



भारतीय वनस्पति सर्वेक्षण
BOTANICAL SURVEY OF INDIA

ANNUAL RESEARCH PROGRAMME 2018-2019

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BOTANICAL SURVEY OF INDIA

पर्यावरण, वन एवम् जलवायु परिवर्तन मंत्रालय
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE
भारत सरकार/GOVERNMENT OF INDIA

Annual Research Programme 2018-2019

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Cover photo : View of Kameng River making boundary of Pakke Tiger Reserve, East Kameng District, Arunachal Pradesh. (Courtesy: Sanjay Kumar)

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INTRODUCTION

While reviewing the country's preparedness on taxonomy the then Secretary to this Ministry Padma Bhushan Dr. T.N. Khoshoo, said “*All wisdom begins by calling all living (including humans) and non-living things by their proper names*”. In the post CBD era, understanding of biodiversity depend largely on availability of trained manpower or taxonomic expertise in the country. This "taxonomic impediment" hinders our ability to make sustainable use and sharing of the benefits derived from genetic resources. Botanical Survey of India (BSI) has been determined towards discovering, describing and documenting plant diversity of our country. In continuity to its previous annual action programmes, during 2018-19, BSI proposes to undertake 146 field tours under 102 projects for survey and exploration of plant diversity, traditional ethnobotanical knowledge flowering and non-flowering plants, pharmacognosy of cycads, nutraceutical studies of edible plant of NE India. During this period, 23 protected areas and 01 fragile ecosystem (37 tours), sacred grooves, will be surveyed. Besides covering major parts in the Western Ghats (24 tours), Himalayas (27 tours) and NE India (23 tours); 28 herbarium consultation tours to different herbaria and 24 germplasm collection tours will be undertaken for the collection of RET & EET species. During the recent explorations, more and more novelties, whether new to science or a new distributional record have been discovered from different biogeographic regions.

In continuity to previous years programmes, revisionary studies on the families Pyrenulaceae, Metzgeriaceae, Cycadaceae and genera *Riccia*, *Adiantum*, *Gastrochilus* and *Impatiens* in Sikkim & Darjeeling will be continued. Similarly, the programmes for State flora of Himachal Pradesh, Nagaland, Chattisgarh, Bihar & Jharkhand will be concurrently continued. Other research programmes such as ethnobotanical study in an Wildlife Sanctuary, Bihar state; assessment of endemic trees of India; study of Seed morphology and cytotaxonomy of North-western Orchids; SEM study of nutlets & pollinia of South Indian Cyperae, Fimbristyledeae and Orchids; cytological investigations of some selected taxa of Indian Cassiinae will also be conducted. Habitat analysis and population status of c. 300 RET species of Orchidaceae in eastern Himalaya will be finalized by Sikkim Himalayan regional center of this survey, while DNA barcoding and phylogenetic analysis of 20 endemic species of NE India and phytochemical screening of 11 medicinal plants, phylogenetic study of Aquatic fungi of NE India will be carried out Eastern Regional Centre. In connection with Interpretation of Roxburgh's Icones, the families Bignoniaceae, Clusiaceae, Poaceae, Orchidaceae and Pteridophytes are proposed. Different projects related to the study floristic studies on Pteridophytes, Bryophytes (Hornworts & Liverworts), Algae, Lichens and Fungi (Micro & Macrofungi, wild mushrooms) have also been proposed. Like every year, introduction and maintenance of various gardens, herbaria, arboreta, musea of BSI, advisory services and dissemination of information related to plant diversity will be continued.

By the end of this period 30 projects will be completed.

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
1.	Flora of East Kameng Arunachal Pradesh	Dr. U.K. Tiwari, Scientist B (2015 – 2019)	Q1. Identification and description writing of old collections. Q2. One field tour to unexplored areas of Sawa/ Khenewa block Q3. One field tour to unexplored areas of Pakhe TR; One HCT. Q4. Final report writing. Total: 2 Field Tours and 01 HCT			
2.	Red listing of Orchids of Arunachal Pradesh as per IUCN Criteria	Dr. Krishna Chowlu, Scientist B (2015 – 2019)	Q1. One field tour to Lohit and Namsai district. Q2. One HCT to ASSAM Q3. & Q4. Finalisation and submission of manuscript. Total: 1 Field Tour and 01 HCT			
3.	Introduction, Conservation of Germ Plasm of Musa, Bamboos & Zingibers	Sri B.B.T.Tham, Botanist Ongoing Project	Germplasm to be collected in regular tours and introduced at APRC, Itanagar or at Barapani, Shillong. Documentation of phenology of flowering and fruiting. Two field tours proposed to different parts of Arunachal Pradesh in Q1 and Q3. Documentation of phenology of flowering and fruiting. Total: 2 Field Tours			
4.	Wild species of Arunachal Pradesh having Floricultural Potential (New Project)	Sri B.B.T.Tham, Botanist (Ongoing Project starting from 2018)	Two field tours to different parts of Arunachal Pradesh in Q1 and in Q3. Live plants to be collected from different parts of Arunachal Pradesh and to be introduced in Barapani Garden at Shillong and in office garden at APRC Total: 2 Field Tours			
5.	Fern family Pteridaceae of India (excluding Genus <i>Pteris</i>) (New Project)	Dr. V. K. Rawat, Scientist D (2018 – 2022)	Q1. Herbarium consultation tour to ASSAM, BSA, CNH Q2. Field tour to Siang and Dibang Vally District Q3. Field tour to Meghalaya Q4. Field tour to Changlang and Tirap District Total: 3 Field Tours and One HCT			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ		3	2	4	1	10
Herbarium Consultation Tour		1	1	1	0	3

EASTERN REGIONAL CENTRE, SHILLONG

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019
6.	Taxonomic Revision of genus Genus <i>Riccia</i> (Mrachantiophyta) in India	Dr. S. K. Singh, Scientist D (2014 – 2019)	Q1. Survey of Literature to be continued. Study of protologue / study on loan material. Taxonomic characterisation, Description and camera lucida drawing of 4 species Q2. Survey of literature to be continued. Taxonomic description, characterisation and camera lucida drawing of 9 species Q3. One Tour Proposed to Western Ghat in October 2018 Q4. Taxonomic characterisation Description and camera lucida drawing of 3 species and Preparation of keys and finalization of Manuscript. Total: 1 Field Tours
7.	Flora of Eastern Nagaland (Mon, Tuensang, Kiphire and Longleng districts.	Dr. N. Odyuo, Scientist D & Dr. R. Daimary Botanical Asstt. (2014 – 2019)	Q1. One our to under explored areas of Longleng and Mon districts Q2. One tour to under explored areas of Tour to Tuensang and Kiphire districts. Q3. One herbarium Consultation tour to CAL for identification of unidentified specimens Q4. Finalisation and submission of Manuscript Total: 2 Field Tours & One HCT
8.	Flora of Nagaland (Vol. 1 & 2).	Dr. N. Odyuo, Scientist D & Dr. D.K. Roy, Botanical Asstt. (under guidance of Dr. A. A. Mao) (2016 – 2021)	Q1. One our to under explored areas of Longleng and Mon districts (to be combined with the tour of Flora of Eastern Nagaland) Q2. One tour to under explored areas of Tour to Tuensang and Kiphire districts. (to be combined with the tour of Flora of Eastern Nagaland) In all four Quarters Identification and documentation of specimens collected earlier Total: 2 Field Tours (Combined with Flora of E. Nagaland)
9.	Flora of West & South-West khasi hills district of Meghalaya with reference to the sacred groves	Dr. Chaya Deori, Sci. D and Shri S. R. Talukdar, Botanical Asstt. (2016 – 2019)	Q1. Identification & inventerisation of specimens collected earlier Q2. One Field tour in the under-explored areas of the districts Q3. One HCT to CAL for identification of unidentified specimens. Q4. Compilation, Finalization and submission of the manuscript. Total: 01 Field Tour and 1 HCT
10.	Micropropagation of RET Plants of North East India in ERC, Shillong	Smt. I. Chanu, Botanical Asstt. (under guidance of Dr. A. A. Mao) On going	Development of culture protocols for <i>Ilex khasiana</i> , <i>Paphiopedilum hirsutissimum</i> & <i>Rhododendron coxianum</i> . Maintenance of existing culture in all Quarters. Target: Maintenance of existing culture in all Quarters
11.	Ex-situ conservation & multiplication of endemic, rare, threatened and economically important plants of North-East India at Experimental Botanic Garden, BSI, ERC, Barapani	Dr. Murugesan, Scientist B and Shri L.R. Meitei, Botanical Asstt. On going	Recording of phenological data of plant species growing in EBG, Barapani in all four quarters. One field tour in 2 nd Quarter to Garo Hills, Meghalaya for collection of live plants of RET species. Total: 01 Field Tour
12.	DNA barcoding and phylogenetic analysis of 20 selected endemic plant specis of North East India and Phytochemical Screening of 11 medicinal plants	Dr Deepu Vijayan, Scientist B & Dr. Dilip Kr.Roy, Botanical Asstt (2017 – 2020)	Q1. Literature consultation and screening out the selected endemic species Q2. Local Collection tour to Dawki, Meghalaya Q3. Collection tour to Patkai Wild Life Sanctuary, Sonai Rupai Wildlife Sanctuary, Garampani Wildlife Sanctuary, Assam Q4. Collection tour to Tura, Garo hills, Meghalaya Total: 03 Field Tours.
13.	Diversity and phylogeny of Aquatic fungi from North east India (New Project)	Dr. Ashish V. Prabhugaonkar, Scientist B (2018 – 2020)	Q1. National and international Literature survey of aquatic fungi; Collection and isolation of fungi from streams in Meghalaya. One Field tour for collection and isolation of fungi from streams in Manipur Q2. One Field tour to Manas National Park for collection and isolation of fungi from streams; another field tour to Upper Assam area for collection and isolation of fungi from streams. DNA isolation and sequencing of interesting isolates Q3. One Field tour to Golaghat area, Assam for collection and isolation of fungi from streams; another field tour to surrounding areas of North Cachar hills and Rengama hills, Assam for collection and isolation of fungi from streams. DNA isolation and sequencing of interesting isolates Q4. One Field tour to Mizoram for collection and isolation of fungi from streams in the area; another field tour to different parts of Meghalaya for collection and isolation of fungi from streams. DNA isolation and sequencing of interesting isolates

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019
14.	Flora of India Vol. 20: Genus <i>Strobilanthus</i> (Family Acanthaceae) of North-Eastern India and Himalayas (ca. 70 sp.) (New Project)	Dr. Dilip Kr. Roy Botanical Asstt. (2018 – 2020)	Q1. Consultation of literature and preparation of checklist Q2. Field tour to be undertaken in different N.E. States Q3. Field tour to be undertaken in different N.E. States Q4. Herbarium Consultation Tour to ARUN and BSHC Total: 2 Field Tours and 2 HCT
15.	Updation of families Altingiaceae, Sonneratiaceae, Crypteroniaceae, Punicaceae, Trapaceae, Caricaceae, Datisceae under Flora of India Vol. 10 (New Project)	Dr. M. Murugesan, Scientist B (2018 – 2019)	Updation of 5 – 6 species per quarter in Flora of India format (ca. 22 species)

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ	3	8	5	3	19
Herbarium Consultation Tour	0	0	2	2	04

SIKKIM HIMALAYAN REGIONAL CENTRE, GANGTOK

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019
16.	Red listing of Orchids of Eastern Himalayas as per IUCN criteria	Dr. D. K. Agarwal, Sci D & Dr. David Biate, Sci B 2013 – 2018 (Extended upto March 2019)	Diagnostic features and specimens citation along with mapping of each species to be finalised. Red list assessment work to be completed. Target: Manuscript to be submitted in March 2019

CENTRAL REGIONAL CENTRE, ALLAHABAD

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019		
17.	Floristic Diversity of Kishanpur Wildlife Sanctuary, Lakhimpur Kheri, U. P. (<i>Erstwhile executing officials either deceased or resigned</i>)	Dr. G. P. Sinha, Scientist E & Sri Vineet Kr. Singh, Botanical Assistant (2016 – 2019)	Q1-Q3. Processing and identification of specimens collected during the previous field exploration tours. Q4. Inventorisation & documentation of specimens collected. Target: Finalisation and Submission of manuscript		
18.	Cytotaxonomical studies of selected taxa of Indian sub-tribes <i>Cassiniae</i>	Dr. A. K. Verma, Scientist B (2017 – 2019)	Q1. Study of somatic chromosome count and study of meiotic chromosomal behaviour of selected plant species collected earlier. Q2. One Field tour to MP during August 2018 for collection of plant material for cytological investigations. Study of somatic chromosome count & meiotic chromosomal behaviour of selected plant species collected. Q3. One Field tour in Local Allahabad and Surrounding areas of U.P. during November 2018 for collection of plant material for cytological investigations. Study of somatic chromosome count and study of meiotic chromosomal behaviour of selected plant species collected Q4. Comparative study of selected taxa on the basis of cytological characteristics for phylogenetic relationship. Data compilation, finalisation and submission of final manuscript. Total: 3 Field Tours		
19.	Studies of Fossils and living plants with reference to the impact of climate change on flora of Gangetic Plains and Central India (in collaboration with BSIP, Lucknow)	Dr. G. P. Sinha, Scientist E Dr. Arti Garg, Scientist D and Dr. A. N. Shukla, Scientist B (2017 – 2019)	Q1. Identification of 10 tree species. Literature consultation of their distribution and abundance in Gangetic Plains and Central India. BSIP tour for project initiation and exchange of plant material. Q2. One Field tour to Chitrakut and surrounding areas in September 2018 for plant collection and population studies. Q3. Training of scientists on studies of Fossil plants at BSIP, Lucknow. Q4. Identification of new lot of 10 plant species. Literature consultation for distribution and abundance in Gangetic Plains and Central India. Exchange of living and herbarium plant material between BSI and BSIP. Finalisation and submission of manuscript Total: 01 Field Tour		
20.	Identification of Old unidentified specimens of BSA	All the Scientific officials of BSI, CRC, Allahabad (<i>On going</i>)	20 specimens per month by each officials		
21.	<i>Ex-situ</i> conservation of endemic, threatened and economic plant species in botanic garden of CRC	Dr Sheo Kumar, Scientist E & Sri Vineet Kr. Singh, Botanical Assistant (<i>On going</i>)	Collection and Introduction of minimum 10 plant species belonging to endemic, threatened and economic plant categories in Chitrkut area in U.P. and Pachmarhi area, M.P. in Q1 and Q2. Total: 02 Field Tour		
	Phenological studies of existing plant species in the botanic garden of CRC, Allahabad	Dr Sheo Kumar, Sci. E & Sri Vineet Kr Singh, Botanical Assistant (<i>On going</i>)	Month-wise compilation of generated data as per field observation and reporting		
22.	Updation of families Valerianaceae & Dipsacaceae under Flora of India, Vol. 14 (New Project)	Dr. Arti Garg, Scientist D (2018 – 2019)	Updation of family Valerianaceae (c.17 sp.) and family Dipsacaceae (c.11 sp.) in Flora of India format based on Herbarium specimens Target: Finalisation and Submission of manuscript		
23.	Floristic diversity of Alwara Wetland, Kaushambi district, Uttar Pradesh (New Project)	Dr. G. P. Sinha, Scientist E & Sri Vineet Kr. Singh, Botanical Assistant (2018 – 2019)	Target: Finalisation and Submission of manuscript		
24.	SEM studies of the species belonging to family Acanthaceae available at BSA (New Project)	Dr. Nitisha Srivastava Botanical Assistant (2018 – 2021)	To examine the seed and epidermal features of the species belonging to the family Acanthaceae available at BSA		
Nature of Tour					
	Q1	Q2	Q3	Q4	Total
Field Tour/Ex situ Conservation tour	1	3	1	0	5
Herbarium Consultation Tour	0	0	0	0	0

NORTHERN REGIONAL CENTRE, DEHRADUN

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019
25.	Revision of Genus <i>Adiantum</i> L. (Adiantaceae) in India	Dr. Brijesh Kumar, Botanical Assistant (2016 – 2020)	Q1. Identification, dissection and preparation of Illustration of specimens. Q2. One field Tour of Mondal, Duggalbitta and neighbouring Areas (Uttarakhand) for collection of species. Q3. 01 HCT to BSHC, ARUN, ASSAM and Assam Univ. Herbarium. Q4. One HCT to BSI, BLAT, MH and CALI Herbarium Total: 1 Field Tour and 2 HCT
26.	Flora of Himachal Pradesh Volume I (Ranunculaceae – Papavaraceae) (Estt. sp.: 161)	Dr. K. Ambrish, Sci.D & Sri P.K. Deroliya, Botanical Assistant (2017 – 2020)	Listing of species from published literature and herbarium and documentation of 54 species. One herbarium consultation tour to PAN in Q3 Total: 1 HCT
	Flora of Himachal Pradesh Volume I (Geraniaceae – Moringaceae) (Estt. sp.: 155)	Sri Sachin Sharma All Botanical Asstt. (2017 – 2020)	Listing of species from published literature and herbarium and documentation of 45 species. One herbarium consultation tour to PAN in Q3 Total: 1 HCT
	Flora of Himachal Pradesh Volume I (Portulacaceae – Zygophyllaceae) (Estt. sp.: 70)	Dr. M.R. Debta, Sci.B (2017 – 2020)	Listing of species from published literature as well as from Herbarium and documentation of 25 species.
	Flora of Himachal Pradesh Volume I (Brassicaceae & Caryophyllaceae) (Estt. sp.: 148)	Dr. K.S.Dogra, Sci. C (2017 – 2020)	Listing of species from published literature as well as from Herbarium and documentation of 48 species.
	Flora of Himachal Pradesh Volume I (Fumariaceae; Capparaceae-Polygalaceae) (Estt. sp.: 50)	Dr. Puneet Kumar Scientist B (2017 – 2020)	Listing of species from published literature as well as from Herbarium and documentation of 16 species.
27.	Flora of Sechu Tuan Nala Wildlife Sanctuary, Chamba District, Himachal Pradesh	Dr. Puneet Kumar, Scientist B (2016 – 2020)	One field tour in Q1 to the under explored areas the sanctuary. Identification and writing description of identified species. Q4 Identification and writing description of identified species. Total: 1 Field Tour
28.	Documentation and database of Alien Invasive species of Himachal Pradesh (North Western Himalaya)	Dr. K. S. Dogra Scientist D (2017 – 2020)	Q1. Listing of species from literature and Herbarium data recording Q2. Survey and collection tour to be conducted in such a way to collect maximum number of alien invasive species. Q3. & Q4. Identification and preparation of data base of identified invasive species. Total: 1 Field Tour
29.	Ex-situ conservation of endemic threatened and economic plant species in the associated garden of NRC and documentation of monthly data on flowering and fruiting	Dr. Kumar Ambrish, Scientist D, Dr. B.S. Kholia, Scientist D, Dr. P.K. Pusalkar, Scientist D, Dr. K.S. Dogra, Scientist D, Dr. M.R. Debta, Scientist B, Sri P.K. Deroliya, Bot. Asstt., Shri Sachin Sharma, Bot. Asstt., Shri Brijesh Kumar Bot. Asstt., (On going)	Selected species to be collected by executing officials during their allotted field tours for introduction in the Experimental garden. Documentation of data on phenology of species growing in the botanic garden

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019
30.	Updation of families Urticaceae, Moraceae, Cannabaceae, Ulmaceae, Platanaceae, Myricaceae Juglandaceae, Fagaceae, Casurinaceae, Betulaceae, Salicaceae, Ceratophyllaceae under Flora of India, Vol. 24 (New Project)	Dr. P.K. Pusalkar Scientist D (2018 – 2020)	Updation of families in Flora of India format based on Herbarium specimens. Herbarium consultation tour to be undertaken as per requirements. The executing official should contact Dr. B. K. Sinha, Scientist F for the manuscripts of Moraceae, Salicaceae and Fagaceae
31.	Pictorial Flora of Pteridophytes of Uttarakhand (New Project)	Dr. B. S. Kholia Scientist D (2018 – 2021)	Q1. & Q2 Literature survey to make an inventory Q3. Survey, photography & collection of plants from lower elevations of Kumaun region in Oct., 2019. Identification of collected specimens Q4. Survey, photography & collection of plants from lower elevations of Garhwal region in Jan., 2019. Identification of collected specimens Total: 2 Field Tours
32.	Micropropagation of endangered <i>Tricholepis roylei</i> , <i>Jasminum parkeri</i> and <i>Eulophia dabia</i> (Orchidaceae). (New Project)	Dr. Giriraj Singh, Sc. C and Dr. Bhavna Joshi, Botanical Assistant (2018 – 2020)	Tissue culture Protocol standardization for mass multiplication, hardening and conservation in the experimental Botanic Garden of NRC, BSI.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tour/Ex situ conservation tour	1	2	1	1	5
Herbarium Consultation Tour	0	0	3	1	4

ARID ZONE REGIONAL CENTRE, JODHPUR

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019
33.	Flora of Jambhughoda Wildlife Sanctuary, Gujarat	Dr. S.L. Meena, Sci. D (2017 – 2020)	Identification and inventorisation of plants collected in previous tours. One field tour in Q4 Total: 01 field tour
34.	Flora of Navsari District, Gujarat	Dr. Ramesh Kr., Sci. C Sri Vinod Maina, Sci. D (2015-2020)	Q1. Processing of Herbarium specimens of previous tours, identification, label writing and documentation Q2. One Herbarium consultation tour to BSI, Pune for identification unidentified specimens Q3. One field tour to the underexplored areas of the district Q4. Processing of Herbarium specimens of previous tours, Identification and documentation Total: 01 Field Tour & 01 HCT
35.	Flora of Sariska Tiger Reserve, Alwar District, Rajasthan	Dr. M.K. Singhadiya, Botanist Sri Ravi Prasad, Botanical Assistant (2015 – 2019)	Q1. Processing of Herbarium specimens of previous tours, identification, label writing and documentation. Q2. Processing of Herbarium specimens of previous tours, Identification and documentation Q3. One field tour to the underexplored areas of Sariska Tiger Reserve, Alwar. Identification & inventorisation of specimens collected Q4. Processing of Herbarium specimens of previous tours, Identification and documentation. One herbarium consultation tour to Rajasthan University (RUBL), Jaipur for identification unidentified specimens Total: 01 Field tour & 01 HCT
36.	Flora of Todgarh-Raoli Wildlife Sanctuary, Rajasthan	Dr. C.S. Purohit, Sci. B (2015 – 2020)	Q1. Processing of Herbarium specimens of previous tours, identification, label writing and documentation Q2. One field tour to the underexplored areas of Todgarh-Raoli Wildlife Sanctuary. Identification and inventorisation of specimens collected Q3. Processing of Herbarium specimens of previous tours, Identification and documentation Q4. One field tour to the underexplored areas of the Sanctuary. Identification and inventorisation of specimens collected Total: 02 Field Tours
37.	<i>Ex-situ</i> conservation of RET and economically important species of the Arid region in the experimental Garden of AZRC and documentation of phonological data on flowering and fruiting	Shri Vinod Maina, Scientist D, Dr. Ramesh Kumar, Scientist C, Dr. C.S. Purohit, Scientist B, Dr. M.K. Singhadiya, Bot. Asstt. Dr. P. Hari Krishna Bot. Asstt. Sri Ravi Prasad Bot. Asstt. (On going)	<ul style="list-style-type: none"> ➤ <i>Ex-situ</i> conservation of 5 RET, 5 medicinal and 10 economically important species from Arid and Semi-Arid area ➤ Preparation of pits for plantation, procurement of seedlings from various forest nurseries, etc. for plantation. ➤ Conservation & maintenance of EET plant species kept in net house. ➤ Recording of phonological data on flowering and fruiting
38.	Vegetation characterization and floristic studies in Bassi Wildlife Sanctuary, Rajasthan using remote sensing and GIS	Dr. P. Hari Krishna, Botanical Assistant & Sri Ramesh Kumar, Scientist C (2017 – 2020)	Q1. Processing of Herbarium specimens of previous tours, identification, label writing and documentation. Q2. Identification and inventorisation of specimens collected in previous tours Q3. One field tour to the underexplored areas of the Sanctuary. Identification and inventorisation of specimens collected Q4. Identification and inventorisation of specimens collected in previous tours. One field tour to the underexplored areas Total: 02 Field Tours
39.	GIS mapping of Endemic, Endangered and Threatened plants species of Rajasthan	Dr. C.S. Purohit, Scientist B Sri Vinod Maina, Scientist D Dr. Ramesh Kumar Scientist C (2017 – 2020)	Q1. Processing of Herbarium specimens of previous tours, identification, label writing and documentation. Q2. One field tour for collection of EET species of Rajasthan. Identification, GIS mapping and inventorisation of specimens collected Q3. One Herbarium Consultation Tour to Blatter Herbarium, Mumbai for study of distribution status Q4. One field tour for collection of Endemic, Endangered and Threatened species of Rajasthan. Identification, GIS mapping and inventorisation of specimens collected

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
40.	Updation of families of Convolvulaceae and Boraginaceae under Flora of India, Vol.18 (New Project)	Dr S.L.Meena, Scientist D (2018-19)	Updation of the families Convolvulaceae and Boraginaceae based on study, of literature and herbarium specimens. HCT will be proposed by concerned scientist as per requirement			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tour/ Ex situ conservation tour		0	2	3	4	09
Herbarium Consultation Tour		0	1	1	1	03

DECCAN REGIONAL CENTRE, HYDERABAD

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
41.	Inventory of Macrolichen diversity of Odisha State	Dr. G. Swarnalatha Botanical Assistant (2015 – 2019)	Q1. Identification of specimens collected from the earlier tours. Q2. Identification of specimens collected from the earlier tours. Q3. Three field tours to Odisha State during October, November and December 2018. Drying, mounting & preparation of herbarium packets, field data incorporation. Study and identification of collected specimens.. Q4. One herbarium consultation tour to NBRI, Lucknow (LWG); BSI, CRC, Allahabad (BSA) and Agharkar Research Institute, Pune (AMH) during January 2019. Study and identification of earlier collected specimens. Finalization and submission of manuscript Total: 03 field tours and 01 HCT			
42.	Flora of Manjeera Wild Life Sanctuary, Telangana	Dr. L. Rasingam Scientist D (2017 – 2021)	Q1. Collection of literature and study of existing literature published on the area Q2. Collection of literature and study of existing literature published on the area Q3. One field tour to the area in October 2018. Identification and documentation of specimens collected. Q4. One field tour to the area in January 2019. Identification and documentation of specimens collected. Total: 02 Field Tours and 01 HCT			
43.	Grasses of Telangana State India	Mr. S. Nagaraju Botanical Assistant (2017 – 2021)	Q1. Collection of literature and study of existing literature published on the area Q2. One field tour to the area in August 2018. Identification and documentation of specimens collected. Q3. Two field tours to the area in October, 2018 and December, 2018. Identification and documentation of specimens collected. Q4. Identification and documentation of specimens collected. Total: 03 field tours			
44.	Flora of Kinnerasani Wild Life Sanctuary, Telangana	Dr. J. Swamy Botanical Assistant (2017 – 2021)	Q1. Collection of literature and study of existing literature published on the area Q2. One field tour to the area in September 2018. Identification and documentation of specimens collected. Q3. One Herbarium Consultation Tour to MH (Southern Regional Centre, Coimbatore) in November, 2018. Identification and documentation of specimens collected. Q4. One field tour to the area in February 2019. Identification and documentation of specimens collected. Total: 02 field tours and 01 HCT			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours		0	2	6	2	10
Herbarium Consultation Tour		0	0	1	1	02

WESTERN REGIONAL CENTRE, PUNE

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019
45.	Taxonomic studies of Microfungi of Sanjay Gandhi National Park, Maharashtra along with its 10% peripheral area	Dr. Rashmi Dubey, Scientist D & Mr. Amit Diwakar Pandey, Sr. Preservation Asstt. (2016 – 2020)	Q1. Isolation, identification and characterisation of fungal species collected from different substrates during previous tours. Molecular Identification of New genera/species Q2. Isolation, identification and characterisation of fungal species collected from different substrates. Scanning Electron Microscopic studies of important fungal species. Q3. One Field tour in October 2018 to be undertaken to study the phyllospheric micro fungi proliferating in post monsoon season. Isolation, identification & characterisation of fungal specimens collected from different substrates Q4. One Herbarium Consultation Tour to IARI, New Delhi in March 2019; Isolation, identification and characterisation of fungal species collected from different substrates during previous tours. Scanning electron microscopic studies of important fungal species. Molecular Identification of New genera/species Total: 01 Field Tour and 01 HCT
46.	Floristic Diversity of Wan Wildlife Sanctuary	Dr. Priyanka Ingle, Scientist B (2016 – 2020)	Q1. Processing, identification and description writing of specimens collected in previous field tour. Q2. One field tour to the Sanctuary during month of September, 2018 to collect plants from unexplored areas. Q3. One field tour to the Sanctuary during month of November, 2018 to unexplored areas. Q4. One field tour to WWS to collect tree species in flowering in February 2019. Total: 3 Field Tours
47.	Biodiversity assessment of micro algae from thermal springs of Maharashtra, India	Dr. Sukumar Bhakta, Botanical Assistant (2016 – 2019)	Q1. One Field tour for sample collection and diagnosis of earlier algal samples collected. Q2. One Herbarium consultation tour to BSI, Kolkata in August 2018; microscopy and diagnosis of algal samples and Identification of algal species Q3. One Field tour in October 2018 for sample collection and One herbarium consultation tour for Identification of algal species Q4. Finalisation and submission of manuscript Total: 2 Field tours and 2 HCT
48.	Flora of Pushpagiri WLS, Karnataka	Mr. Sameer Patil, Botanical Assistant & Dr. P. Lakshminarasimhan, Scientist E (2016 – 2020)	Q1. Identification and inventorisation of specimens collected from earlier field tour. Q2. One field tour for further plant collection and ecological study of grasslands; identification & inventorisation specimens collected Q3. One Field tour for further plant collection and ecological study of grasslands; identification and Inventorisation specimens Q4. Identification & inventorisation specimens and writing of report Total: 2 Field tours
49.	Pteridophytic Flora of Pushpagiri Wildlife Sanctuary, Karnataka with 10% Periphery	Mr. D. Jesubalan, Botanical Assistant & Dr. A. Benniamin, Scientist D (2016 – 2020)	Processing and Identification of plant specimens collected during earlier field tours. Collection of Literature, processing and identification of plant specimens collected during earlier field tours. Also Nomenclature updating & Identification of Photographs. One field tour each in Q3 and in Q4 to the unexplored areas of Pushpagiri WLS. Total: 2 Field tours
50.	Seed morphology and cyto taxonomy of some selected Orchids of Northern Western Ghats	Mrs. A.M. Neelima, Botanical Assistant (2017 – 2020)	Light microscopy and SEM studies of the seeds which are collected from previous tour. One field tour each in Q2 and in Q3 to the unexplored areas of Northern Western Ghats for collection of live plants for introduction in the garden for further studies as well as available orchid parts for the studies. One HCT in Q4 to Shivaji University, Kolhapur, Identification of the collected specimens and further chromosome studies of the collected materials. Total: 2 Field tours and 1 HCT
51.	Pteridophytes of Goa (New Project)	Dr. A. Benniamin, Scientist D (2018 – 2020)	Q1. Study & Review of literature. Preparation of tentative checklist of Pteridophytes from Goa. Q2. One field tour to Mahavir WLS, Goa. Identification of specimens and documentation of specimens collected Q3. One field tour to unexplored areas of Mahavir WLS, Goa. Q4. Identification & documentation of specimens collected Total: 2 Field tours

SOUTHERN REGIONAL CENTRE, COIMBATORE

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
55.	Flora of Kodaikanal Wildlife Sanctuary, Tamil Nadu	Dr. K. Althaf Kabeer, Scientist D Mr. A. Ravi Kiran, Botanical Assistant (2015 – 2020)	One field tour each in Q1, Q2, Q3 and Q4 to the unexplored areas of the sanctuary. Identification and documentation of collected specimens. One Herbarium Consultation tour to Bharathidasan University in Q4 Total: 4 Field Tours and 1 HCT			
56.	Cyperaceae of Tamil Nadu	Dr. C. Murugan, Scientist D Dr. S. Arumugam, Bot. Asstt. (2015 – 2020)	One field tour each in Q2 and Q3 to the unexplored. Identification and documentation of collected specimens. Total: 2 Field Tours			
57.	Ex-situ conservation of endemic endangered and threatened plants of the region and recording of phenology of flowering and fruiting of species in the garden	Dr. S. Kaliamoorthy, Scientist D & Dr. T. S. Saravanan, Botanical Assistant	<ul style="list-style-type: none"> ➤ Conservation and maintenance of EET plant species maintained in the garden ➤ Recording of phenological data on flowering and fruiting ➤ Two field Tours to Mukurthi National Park, Tamil Nadu in Q2 and in Q3 Total: 2 Ex situ conservation tour			
58.	Ex-situ conservation of Endemic tree species of the region	Dr. M.Y. Kamble, Sci. D & Shri. B. S. Elango, Botanical Assistant (On going)	Conservation & maintenance of Endemic tree species maintained in the garden. Two field Tours to Agasthyamalai Biosphere Reserve in Q1 and in Q3 Total: 2 Ex situ conservation tour			
59.	Flora of Kanyakumari Wildlife Sanctuary, TamilNadu	Dr. J.H. F Benjamin, Sci. C Mr. R.G. Vadhyar, Botanical Assistant (2016 – 2021)	One field tour each in Q1, Q2, and Q3 to the unexplored areas of the sanctuary. Identification and documentation of collected specimens. Total: 3 Field Tours			
60.	Floristic Assessment of Meghamalai Wild Life Sanctuary, Tamil Nadu.	Dr. C. Murugan, Scientist D Dr. S. Arumugam, Botanical Assistant (2016 – 2020)	One field tour each in Q1, Q2, Q3 and Q4 to the unexplored areas of the sanctuary. Identification and documentation of collected specimens. Total: 4 Field Tours			
61.	Study of Nutlets of tribe Cyperae and Fimbristyledeae from south India using SEM	R. Mehaladevi, Pres. Asstt. M. A. Lakshmi, Pres. Asstt. (2016 – 2019)	50 species to be studied. Finalisation and submission of manuscript.			
62.	Studies of Pollinia of south Indian Orchids using SEM Phase – II	Dr. S. Kaliamoorthy, Sci. D T.S. Saravanan, Bot. Asstt. (2017 – 2020)	Collection of pollinia from the flowers available at the NOEG, Yercaud and study 5 species of pollinia using SEM respectively in each quarter.			
63.	Seaweed Flora of Goa Coast	Dr. M. Palniswamy, Sci. D Sri S.K. Yadav, Botanical Assistant (2017 – 2019)	One field tour each in Q1 and Q3 to the unexplored areas of the Goa Coast. Identification and documentation of collected specimens. Finalisation and submission of manuscript Total: 2 Field Tours			
64.	Assessment of Plant Diversity in Cauvery North Wildlife Sanctuary, Tamil Nadu	Dr. R. Manikandan, Scientist D R. Mehaladevi, Pres. Asstt. (2017 – 2021)	One field tour each in Q1 and Q3 to the unexplored areas of the sanctuary. Identification and documentation of collected specimens. One Herb. Cons. tour to FRLHT and IISc in Q3 Total: 2 Field Tours and 1 HCT			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours/Ex situ conservation tour		6	5	8	2	21
Herbarium Consultation Tour		0	0	1	1	2

ANDAMAN & NICOBAR REGIONAL CENTRE, PORT BLAIR

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
65.	Phenological survey of tree Species of Dhanikhari Experimental Garden-cum-Arboretum, Nayashahar.	Dr. Lal Ji Singh, Scientist D (On going)	Recording of Phenology of the tree species of Dhanikhari Experimental Garden-cum-Arboretum. Target: Recording of flowering and fruiting of 73 tree spp			
66.	Ex-situ conservation of RET species of Andaman & Nicobar Islands and collection, introduction and multiplication of Orchids at Dhanikhari Garden cum Arboretum.	Dr. Sanjay Mishra, Scientist B (On going)	Literature survey, Herbarium Consultation of RET plants including orchids. Multiplication and maintenance of previous collections. Collection tour to North Andaman in Q4 for live plant collection. Total: 01 Field tour			
67.	Revision of the Lichen family Pyrenulaceae in India	Dr. T.A.M. Jagadesh Ram, Scientist D (2017 – 2022)	Morphological, anatomical, chemical characterization and identification of earlier collection. One field tour in Q4 to Tamil Nadu and Kerala. Total: 01 Field tour			
68.	Revision of the family Cycadaceae in Andaman and Nicobar Islands (New Project)	Dr. Lal Ji Singh, Scientist D (2018 – 2020)	Literature survey and consultation of herbarium. One field tour to be undertaken to North Andaman in Q2. One herbarium and library consultation tour to be undertaken at CNH, Howrah in Q2. 2 nd field tour to be undertaken to Nicobar in Q3. 3 rd field tour to be undertaken to Little Andaman in Q4. Total: 03 Field tours and one HCT			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours/Ex situ conservation tour		0	1	1	3	5
Herbarium Consultation Tour		0	1	0	0	1

AJC BOSE INDIAN BOTANIC GARDEN, HOWRAH

Sr. No.	Name of the Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2017 – 2018
69.	Enrichment of medicinal plant section (Charak Udyan) of AJC Bose Indian Botanic Garden through survey, collection and introduction of medicinal plants	Dr. S. P. Panda, Scientist B (2015 – 2018) (Extended upto 2020)	Two <i>ex-situ conservation Tours</i> in Q2 and Q4 to Eastern Ghats to collect 15 medicinal plants from each tour for introduction in the medicinal plant section (Charak Udyan) of AJC Bose IBG. Total: 02 Ex-situ conservation Tours subject to submission of final report of project namely 'Development of Division 25 of AJC Bose IBG'.
70.	GIS phyto-mapping & digitization of shrubs and trees in AJC Bose Indian Botanic Garden	Dr. M.U. Sharief, Scientist E Dr. C. M. Sabhapathy, Botanist Dr. B. K. Singh, Botanical Assistant (On going)	a) Number labelling and GPS reading of the Trees and Shrubs of remaining 15 Divisions of AJCBIBG. b) Labelling the Scientific names to the important trees and shrubs of AJCBIBG. c) Updating and compilation of latest field data
71.	Collection, documentation & ex situ conservation of Aromatic plants of India	Dr. M.U. Sharief, Scientist E & Dr. B. K. Singh, Botanical Assistant (2017 – 2020)	Two tours in Q2 and Q4 to Arunachal Pradesh in August 2018 and Sikkim in March 2019 respectively to collect 20 aromatic plants for ex-situ conservation. Total 02 Ex-situ conservation Tours subject to submission of final report of project namely 'Collection, Introduction & Ex-situ Conservation of Rare and Endemic Orchids of NE India'
72.	Herbaceous Flora of AJC Bose IBG, Howrah (Monocots excl. Cyperaceae, Poaceae)	Dr. B. K. Singh, Botanical Assistant (2017 – 2019)	Documentation and inventorisation of Monocot flora of the AJCB Indian Botanic Garden, Howrah. Target: Finalisation of manuscript of Pictorial Guide of Herbaceous Flora (Monocot) of AJCBIBG. Dr. Singh is also to submit the final report of the project namely 'Dicot Herbaceous Flora and weeds of AJCBIBG'
73.	Introduction of Mangroves Associate plants in AJC Bose Indian Botanic Garden, Howrah	Dr. B. K. Singh, Botanical Assistant (2017 – 2019)	One <i>ex-situ conservation</i> tour in Q4 to Sunderban Biosphere Reserve to collect 5 Mangrove species for introduction in the AJCB Indian Botanic Garden, Howrah. Total: 01 Ex-situ conservation Tour subject to submission of final report of project namely 'Dicot Herbaceous Flora and weeds of AJCBIBG'
74.	A re-assessment and re-validation of <i>Phoenix loureiroi</i> Kunth and its variants in India.	Dr. S. S. Hameed, Scientist D (2017 – 2019)	One tour in Q4 to South India to collect 05 variants of live plants, seeds, seedlings etc. for a thorough study of this species in India by assessing its morphological and ecological variations. Total: 01 field tour in Q4 and submission of final report.
Sr. No.	Name of the Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2017 – 2018
75.	Documentation of Woody Climbers of AJCBIBG	Smt. Nita Sarkar, Botanist & Dr. B. K. Singh, Botanical Assistant (2017 – 2019)	The work on the documentation of woody climbers of AJC Bose Indian Botanic Garden to be done division wise along the recording of Latitude and Longitude Data. Target: Finalisation and submission of manuscript
76.	Study of Microalgae and monitoring of water Quality of Lerm Lake of AJCBIBG	Dr. Pratibha Gupta, Scientist E (2017 – 2019)	4 – 5 water samples will be collected per month from two different sites of Leram Lake of AJCBIBG to study periodicity succession, distribution and monitoring of Microalgae. Target: Finalisation and submission of manuscript. Dr. (Mrs.) Gupta is also to complete the unfinished work of the project namely Epiphytic Algal Flora of AJC Bose Indian Botanic Garden, Howrah by March 2019
77.	Introduction and Ex-situ conservation & monitoring of Indigenous plants of India at AJCBIBG	All working Scientists and Botanists of AJC Bose IBG, Howrah (On going)	Proper item-wise work allotment should be mapped by the HoO, AJCBIBG for the individual Scientist/ Botanist/Botanical Assistant for the execution of the project.

Nature of Tour	Q1	Q2	Q3	Q4	Annual
<i>ex-situ</i> Conservation Tour	0	2	0	4	6

CENTRAL BOTANICAL LABORATORY, HOWRAH

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
78.	Survey and documentation of economical and ethnobotanical uses of endemic trees of India	Dr. Sujana K. A, Sci. D Mr. R. Saravanan, Botanical Assistant (2016 – 2019)	Processing, identification, documentation of herbarium specimens and compilation of data collected earlier. One field tour to Western Ghats for conducting survey and collecting uses of endemic trees in Q1. Another field tour to North East India for conducting survey and collecting information on uses of trees in Q3. Processing of herbarium specimens, identification, documentation and compilation of data collected in previous quarters. Finalisation and submission of manuscript. Total: 2 field tours			
79.	Ethnobotanical study of some tribal populated districts of Bihar (New Project)	Team I Dr. Harish Singh, Sci. D Dr. Monika Mishra, Botanical Assistant Dr. P. A. Dhole, Botanical Assistant Team II Dr. Sujana, K. A., Sci. D Sri A.C.Halder, Botanist Sri R. Saravanan, Botanical Assistant (2018 – 2022)	Q1. One library & museum consultation tour (7 working days) to Tribal Research Institute, Govt of Jharkhand, Ranchi (Team-I) Q2. One field tour to Jamui (Tribal Population: 67,357) and Banka (Tribal Population: 75,070) districts by Team II Q3. Processing of herbarium specimens, identification, documentation and compilation of data collected in previous quarters. One field tour to Rohtas (Tribal Population: 25,663) Kaimur (Tribal Population: 35,662) districts by Team I Q4. Processing of herbarium specimens, identification, documentation and compilation of data collected in previous quarters. One field to West Champaran (Tribal Population: 44,912) district by Team I Total: 01 Library Consultation Tour & 03 Field Tours			
80.	Chromosome count of Genus <i>Impatiens</i> of Sikkim/Darjeeling (New Project)	Dr. Monika Mishra, Botanical Assistant (2018 – 2021)	Collection of literature. Study of chromosome count of <i>Impatiens</i> species To be provided by Dr. R. Gogoi, Scientist D, CNH Target: 4 – 5 <i>Impatiens</i> species of the area to be studied			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours/ Library Consultation Tour		2	1	2	1	6

INDUSTRIAL SECTION INDIA MUSEUM, KOLKATA

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
81.	Collection of Economic Plant materials for enrichment & replacement of the Botanical Gallery	Dr. A.K. Sahoo, Scientist D (on going)	One Field tour to Ranchi and adjacent area in Jharkhand state in Q2 for collection of 30 – 40 samples of plant materials. One Consultation tour to N.E.India (Assam-Guwahati and NC Hills area) in Q4 for collection of 30 – 40 cultivated varieties of Cereals, millets, pulses, oilseeds etc for display and enrichment of Botanical Gallery Total: 1 Field tour and 1 consultation tour			
		Dr. Geeta Chaudhury, Botanist Sri B.C. Dey, Sr. Pres. Asstt. Sri S.K. Sharma, Sr. Pres. Asstt. (on going)	One field tour in Q1 to Dinhat, Cooch Behar District, W.B at Central Tobacco Research Institute (CTRI) for collection of tobacco Sample Target: 1 Field tour			
Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
82.	Family: Poaceae	Dr. B.K. Sinha, Scientist F Dr. M. Bhaumik, Scientist D Ms. S. Data., Sr. Pres. Asstt. (2017 – 2019)	47 entries to be interpreted. Finalisation of manuscript.			
	Family: Orchidaceae (New Project)	Dr. M. Bhaumik, Scientist D Dr. (Ms.) Kangan Pagag, Bot. Asstt. (2018 – 2020)	47 entries to be interpreted			
	Pteridophytes (New Project)	Dr. (Ms.) Kangan Pagag, Bot. Asstt. (2018 – 2019)	47 entries to be interpreted			
83.	Listing and Identification of Dicot herbarium specimens at BSIS	Dr. Geeta Chaudhury, Botanist Sri B.C. Dey, Sr. Pres. Asstt. Sri S.K. Sharma, Sr. Pres. Asstt. (on going)	c. 3000 dicot specimens to be documented in 2018 – 2019			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tour/Ex situ conservation tour		1	1	0	0	02
Museum Consultation Tour		0	0	0	1	01

PLANT CHEMISTRY, HEADQUARTERS

Sl. No.	Name of The Project	Executing Scientist & Tenure	Target			
84.	Anti-nutritional Properties (oxalate, phytate, saponin and tannin content), Genotoxicity, DNA damage Preventive Activity, HPLC Studies for Vitamin and Phenolic Content of Wild Edible Plant of NE India <i>(New Project)</i>	Dr. Tapan Seal Scientist C (2018 – 2022)	35 plants to be studied. One field tour each in Q1 & Q3 to NE India			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tour		1	0	1	0	02

PUBLICATION SECTION, HEADQUARTERS

Sr. No.	Name of the Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
85.	Interpretations of Roxburgh Icons in respect to current nomenclature: Families Bignoniaceae and Clusiaceae <i>(New Project)</i>	Dr. Debasmita Dutta Pramanik, Scientist B & Dr. S. S. Dash, Scientist D (2018 – 2020)	Listing of taxa of the families Bignoniaceae and Clusiaceae from authentic and current literature. Listing of taxa from Roxburgh icons. Study of herbarium specimens deposited in CAL and BSIS. Interpretation of 8 species of family Bignoniaceae and of 9 species of family Clusiaceae			
86.	Flora of Eagle Nest Wild Life Sanctuary and its adjacent regions, West Kameng District, Arunachal Pradesh <i>(New Project)</i>	Sri Sanjay Kumar, Botanical Assistant Dr. S. S. Dash, Scientist D (2018 – 2022)	Q1. Literature Survey and applying forest permission Q2. One Field tour to the West Kameng district for 20-25 days for collection of plant materials Q3. Processing and identification. One field tour to the under explored area for collection of plant materials. Q4. Processing and identification. Herbarium consultation and documentation Total: 2 Field tours			
87.	Updation of Family Cucurbitaceae (ca. 132 sp.) under Flora of India Vol. 10 <i>(New Project)</i>	Dr. B. K. Sinha, Scientist F Dr. S. S. Dash, Scientist D & Smt. Sudeshna Dutta, Sr. Preservation Asstt. (2018 – 2020)	Updation of family Cucurbitaceae in Flora of India format based on Herbarium specimens Target: Finalisation and Submission of manuscript			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tour/Ex situ conservation tour		0	1	1	0	2

PHARMACOGNOSY UNIT, HEADQUARTERS

Sl. No.	Name of the project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
88.	Pharmacognostic studies on Indian Cycads.	Dr. A. B. D. Selvam, Scientist D (2016 – 2021)	Detailed literature survey on ornamental/medicinal Cycads that are included in the Indian Negative list of Exports to find out the lacunae in existing literature. 2 field tours to be conducted to Andaman & Nicobar Islands in Q2 and Q4			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tour/Ex-situ Conservation Tour		0	1	0	1	2

CRYPTOGAMIC DIVISION, HEADQUARTERS

Sl. No.	Name of The Project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
89.	Studies on algal diversity in Hot Spring of Rajgir and Munger, Bihar	Dr. R.K. Gupta, Scientist D (2017 – 2020)	One field tour each in Q1 and Q3 to Rajgir and Munger hot springs. Study of the collected samples under microscope with image facility for taxonomic description along with microphotography. Diatoms sample to be studied under SEM for taxonomic description along with microphotography. Total: 2 Field Tours			
90.	Studies on wild mushrooms of East and South Sikkim (except Agaricaceae, Hygrophoraceae, Boletaceae, Suillaceae and Cantharellaceae)	Dr. Kanad Das Scientist D (2014 – 2019)	<ul style="list-style-type: none"> ➤ Survey & Collection: One macrofungal survey tour to East and South districts of Sikkim will be undertaken in Q2 during in August 2018 [those area will be focused where either repeated collection trips are required to cover all the seasonal variation of wild mushrooms or those areas which are still left out because of natural calamities] ➤ Characterization & identification: 30 sp. will be identified during this period after undertaking through micromorphological characterization. ➤ Documentation: 20 macro- and micromorphological illustration/drawing plates will be prepared. ➤ SEM studies: Ornaented spores will be studied under SEM. ➤ Compilation of report: Compilation of all encountered species (with their description and illustrations) known from East and South Sikkim will be done in order to prepare the final project report. Total: 01 Field Tour			
91.	Liverworts and Hornworts Flora of Darjeeling District, West Bengal.	Dr. Monalisa Dey, Scientist B (2016 – 2021)	<p>Q1. Identification, illustration, microphotography of previously collected specimens. One field tour in May 2018 will be undertaken to Darjeeling.</p> <p>Q2. Processing, preservation of collected specimens. Identification, illustration, microphotography of previously collected specimens.</p> <p>Q3. Continuation of study, identification, illustration, microphotography and description of previously collected specimens. Type or authentic specimens will be procured on loan from other herbaria.</p> <p>Q4. Continuation of study, identification, illustration, microphotography and description of previously collected specimens. One field tour in Feb 2019 will be undertaken to Darjeeling district, West Bengal</p> Total: 02 Field Tours			
92.	Bryo-flora of Jharkhand (New project)	Dr. D. Singh, Scientist D (2018 – 2022)	<p>Consultation of literature regarding the bryophytes of Jharkhand and preparing a checklist of earlier reported species. Study of specimens available in CAL herbarium. One field tour to Koderma and Parasnath Wildlife Sanctuary of Jharkhand in Q3. Identification, camera lucida illustrations, microphotography and SEM study of the collected specimens.</p> Total: 01 Field Tour			
93.	Wood rotting fungi of Valmiki National Park (New project)	Sri Manoj Hembrom Botanist (2018 – 2021)	<ul style="list-style-type: none"> ➤ Survey & Collection: Two macrofungal survey tours to Wood rotting fungi of Valmiki National Park, Bihar will be undertaken in Q2. ➤ Characterization & identification: 45 spp will be identified during this period after undertaking through micromorphological characterization. ➤ Documentation: 25 macro- and micromorphological illustration/drawing plates will be prepared. ➤ SEM studies: Ornaented spores will be studied under SEM if any. ➤ Phylogentic studies: Molecular phylogeny of selected species will be undertaken where morphotaxonomy alone are not sufficient to establish the conspecificity or to discover an undescribed species. ➤ Compilation of report: Compilation of all identified species (with their description and illustrations) known from study area will be prepared. Total: 02 Field tours			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tour/Ex-situ Conservation Tour		2	3	2	1	8

BOTANIC GARDEN OF INDIAN REPUBLIC, NOIDA

Sl. No.	Name of the project	Executing Scientist & Tenure	Quantifiable deliverables (targets) for 2018 – 2019			
94.	Collection of Plants for Introduction in BGIR	Dr. Sandeep Chauhan, Scientist D & Dr Manish Kandwal, Scientist D (on going)	<ul style="list-style-type: none"> • 2 field tours to Lower elevation of Uttarakhand by Dr Manish in Q1 and Q2 for collection of live plants. • 2 field tours to Lower elevation to Himachal Pradesh by Dr Sandeep in Q1 and Q2 for collection of live plants. Total: 4 Field tours			
95.	Development of Data base of introduced plants (Trees) of BGIR, Noida	Dr Manish Kandwal (on going)	Collection and incorporation of the data in the database on the tree species introduced in the Garden			
96.	Documentation of phenological data of flowering and fruiting of the species growing in BGIR	Dr Sandeep Chauhan, Scientist D & Dr Manish Kandwal Scientist D (on going)	Documentation of phenological data of the species growing in the Botanic Garden of Indian Republic, Noida.			
97.	Propagation and multiplication of RET plants collected from various Lead Botanic Garden under ABG Scheme (New project)	Dr. Sandeep Chauhan, Scientist D & Dr Manish Kandwal, Scientist D (Ongoing Project starting from 2018)	Collection, introduction and multiplication of RET plants from various Lead Botanic Gardens funded by ABG Schemes and same will be introduced in the Botanic Garden of Indian Republic, Noida. Two tours each in Q3 and Q4 Total: 4 Field tours			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tour/Ex-situ Conservation Tour		2	2	2	2	8

CENTRAL NATIONAL HERBARIUM, HOWRAH

Sl. No.	Name of The Project	Executing Scientist & Tenure	Target
98.	Taxonomic revision of <i>Impatiens</i> L. (Balsaminaceae) of Sikkim & Darjeeling Himalaya	Dr. Rajib Gogoi, Scientist D (2017 – 2020)	Q1. Identification and description of earlier collections. Q2. 01 Field tour to unexplored areas of Sikkim and parts of Darjeeling Himalaya. Identification and description of collections. Q3. 01 Field tour to unexplored areas of Sikkim and parts of Darjeeling Himalaya. Identification and description of collections. Q4. Herbarium consultation to Lloyd Botanical Garden, North Bengal University, St. Joseph College Herbarium, Govt. College Darjeeling Herbarium & Forest Department Herbarium, Gangtok and BSI herbarium, Gangtok (BSHC). Identification & description of collections. Total: 2 Field tours and 1 HCT
99.	Flora of Udaipur Wild Life Sanctuary, West Champaran, Bihar	Dr. O.N. Maurya, Scientist C Sri Anand Kumar, Botanical Assistant Sri Saurabh Sachan Botanical Assistant (2017 – 2019)	Q1. Identification and description of earlier collections. 01 Field tour for plant collections. Identification and description of collections. Q2. Identification and description of earlier collections. 01 Field tour for plant collections. Identification and description of collections. Q3. Identification and description of earlier collections. Q4. Identification of the collected specimens and manuscript to be finalized and final report of project to be submitted. Total: 2 Field tours
100.	Angiospermic flora of Neora Valley National Park, Darjeeling, WB.	Dr. Vinay Ranjan, Scientist D Dr. Gopal Krishna Botanical Assistant Dr. Anant Kumar Botanical Assistant (2017 – 2021)	Identification and description of earlier collections. 01 Field tour each in Q2, Q3 and Q4 for plant collections. 01 Herbarium consultation tour to BSHC, Gangtok in Q4. Identification and description of collections. Total: 3 Field tours and 1 HCT
101.	Flora of Betla National Park, Latehar, Jharkhand	Sri Partha Pratim Ghoshal, Botanist (2015 – 2019)	Identification and description of earlier collections. 01 Field tour in Q2 for plant collections. Identification and description of collections. Finalisation and submission of manuscript. Total: 1 Field tour
102.	Revision of the genus <i>Gastrochilus</i> (Orchidaceae) in India	Dr. Avishek Bhattacharjee, Scientist B (2017 – 2020)	Identification and description of earlier collections. 01 Field cum herbarium consultation tour to Eastern Himalaya (Darjeeling district)/ Sikkim/ North-east India tour in Q2. 01 Field-cum-herbarium consultation tour to Eastern Himalaya / North-east India in Q3. Total: 2 Field tours

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tour	1	5	3	1	10
Herbarium Consultation Tour	0	0	0	2	2

SUMMARY OF TOURS

Regional Centre / Unit	Field Tour / <i>Ex situ</i> Conservation tour				Herbarium Consultation Tour / Library Consultation Tour			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
APRC	3	2	4	1	1	1	1	0
ERC	3	8	5	3	0	0	2	2
SHRC	0	0	0	0	0	0	0	0
CRC	1	3	1	0	0	0	0	0
NRC	1	2	1	1	0	0	3	1
AZRC	0	2	3	4	0	1	1	1
DRC	0	2	6	2	0	0	1	1
WRC	1	4	8	3	0	2	2	2
SRC	6	5	8	2	0	0	1	1
ANRC	0	1	1	3	0	1	0	0
AJCBIBG	0	2	0	4	0	0	0	0
CBL	2	1	2	1	0	0	0	0
ISIM	1	1	0	0	0	0	0	1
PLANT CHEMISTRY	1	0	1	0	0	0	0	0
PUBLICATION	0	1	1	0	0	0	0	0
PHARMACOGNOSY	0	1	0	1	0	0	0	0
CRYPTOGAMIC	2	3	2	1	0	0	0	0
BGIR	2	2	2	2	0	0	0	0
CNH	1	5	3	1	0	0	0	2
TOTAL	24	45	48	29	1	5	11	11
	146				28			

- Total no. of Projects in 2018 – 19: 101
- No. of New Projects starting in 2018 – 19: 27
- No. of running projects (including ongoing projects) in 2018 – 19: 74
- No. of projects whose tenure are completing in March 2019: 27
- No. of Flora of India specific projects taken up in 2018 – 19: 09
- No. of Protected areas taken up for floristic studies during 2018 – 19: 19