy, M. and Murthy, G.V.S. 2015. Economically important seaweeds of Kerala coast, India – A Review. *Elixir Biosci.* 82: 32147–32152.

Murugan, C., Ekka, Gautam Anuj and Murugan, P. 2015. *Oropetium* Trin. (Poaceae) – A generic Record for Andaman and Nicobar Islands, India. *J. Andaman Sci. Assoc.* 19(2): 157–159.

WESTERN REGIONAL CENTRE, PUNE

During this month about 61 angiosperm specimens were identified from Biligiri Rangaswamy Temple Wildlife Sanctuary and Sharavathy valley Wildlife Sanctuary in Karnataka. Taxonomic descriptions were written for 30 plant species collected from Koyna Wildlife Sanctuary, Maharashtra. About 23 Pteridophytic specimens were identified, which were collected from different parts of Maharashtra and Karnataka and descriptions were made for about 20 Pteridophytic species. Isolation of fungi from 24 host plants was carried out in culture medium (Potato Dextrose Agar). Identified 19 fungal species and made description for 34 fungal species.



View of riparian vegetation in Sharavathy



***Nervilia plicata* (Orchidaceae)**



***Pancratium triflorum* (Amaryllidaceae)**



Vegetation in Sharavathy Wildlife Sanctuary

Public service rendered

Identified and authentication certificates were issued for total 21 students from B. Pharm, M. Pharm. colleges as well as Ph.D. and P.G. students from different institutions.

Visitors/students

For consultation of herbarium and library, Scientists, Professors and Research students from Abasaheb Marathe Arts, Commerce and Science College, Rajapur, Maharashtra; Arts, Science and Commerce College, Wada, Maharashtra and from Anantrao Pawar College, Pirangut, Pune, visited the centre during this month.

Publication

Jayanthi, J., Karthigeyan, K. and Sumathi, R. 2013 (2015). *Phyllanthus gracilipes* (Miq.) Muell.-Arg. (Euphorbiaceae) – A new record for India from Great Nicobar Island. *Malayan Nat. J.* 65(4): 243–246.

TRANSFERS

Dr. Rajib Gogoi, Scientist 'D', joined CNH on 18th May 2015 on transfer from APRC, Itanagar.

Shri Rajeev Kumar Singh, Botanist, joined SRC, Coimbatore on 19th May 2015 on transfer from CRC, Allahabad.

GLIMPSES OF THE CELEBRATION OF INTERNATIONAL DAY FOR BIOLOGICAL DIVERSITY AT CNH





PLANT OF THE MONTH



Aerides odorata Lour. (ORCHIDACEAE) Known as Fragrant Aerides or Draupodi Pushpa (in India), is native to India, China, the Malay - Archipelago and the Philippines. Cultivated for its beautiful fragrant flowers in pendent inflorescence.

By Dr. B.K. Singh

Botanical Survey of India
22 MAY 2015
INTERNATIONAL DAY FOR BIOLOGICAL DIVERSITY
BIODIVERSITY FOR SUSTAINABLE DEVELOPMENT

Biodiversity: The foundation for sustainable development

Biodiversity supporting development

FAST FACTS

Impatiens khasiana — recollected after 129 years from Meghalaya



THE ECHO OF INDIA

Intl Day for Biological Diversity observed

PORT BLAIR, MAY 26// The Botanical Survey of India, Andaman & Nicobar Regional Centre, Port Blair, celebrated International Day for Biological Diversity on 26th May, 2015 at Bhawalakari Experimental Garden-cum-Arboretum, Nayabazar. The theme of the day was "Biodiversity for Sustainable Development".

As a part of the function, Dr. Sanjay Mishra, Scientist 'B' & Garden in-charge, delivered a welcome address. In his presidential address, Dr. Lalji Singh, Scientist D/HQ briefed about the objectives and activities of BSI in conservation of biodiversity. The Chief Guest of the function Dr. Dipkar Singh, Principal Chief Conservator of Forest & Principal Secretary (Environment & Forests) addressed the gathering and encouraged the children to protect the biodiversity of the islands. On this occasion a threatened & endemic plant, *Bemuncialisoborima*(Kurz) Bacc. was planted by the Chief Guest at BECCA, a centre for excellence collec-

tion of plant genetic diversity in-situ and ex-situ conservation in the Andaman & Nicobar Islands.

On this occasion, a drawing competition for Junior & Primary group was organized. More than 50 students from various schools participated in the competition. Dr. Sandip K. Bohra, Scientist 'B' proposed the vote of thanks. A communication received here said.

Thanks to all the scientists and staff of various regional centres and units of Botanical Survey of India for contributing to this newsletter

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