

BOTANICAL SURVEY OF INDIA

ANNUAL RESEARCH PROGRAMMES 2020-21



**ANNUAL RESEARCH PROGRAMME OF BOTANICAL SURVEY OF INDIA
ON FLORA OF INDIA (2020 – 21)**

I. DICOTYLEDONS

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
1.	<p><u>Flora of India, Vol. 8</u> 3 Families: <i>Rosaceae, Chrysobalanaceae, Neurardaceae</i> ca 513 species <u>Team Leader:</u> Dr. S. S. Dash, Scientist-E <u>Team Members:</u> Dr. Debasmitta Dutta Pramanick, Scientist-C Sri Sanjay Kumar, Botanist</p>	2019 – March 2021	The complete manuscript to be submitted by December, 2020.
2.	<p><u>Flora of India, Vol.10</u> 14 Families: <i>Melastomataceae, Lythraceae, Altingiaceae, Sonneratiaceae, Crypteroniaceae, Punicaceae, Onagraceae, Trapaceae, Turneraceae, Passifloraceae, Caricaceae, Curcubitaceae, Begoniaceae, Datisceae</i> ca 80 genera and ca 475 species <u>Team Leaders:</u> Dr. B. K. Sinha, Scientist-F (Retd.) Dr. S. S. Dash, Scientist-E</p>	2019 –2020 <i>(Extended up to December, 2020)</i>	Manuscript submitted and is in editing stage. Edited manuscript to be submitted by December, 2020.
3.	<p><u>Flora of India, Vol. 11</u> 10 Families: <i>Cactaceae, Aizoaceae, Molluginaceae, Apiaceae, Araliaceae, Cornaceae, Alangiaceae, Nyssaceae, Caprifoliaceae, Adoxaceae</i> ca 94 genera and ca 375 species <u>Team Leader:</u> Dr. C. Murugan, Scientist-E <u>Team Members:</u> Dr. W. Arisdason, Scientist-D Dr. M. Murugesan, Scientist-C Dr. Manikandan, Scientist-E Dr. Sujana K. A., Scientist-D</p>	2019 – 2020 <i>(Extended up to October, 2020)</i>	Compiled and updated manuscript to be submitted by October, 2020.
4.	<p><u>Flora of India, Vol. 14</u> 3 Families: <i>Rubiaceae, Valerianaceae & Dipsacaceae</i> ca 85 genera & ca 610 species <u>Team Leader:</u> Dr. M. Gangopadhyay, Scientist-D (Retd.) <u>Team Member:</u> Dr. (Mrs.) Aarti Garg, Scientist-E</p>	2018 – 2020 <i>(Extended up to March, 2021)</i>	Manuscript has been already prepared. Edited manuscript to be submitted by March,2021.

5.	<p><u>Flora of India, Vol. 15</u> 12 Families: Stylidiaceae, Goodeniaceae, Campanulaceae, Sphenocleaceae, Ericaceae, Clethraceae, Pyrolaceae, Monotropaceae, Epacridaceae, Diapensiaceae, Plumbaginaceae, Primulaceae <i>ca</i> 41 genera and <i>ca</i> 500 species <u>Team Leader:</u> Dr. A. A. Mao, Director & Scientist 'G' <u>Team Members:</u> Dr. S. S. Dash, Scientist-E Dr. Umesh Tiwari, Scientist-C Dr. Vijay Mastakar, Botanical Assistant</p>	2019 – 2020 <i>(Extended up to December, 2020)</i>	Manuscript has already been prepared and will be submitted by December, 2020.
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6.	<p><u>Flora of India, Vol. 16</u> 8 Families: Myrsinaceae, Sapotaceae, Ebenaceae, Styracaceae, Symplocaceae, Oleaceae, Salvadoraceae, Apocynaceae <i>ca</i> 69 genera and <i>ca</i> 389 species <u>Team Leaders:</u> Dr. S.S. Dash, Scientist-E Dr. A.A. Mao, Director & Scientist ‘G’ <u>Team Members:</u> Dr. Arati Garg, Scientist-E Dr. Umeshkumar L. Tiwari, Scientist-C Dr. Sanjay Mishra, Scientist-C Dr. Anand Kumar, Botanist Dr. A. Pramanick, (Retd.) Scientist-E Dr. Riju Palika, (former Research Scholar)</p>	2019 – 2020 <i>Realloted July 2020 to December, 2020)</i>	Compiled and updated manuscript to be submitted by December, 2020.
7.	<p><u>Flora of India, Vol. 17</u> 5 Families: Asclepiadaceae, Loganiaceae, Buddlejaceae, Gentianaceae, Menyanthaceae <i>ca</i> 114 genera and <i>ca</i> 641 species <u>Team Leader:</u> Dr. J. Jayanthi, Scientist-E <u>Team Members:</u> Dr. Prachiti - D. Mule, Botanical Assistant</p>	2018 – 2020 <i>(Extended up to September, 2020)</i>	Manuscript completed and submitted. Photos to be submitted by September, 2020.
8.	<p><u>Flora of India, Vol. 18</u> 6 Families: Polemoniaceae, Hydrophyllaceae, Boraginaceae, Convolvulaceae, Cuscutaceae, Solanaceae <i>ca</i> 73 genera and <i>ca</i> 625 species <u>Team Leader:</u> Dr. S. L. Meena, Scientist-E <u>Team Members:</u> Dr. Sanjay Mishra, Scientist-C Dr. P. Hari Krishna, Botanical Assistant</p>	2019 – 2020 <i>(Extended up to October, 2020)</i>	Manuscript completed and submitted. Photos to be submitted by October, 2020.
9.	<p><u>Flora of India, Vol.19</u> 3 Families: Scrophulariaceae (series : <i>Pseudosolaneae</i>, <i>Antirrhinideae</i> and <i>Rhinanthideae</i>), Orobanchaceae and Lentibulariaceae <i>ca</i> 68 genera and <i>ca</i> 570 species <u>Team Leader:</u> Dr. Arti Garg, Scientist-E <u>Team Members:</u> Dr. O. N. Maurya, Scientist-D Dr. Achuta Nand Shukla, Scientist-C Dr. Ashutosh Verma, Scientist-C Dr. Manas Debta, Scientist-C Dr. Anand Kumar, Botanist</p>	2019 – 2020 <i>(Extended up to September, 2020)</i>	Manuscript completed and submitted. Photos to be submitted by September, 2020.
10.	<p><u>Flora of India, Vol. 20</u> 4 Families: Gesneriaceae, Bignoniaceae, Pedaliaceae and Acanthaceae 108 genera and <i>ca.</i> 646 species <u>Team Leader:</u> Late Dr. P. Lakshminarasimhan, Scientist-E (Retd) <u>Team Members:</u> Dr. K. Karthigeyan, Scientist-E Dr. W. Arisdason, Scientist-D</p>	2018 – December 2019 <i>(Extended up to September, 2020)</i>	Compiled and updated manuscript to be submitted by September, 2020.

	Dr. Gopal Krishna, Bot. Asstt.		
11.	<p><u>Flora of India, Vol. 21</u> 5 Families: Verbenaceae, Symphrometaceae, Avicenniaceae, Lamiaceae and Plantaginaceae 73 genera and ca 500 species</p> <p><u>Team Leader:</u> Dr. V. Sampath Kumar, Scientist-E</p> <p><u>Team Members:</u> Dr. Gopal Krishna, Botanical Assistant Dr. Anant Kumar, Botanical Assistant</p>	2019 – 2020 <i>(Extended up to October, 2020)</i>	Compiled and updated manuscript to be submitted by October, 2020.
12.	<p><u>Flora of India, Vol. 22</u> 21 Families: Nyctaginaceae, Amaranthaceae, Chenopodiaceae, Basellaceae, Phytolacaceae, Polygonaceae, Podostemaceae, Nepenthaceae, Rafflesiaceae, Mitrastemonaceae, Aristolochiaceae, Piperaceae, Saururaceae, Chloranthaceae, Myristicaceae, Monimiaceae, Lauraceae, Hernandiaceae, Proteaceae, Thymeleaceae, Elaeagnaceae ca. 128 genera 762 species</p> <p><u>Team Leader:</u> Dr. Manas Bhaumik, Scientist-E</p> <p><u>Team Members:</u> Dr. Sankar Rao, Scientist-C Dr. Geeta Chowdhury, Botanist Dr. (Mrs.) Sudeshna Dutta, Bot. Asstt. Sri S. K. Sharma, Sr. Pres. Asstt.</p>	2019 – 2020 <i>(Extended up to October, 2020)</i>	Compiled and updated manuscript to be submitted by October, 2020.
13.	<p><u>Flora of India, Vol. 24</u> 11 Families: Urticaceae, Moraceae, Cannabaceae, Ulmaceae, Juglandaceae, Myricaceae, Casuarinaceae, Fagaceae, Betulaceae, Salicaceae, Ceratophyllaceae ca. 63 genera and 363 species</p> <p><u>Team Leader:</u> Dr. P. K. Pusalkar, Scientist-E</p> <p><u>Team Member:</u> Dr. Priyanka Ingle, Scientist-C</p>	2019 – 2020 <i>(Extended up to December, 2020)</i>	Compiled and updated manuscript to be submitted by December, 2020.

II. MONOCOTYLEDONS

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
14.	<p><u>Flora of India, Vol. 25</u> (total <i>ca</i> 85 genera & 725 species) Family: Hydrocharitaceae (10 genera, 33 species) Family: Burmanniaceae (3 genera, 11 species) Family: Orchidaceae (72 genera, <i>ca.</i> 681 species) Sub-family-Apostasioideae (1 genus, 3 species) Sub-family-Vanilloideae (6 genera, 16 species) Sub-family-Cypripedioideae (2 genera, 13 species) Sub-family-Orchidoideae (37 genera, 239 species) Sub-family-Epidendroideae (in part) Tribe-Neottieae (4 genera, 31 species) Tribe-Tropidieae (2 genera, 7 species) Tribe-Gastrodieae (2 genera, 9 species) Tribe-Nervilieae (3 genera, 18 species) Tribe-Arethuseae (11 genera, 75 species) Tribe-Malaxideae Sub-tribe - Dendrobiinae (4 genera, 270 spp.)</p> <p><u>Flora of India, Vol. 26</u> (<i>ca.</i> 83 genera & 579 spp.) <i>Remaining part of Family Orchidaceae</i> Sub-family Epidendroideae Tribe Malaxideae Sub-tribe Malaxidinae (4 genera, 134 species) Tribe- Cymbidieae (4 genera, 59 species) Tribe-Epidendreae (7 genera, 16 species) Tribe- Collabieae (15 genera, 58 species) Tribe -Podochileae (9 genera, 90 species) Tribe -Vandaeae (44 genera, 222 species)</p> <p><u>Team Leader:</u> Dr. D. K. Agrawala, Scientist-E</p> <p><u>Team Members:</u> Dr. J. S. Jalal, Scientist-D Dr. Avishek Bhattacharjee, Scientist-C Dr. Chhaya Deori, Scientist-E</p>	March 2019 to June 2020 <i>(Extended up to December, 2020)</i>	Compiled and updated manuscript to be submitted by December, 2020.
15.	<p><u>Flora of India, Vol. 27</u> 17 Families: Agavaceae, Aloecaceae, Amaryllidaceae, Asparagaceae, Bromeliaceae, Cannaceae, Costaceae, Dioscoreaceae, Hypoxidaceae, Iridaceae, Liliaceae, Marantaceae, Musaceae, Smilacaceae, Stemoniaceae, Taccaceae, Zingiberaceae <i>ca</i> 64 genera and <i>ca</i> 592 species</p> <p><u>Team Leader:</u> Dr. Rajib Gogoi, Scientist-E</p> <p><u>Team Members:</u> Dr. S.K. Singh, Scientist E Dr. Ramesh Kumar, Scientist-D Dr. J. H. Franklin Benjamin, Scientist -C Dr. Mahua Pal, Botanist Dr. Basant Kumar Singh, Botanical Assistant</p>	March, 2019 to December, 2020	Compiled and updated manuscript to be submitted by December, 2020.

16.	<p><u>Flora of India, Vol. 29</u> 2 Families: Cyperaceae and Eriocaulaceae Cyperaceae: (ca 610 taxa comprising ca 555 species 23 subspecies & 32 var. under 33 genera) Eriocaulaceae: (ca 85 species) Team Leader: Dr. V. P. Prasad, Scientist - E (Retd.)</p>	2019 – 2020 <i>(Extended up to December, 2020)</i>	Compiled and updated manuscript to be submitted by December, 2020.
17.	<p><u>Flora of India, Vol. 30</u> Family: Poaceae – Bambusoideae ca 30 genera and ca 150 species Team Leader: Dr. Pushpakumari, Scientist-D</p>	2019 – 2020 <i>(Extended up to July, 2020)</i>	Compiled and updated manuscript to be submitted by July, 2020.
18.	<p><u>Flora of India, Vol. 31 & Vol. 32</u> Family: Poaceae ca. 248 genera and ca. 1480 species Team Leader: Dr. P.V. Prasanna, Scientist-G Team Members: Dr. K.A.A. Kabeer, Scientist-E Dr. L. Rasingam, Scientist-D Dr. Manish Khandwal, Scientist-D Dr. C. S. Purohit, Scientist-C Dr. Sangita Dey, AJCB-PDF Dr. K. Prasad, AJCB-PDF Dr. C. P. Vivek, Botanical Assistant Mr. S. Nagaraju, Botanical Assistant Dr. S. Arumugam, Bot. Assistant Dr. J. Swamy, Botanical Assistant Dr. P.Singh, Ex- Director Mrs. Suthrishna Kar, Ex Res. Sch. Dr. S.K. Srivastava Dr. S.R. Yadav Dr. G. Potdar Dr. K.V.C. Gosavi Dr. Alok Chorghe</p>	2019 – 2020 <i>(Extended up to November, 2020) for Vol. 31 and January, 2021 for Vol. 32</i>	Compiled and updated manuscripts of Vol. 31 and Vol. 32 to be submitted by November, 2020 and January, 2021 respectively.

ANNUAL RESEARCH PROGRAMME OF BOTANICAL SURVEY OF INDIA (2020 – 2021)

AJC BOSE INDIAN BOTANIC GARDEN, HOWRAH

Sr · No ·	Name of the Project	Period	Quantifiable deliverables for 2020 – 21			
1.	Caterpillar fungi in Himalaya: Morpho-taxonomy, Molecular phylogeny, Chemical & nutraceutical properties Dr. Kanad Das, Scientist-E Dr. M. Hembrom, Botanist Sri Arvind Parihar, Bot. Asstt	2019 – 2021	<p>Micromorphological characterization: Micromorphological characterizations from 5 sets of samples will be re-observed as most of the fruiting bodies bear vegetative structures and comparison will be made to check the conspecificity or identify the species in different parts of Himalaya.</p> <p>Molecular phylogenetic relationship: To determine phylogenetic relationship amongst the collections from different states of Himalaya and to check the conspecificity one or two more target genes will be isolated and phylogenetic estimations/inferences with the sequence data will be drawn/prepared through Maximum Likelihood (ML) analysis from available sets of specimens as per the requirement.</p> <p>Nutraceutical properties: From available field nos. from different localities of Uttarakhand, Sikkim and West Bengal assessment of nutraceutical properties will be checked and comparison will be made.</p>			
2.	Development of Musa section (<i>ex-situ</i> conservation) in AJC Bose Indian Botanic Garden, Howrah Dr. S.S. Hameed, Scientist-E Dr. R.Saravanan,Botanist <i>New Project</i>	2020 – 2021	The germplasm of different <i>Musa</i> and <i>Callimusa</i> varieties shall be collected and through field tours.			
3.	Development of an Orchidarium in AJCBIBG through collection, introduction and ex-situ conservation of the orchids of Eastern ghats of India Dr. S.P. Panda, Scientist-C Dr. R. Saravanan, Botanist <i>New Project</i>	2020 – 2022	Development of an orchidarium. Collection of live orchid specimens including rare and endemic species. Collection and introduction of orchid hybrids. Ex-situ /germplasm conservation of orchids. Preparation of a flowering calendar of the grown orchid species. Vegetative propagation of the orchids where ever possible. Field tour 1 in 4 th Quarter			
4.	Wood rotting fungi of Valmiki National Park Dr. M. Hembrom, Botanist	2018 – 2021	<p>Micromorphological characterization: Micromorphological characterizations from those fruiting bodies will be undertaken. Morpho-taxonomic comparison will be made from 150 specimens to check the conspecificity or identify the species in different parts of globe.</p> <p>Molecular phylogenetic relationship: One or two more target genes will be isolated and phylogenetic estimations/inferences with the sequence data will be drawn/prepared through Maximum Likelihood (ML) analysis from available sets of specimens as per the requirement.</p>			
5.	GIS phyto-mapping & digitization of shrubs and trees in AJC Bose Indian Botanic Garden Dr. Kanad Das, Scientist-E Dr. C. M. Sabhapathy, Botanist Dr. B. K. Singh, Botanical Assistant	On going	Bringing out the Mobile application of the so far recorded data accessible to the interested person. Tagging along with recording the coordinates for the Division 9,10,11,12,13,16,23 and 24 (<i>ca</i> 2000 trees). Labelling with scientific names for Iconic plants. Re-examining the tags of the trees in the Divisions of 1, 2, 3, 4, 5, 6, 7, 8, 14, 15, 17, 18, 19, 20, 21 & 22 and recording the coordinates along with Labelling with scientific names for Iconic Plants. Updating the data in Mobile application.			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour		-	-	-	1	1

Herbarium Consultation Tour	-	-	-	-	-
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ANDAMAN & NICOBAR REGIONAL CENTRE, PORT BLAIR

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21			
5.	Ex-situ conservation of RET species (Bamboos, Palms, Zingibers, endemic tree species) of Andaman & Nicobar Islands at Dhanikhari Exp. Garden cum Arboretum and raise nursery. (No. of species to be multiplied 30 species, each with minimum 500 seedlings) Dr. Chandan Singh Purohit, Scientist-C Dr. Vivek C. P., Botanical Assistant	2019 – 2022	Q1.Literature survey, herbarium consultation, multiplication and maintenance of previous collection. Q2.Literature survey, herbarium consultation, multiplication and maintenance of previous collection. Q3.Multiplication and maintenance of previous collection. One field tour to South Andaman for live plant collection. Q4.Multiplication and maintenance of previous collection. One field tour to Middle Andaman for live plant collection. Total Field tours : 2			
6.	Revision of the family Musaceae in Andaman and Nicobar Islands along with population assessment. Dr. Lal Ji Singh, Scientist-E Mr. Gautam Anuj Ekka, Sr. Pres. Assistant <i>New Project</i>	2020 – 2022	Q1. Literature survey and consultation of herbarium. Q3. One field tour to be undertaken to Middle Andaman. Q4. One field tour to be undertaken to Little Andaman. Total field tour: 02			
7.	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 collections.			
8.	Phenological survey of tree Species of Dhanikhari Experimental Garden-cum-Arboretum, (DEGCA), Nayashahar. Dr. Lal Ji Singh, Scientist E Sri B. C. Dey, Botanical Assistant	On going	Recording of flowering and fruiting of tree species of Dhanikhari Experimental Garden cum Arboretum (DEGCA), Nayashahar, South Andaman.			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours/ <i>ex situ</i> conservation tour		0	0	2	2	4
Herbarium Consultation Tour		0	0	0	0	0

ARUNACHAL PRADESH REGIONAL CENTRE, ITANAGAR

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
9.	Materials for the Flora of Arunachal Pradesh, vol. 4 Team leader Dr. Umeshkumar L. Tiwari, Scientist- C Member Dr. Manas R. Debta , Scientist-C	2019-2021	Q1: To prepare a checklist for addition to flora of Arunachal Pradesh. Q2: Same as quarter 1 and description of the listed taxa. Q3: Description of the listed taxa. Q4: Description of the listed taxa.
10.	Enumeration of RET specimens of Arunachal Pradesh Dr. Krishna Chowlu, Scientist-C <i>New Project</i>	2020-2022	Q1: To study the literature available in ARUN & SFRI, Itanagar. Q2: To study the literature available in ARUN & SFRI, Itanagar. Inventorisation and documentation of earlier collections. Study of herbarium materials of ARUN & SFRI, Itanagar. Q3: To study the literature available in ARUN & SFRI, Itanagar. Inventorisation and documentation of earlier collections. Q4: To study the literature available in ARUN & SFRI, Itanagar. Inventorisation and documentation of earlier collections. Study of herbarium materials of ARUN & ASSAM, Itanagar. To interact with the local people and to know the uses of the RET plants.
11.	Floristic studies in selected High Altitude Wetlands (HAWs) and its environs representing 5 districts of Arunachal Pradesh Dr. M. R. Debta, Scientist-C <i>New Project</i>	2020 – 2023	Q1. Literature survey of such areas. Q2. Literature survey, investigation on major wetlands in the study area and preparation of Checklist. Q3. One Herbarium consultation tour to ASSAM, Shillong; literature survey; investigation on major wetlands in the study area and preparation of Checklist. Q4. Analysis of accumulation of information and finalisation of Checklist based on secondary data.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour	0	0	0	0	0
Herbarium Consultation Tour	0	0	1	0	1

ARID ZONE REGIONAL CENTRE, JODHPUR

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2019 – 20
12	<p><i>Ex-situ</i> conservation of RET and economically important species of the Arid region in the experimental Garden of AZRC and documentation of phenological data on flowering and fruiting</p> <p>Shri Vinod Maina, Scientist-E Dr. Sanjay Mishra, Scientist-C Dr. M. K. Singhadiya, Botanist, Dr. P. Hari Krishna, Bot. Asstt. & Sri Ravi Prasad, Bot. Asstt. (On going)</p>	2020 – 2021	10 Spp. Plant saplings of RET and economically important species will be collected during various tours for <i>Ex-situ</i> conservation in the Experimental Garden of AZRC and documentation of phenological data on flowering & fruiting

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour	0	0	0	0	0
Herbarium Consultation Tour	0	0	0	0	0

CENTRAL BOTANICAL LABORATORY, HOWRAH

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
13.	Ethnobotanical study of some tribal populated districts of Bihar. <u>Team I</u> Dr. Monika Mishra, Botanical Assistant Dr. P. A. Dhole, Botanical Assistant <u>Team II</u> Dr. K. Althaf Kabeer, Scientist -E Sri A. C. Halder, Botanist Sri R. Saravanan, Botanist	2018 – 2021	The project is to be compiled with all information collected so far and final manuscript to be submitted by March,2021.
14.	Study of Micro-Algae and monitoring of water quality of Sadir Lake of AJCB IBG Dr. (Mrs.) Pratibha Gupta, Scientist-E	2019 – 2020 <i>(Extended upto 2021)</i>	Samples to be collected from the lake to study the periodicity, succession, distribution and monitoring of micro-algae. Finalisation and submission of final report.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ <i>ex situ</i> conservation tour	0	0	0	0	0
Herbarium Consultation Tour	0	0	0	0	0

CENTRAL NATIONAL HERBARIUM, HOWRAH

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
15.	Algal Flora of Purbasthali Wetland, Bardhaman, West Bengal Dr. R.K. Gupta, Scientist-E <i>New Project</i>	2020–2023	Q1 & Q2: Study the relevant literature and review of literature and preparation of tentative checklist; consultation of herbarium of microalgae and macro algae at CAL. Q3: One field tour to Purbasthali Wetland and limnological data to be recorded for all the collection site. Q4: Study the collected sample under Nikon microscope with image facility for taxonomic description along with photomicrography. Diatoms sample will be study under SEM, and taxonomic description along with photomicrography. Total Field tour: 1
16.	Angiosperm flora of Neora Valley National Park, Darjeeling, West Bengal. (Area 159 Sq. Km.) Dr. Vinay Ranjan, Scientist-E Dr. Gopal Krishna, Bot. Assistant Dr. Anant Kumar, Bot. Assistant	2016 – 2021	Q1-Q3: Identification and description of earlier collections Q4: Finalization and submission of manuscript.
17.	Bryo-flora of Jharkhand. Dr. D. Singh, Scientist-D	2018 – 2022	Q1 & Q2: 70–80 spp. will be identified and documented after through micromorphological characterization as camera lucida illustrations, microphotography and SEM study of previously collected specimens. Q3: Identification and one herbarium/SEM study tour to NRC, Dehradun. Q4. Identification and one field tour to Dalma Wildlife Sanctuary, Jharkhand. (c. 200 km ²). Total Field Tour : 1 and HCT : 1
18.	Revision of the genus <i>Gastrochilus</i> (Orchidaceae) in India. Dr. Avishek Bhattacharjee, Scientist-C	2018 – 2021 (<i>Extended upto March 2022</i>)	Q1-Q4: Preparation of description, photo-plates of different taxa under the genus from already collected specimens and/or consulted herbarium specimens, authentic literature; recording of label-data from herbarium specimens of CAL or specimen-images taken during previous tours to prepare 'Specimens examined'; study of types deposited at different herbaria throughout the world either by online consultation of virtual herbaria or the specimen-images taken during the previous tours to ascertain identity and solve nomenclature related problems; publication of the findings.
19.	Liverworts and Hornworts Flora of Darjeeling District, West Bengal. Dr. Monalisa Dey, Scientist - C	2016 – 2021	Q1: Identification, illustration, microphotography of previously collected specimens. Q2: Continuation of study, identification, illustration, microphotography and description of previously collected specimens. Q3: Continuation of study, identification, illustration, microphotography and description of previously collected specimens. Wherever necessary, type/authentic specimens will be procured on loan from other herbaria for study. Q4: Continuation of study, identification, illustration, microphotography and description of previously collected specimens. Preparation of an identification key of the identified and described species.

20.	Editing of Flora of Bihar Vol. 1 (Ranunculaceae-Mimosaceae) Dr. Vinay Ranjan, Scientist-E, Dr. Kumar Avinash Bharati, Scientist- C and Dr. Anand Kumar, Botanist <i>New Project</i>	2020–2021	Submission of edited manuscript by December, 2020.
21.	Editing of Flora of Jharkhand Vol. 1 (Ranunculaceae-Mimosaceae) Dr. Vinay Ranjan, Scientist-E, Dr. Kumar Avinash Bharati, Scientist-C and Dr. Anand Kumar, Botanist <i>New Project</i>	2020–2021	Submission of edited manuscript by December, 2020.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ <i>ex situ</i> conservation tour	0	0	1	1	2
Herbarium Consultation Tour	0	0	1	0	1

CENTRAL REGIONAL CENTRE, ALLAHABAD

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
22.	SEM studies of the species belonging to family Acanthaceae and Solanaceae available at BSA, BSI Herbarium Allahabad Dr. Nitisha Srivastava, Botanical Assistant	2018 -2021	To examine seeds and epidermal features of 30 species (10 species each in Q2, Q3 and Q4 quarter belonging to the family Acanthaceae and Solanaceae available in BSA. Finalisation and submission of final report.
23.	Ex-situ conservation of RET and economically important species in the experimental garden of BSI CRC , Allahabad. Dr. A. N. Shukla, Scientis- C Dr. Arti Garg, Scientist E & HoO <i>New Project</i>	ongoing	Introduction of 10 RET species
24	Morphological and cytological studies of selected plants from CRC garden, Allahabad. (50 species). Dr. Ashutosh Kumar Verma, Scientist-C <i>New Project</i>	2020-2021	Study of morphological characteristics of at least 50 species from BSA garden.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour	0	0	0	0	0
Herbarium Consultation Tour	0	0	0	0	0

DECCAN REGIONAL CENTRE, HYDERABAD

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
25.	Flora of Manjeera Wild Life Sanctuary, Telangana. (Area: 20 km ²) Dr. L. Rasingam, Scientist-D	2017 – 2022	Q1. Identification and inventorisation of specimens collected in earlier tours. Q2. Identification and inventorisation of specimens collected in earlier tours. Q3. One field tour to the unexplored areas of the sanctuary. Identification of collected specimens. Q4. One field tour to the unexplored areas of the sanctuary. Identification of collected specimens. Total Field tours : 02
26.	Grasses of Telangana State, India Mr. S. Nagaraju, Botanical Assistant	2017 – 2022	Q1 & Q2. Identification and inventorisation of specimens collected in earlier tours. Q3. One field tour. Q4. Identification and inventorisation of specimens collected in earlier tours Total Field tour : 1
27.	Flora of Kinnerasani Wild life Sanctuary, Telangana (Area: 635.40 km ²) Dr. J. Swamy, Botanical Assistant	2017 – 2022	Q1. Identification and inventorisation of specimens collected in earlier tours. Q2. Identification of documentation of specimens. Q3. One field tours to the unexplored areas of the sanctuary. Identification of collected specimens. Q4. One field tour to the unexplored areas of the sanctuary. Identification of collected specimens. Total Field Tours : 2
28	Revamping of BSID herbarium, updation, incorporation & digitization. Dr. M. Sankara Rao, Scientist - C & Mr. Ravikiran, Bot. Asst. <i>New Project</i>	2020 - 2021	Herbarium updating, incorporation & digitization.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ <i>ex situ</i> conservation tour	0	1	3	1	5
Herbarium Consultation Tour	0	0	0	0	0

EASTERN REGIONAL CENTRE, SHILLONG

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21			
29.	Flora of Nagaland (Vol. 1 & Vol. 2). Dr. N. Odyuo, Scientist – E Dr. D.K. Roy, Botanist Dr. David Lalsama Baite, Scientist – C (under guidance of Dr. A. A. Mao) Vol. I: Ranunculaceae to Asteraceae (Approx. 1500 taxa) by March 2020. Vol. II & III: Campanulaceae to Ceratophyllaceae and Hydrocharitaceae to Poaceae (Approx. 1500 taxa) by March, 2021.	2016 – 2021	Q1. Identification and documentation of collected specimens. Q2. Identification and documentation of collected specimens. Q3. Identification and documentation of collected specimens. Q4. One field tour Total Field tour : 1			
30.	Herbaceous Flora of Meghalaya Dr. Chhaya Deori, Scientist-E <i>New Project</i>	2020 – 2021	Editing of manuscript of Herbaceous flora of Meghalaya, Vol. 1, which has already been reviewed. The final manuscript to be submitted by March, 2021.			
31.	Micropropagation of EET Plants of North East India in ERC, Shillong. Dr. Deepu Vijayan, Scientist - C	On going	To standardize the protocol, mass multiplication, of EET Plants of Northeast India namely <i>Eriodes barbata</i> (Lindl.) Rolfe, <i>Pholidota katakiana</i> Phukan & <i>Micropera rostrata</i> (Roxb.) N.P. Balakr. The <i>in vitro</i> raised cultures of <i>Cymbidium tigrinum</i> and <i>Armadorum senapatianum</i> are being maintained and regular subculturing and hardening of lab to land plants will be continued.			
32.	Ex-situ conservation & multiplication of endemic, rare, threatened and economically important plants of NE India at Experimental Botanic Garden, BSI, ERC, Barapani Mr. B.B.T. Tham, Botanist and Shri L.R. Meitei, Bot. Asstt.	On going	Analysis of the phenological data already collected from EBG, Barapani. Introduction of at least 10 Threatened plant species. Raising of seedling of Threatened and wild economic plants. Local field tours in 2nd, 3rd & 4th Quarters to different districts of Meghalaya for collection of live RET species.			
33	Botanical illustration, art, flower painting and "plant portraits" of selected EET plants of India. L. Ibemhal Chanu, Botanist <i>New Project</i>	2020-2021	Preparation of Botanical illustrations of 9 EET taxa: 1. <i>Aristolochia saccata</i> Wall. 2. <i>Aristolochia platanifolia</i> (Klotzsch) Duch. 3. <i>Armadorum senapatianum</i> Phukan & A. A. Mao 4. <i>Ilex khasiana</i> Purkay. 5. <i>Cymbidium tigrinum</i> C.S.P. Parish ex Hook. 6. <i>Ceropegia ansariana</i> (unpublished) 7. <i>Vanda coerulea</i> Griff. ex Lindl. 8. <i>Paphiopedilum fairrieianum</i> (Lindl.) Stein 9. <i>Nepenthes khasiana</i> Hook.f.			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour		0	1	1	2	4
Herbarium Consultation Tour		0	0	0	0	0

HIGH ALTITUDE WESTERN HIMALAYAN REGIONAL CENTRE, SHILLONG

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21			
34.	Floristic diversity of Dr. Y.S. Parmar University Campus, Nauli, Solan, Himachal Pradesh. Dr. Kumar Ambrish, Scientist-E and Dr. K.S. Dogra, Scientist-D <i>New Project</i>	2020 – 2021	Q1. Listing of plant species from literature. Q2 & Q3. Collection of plant species from the campus and digital photography. Q4. Finalisation and submission of manuscript.			
Nature of Tour		Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour		0	0	0	0	0
Herbarium Consultation Tour		0	0	0	0	0

NORTHERN REGIONAL CENTRE, DEHRADUN

Sl. No.	Name of The Project	Period	
35.	<p>Taxonomic revision of genus <i>Taraxacum</i> in India.</p> <p>Mr. Sameer Patil, Botanist Mr. Sachin Sharma, Botanical Assistant Dr. S.K. Singh, Scientist 'E' <i>New Project</i></p>	2020 – 2023	<p>Literature review. Herbarium consultation. SEM study of 80 taxa.</p>
36.	<p>In vitro mass multiplication and propagation and rehabilitation in natural habitat of useful and threatened species of the North-West Himalaya</p> <ol style="list-style-type: none"> 1. <i>Malaxis acuminata</i> D.Don. (Orchidaceae) 2. <i>Dendrobium crepidatum</i> Lindl. & Paxton (Orchidaceae) 3. <i>Delphinium denudatum</i> Wall. Ex Hook.f. & Thomson (Ranunculaceae) 4. <i>Cyathea spinulosa</i> Wall. ex Hook. (Cyatheaceae) 5. <i>Malaxis muscifera</i> (Lindl.) Kuntze (Orchidaceae) 6. <i>Platanthera edgeworthii</i> (Hook.f. ex Collett) R. K. Gupta (Orchidaceae) 7. <i>Magnolia kisopa</i> (Buch.-Ham. ex DC.) Figlar (Magnoliaceae) 8. <i>Zanthoxylum armatum</i> DC. (Rutaceae) <p>Besides mass multiplication of <i>Trachycarpus takil</i> Becc. (Arecaceae), <i>Selaginella adunca</i> A.Braun ex Hieron. (Selaginellaceae) and <i>Dalbergia latifolia</i> Roxb. (Leguminosae) will be undertaken.</p> <p>Dr. Giriraj Singh Panwar, Scientist-D and Dr. Bhavana Joshi, Botanist <i>New Project</i></p>	2020 – 2023	<p>Consultation of literature related to targeted species.</p> <p>Collection of explants/seeds and assessment of threats on targeted species in the wild.</p> <p>Assessment of seed germination and seed viability of the targeted species.</p> <p>In vitro propagation and standardization of micropropagation protocols for the selected species.</p> <p>Dr. Bhavana Joshi will also be work in Herbarium as and when required and as directed by Scientist In-charge.</p>
37.	<p>Cytological studies in some selected chromosomally lesser-known/unknown plants and Liverworts from Botanic Garden of BSI, NRC, Dehradun and adjoining areas.</p> <p>Dr. Puneet Kumar, Scientist - C & Dr. S.K. Singh, Scientist - E <i>New Project</i></p>	2020 – 2021	<p>Q1. Literature survey, collection of reference and listing of species for cytological studies. Q2. Collection on plant material and cytological studies. Identification of the cytologically studied plant voucher specimens. Q3. Collection on plant material and cytological studies. Identification of the cytologically studied plant voucher specimens. Q4. Collection on plant material and cytological studies. Identification of the cytologically studied plant voucher specimens. Compilation of final report.</p>
38.	<p>Ethnobotanical study of Tharu and Bhoxa tribe of Uttarakhand, India.</p> <p>Dr. Harish Singh, Scientist-E <i>New Project</i></p>	2020 – 2023	<p>Q1. Literature survey from Library of different institutes/ university. Q2. One field tour to Dehradun district among Mehra-Bhoxa and rural people. Processing of herbarium specimens, identification, documentation and compilation of data. Hunting of additional ethnobotanical literature. Q3. One field tour to Udham Singh Nagar district among Bhoxa and rural people. Processing of herbarium specimens, identification, documentation and compilation of data collected in previous quarter. Hunting of additional ethnobotanical literature. Q4. Processing of herbarium specimens,</p>

			identification, documentation and compilation of data collected in previous quarter.
39.	Scanning Electron Microscope (SEM) Study of Achenes of the genus <i>Ranunculus L. and Thalictrum Tourn. ex L. in N-W Himalaya.</i> Dr. Purushottam Kumar Deroliya, Botanical Assistant & Dr. S.K. Singh, Scientist – E <i>New Project</i>	2020 – 2021	Q1. Consultation of BSD herbarium and literature relevant to the study area. Q2. SEM study of 10 species and analysis of microphotographs and other relevant data. Q3. SEM study of 10 species and analysis of microphotographs and other relevant data. Q4. SEM study of 7 species and analysis of microphotographs and other relevant data. Finalization and submission of report.
40.	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. S. K. Singh, Scientist-E Dr. B.S. Kholia, Scientist-E Sri P.K. Deroliya, Botanical Assistant Shri Sachin Sharma, Botanical Assistant	On going	The existing endemic threatened and economic plant species present in the associated garden of NRC will be conserved. At least 10 species will be added to the garden under ex-situ programme.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour					
Herbarium Consultation Tour					

SOUTHERN REGIONAL CENTRE, COIMBATORE

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
41.	Flora of Kanniyakumari Wildlife Sanctuary, Tamil Nadu (Area: 402.39 sq. km). Dr. Sujana. K. A., Scientist-D* *(Earlier Dr. J. H. Franklin) Shri. Rakesh G Vadhyar, Bot. Asstt.	2016 – 2021	Q1. Identification and documentation of specimens. Q2. One field survey to Kanyakumari WLS area tentatively in first week of September 2020. Identification and documentation of specimens collected. Q3. One field survey to Kanyakumari WLS area tentatively in first week of October 2020. Identification and documentation of specimens collected. Analysis of data. Q4. Preparation, finalization and submission of Project Completion Report. Total Field tours : 1
42.	Assessment of Plant diversity in Cauvery North Wildlife Sanctuary, Tamil Nadu (Area: 504.33 sq. km.) Dr. R. Manikandan, Scientist E Smt. Mehala Devi, R., Bot. Asst.	2017 – 2021	Q1: Identification of collected specimens Q2: Writing description of identified species. Q3: One one Herbarium consultation tour (RHT) to be conducted to be conducted. Q4: Final project report to be completed and submitted. Total Field tour : 1
43.	Marine Macro Algal flora of India Dr. M. Palanisamy, Scientist E Dr. S.K. Yadav, Botanist* (*BSI, Hqtrs., Kolkata)	2019 – 2022	Description writing of 150 taxa of green and brown seaweeds by Dr. M. Palanisamy. Description writing of 100 taxa of Red seaweeds by Dr. S. K. Yadav.
44.	Ex-situ conservation of endemic endangered and threatened plants of the region and recording of phenology of species in the NOEG, Yercaud Dr. S. Kaliamoorthy, Scientist-E Dr. T. S. Saravanan, Bot. Assistant	2020 – 2021	Multiplication and maintenance of existing collections. Q3: Field visit to Wayanad District, Kerala Q4: Field visit to Wayanad District, Kerala Total Field tours :2
45.	Ex-situ conservation of Endemic tree species of the region in NOEG, Yercaud Dr. M.Y. Kamble, Scientist-D Shri. B. S. Elango, Bot. Assistant	2020 – 2021	Multiplication and maintenance of existing collections. Q2: Documentation of phenology. Q3: One field tour Conservation-cum-Herbarium consultation tour to Agasthyamalai Biosphere Reserve and TBGT Herbarium, JNBGRI, Palode, Thiruvananthapuram, Kerala. Q4: Documentation of phenology. Total Field tours : 1 and Herbarium Consultation Tours : 1
46.	Flora of Kerala Vol. 3 by Dr. C. Murugan Vol. 4 by Dr. K. Sujana Vol 5 Vol. 6 by Dr. M. Murugesan <i>New Project</i>	2020 – 2022	Compilation of manuscript of flora of Kerala Volume 3, 4, 5 under the supervision of Dr. M.U. Sharief. For Volume 3, Dr. C. Murugan, for Vol. 4, Dr. K. Sujana, Scientist D, and for Volume 6 Dr. M. Murugesan.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour					
Herbarium Consultation Tour					

WESTERN REGIONAL CENTRE, PUNE

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
47.	Flora of Lakshadweep Islands – Manuscript finalization and updation. Dr. Priyanka Ingle, Scientist-C	July 2020 – March 2021	Q1: Updation of Mss, taxonomic parts Q2: Preparation of Keys Q3: Finalization of introductory parts and checking of Mss. Q4: Finalization and submission of the report.
48.	Phyto-Database of Konkan (Maharashtra). Dr. Prashant K. Pusalkar, Scientist-E	2020-2023	Q1: Literature Compilation Q2: Data compilation of Phyto-Diversity of Konkan Q2: Data compilation of Phyto-Diversity of Konkan Q4: Data compilation of Endemic and Threatened species, Threats to Phyto-Diversity, and threatened habitats in Konkan One Field Tour to Konkan Total Field tour : 1
49.	Checklist of the Flowering Plants of Goa Dr. C.R. Jadhav, Botanist & Dr. Prashant K. Pusalkar, Scientist-E	2020-2021	Q1. Literature compilation of Goa Flora Q2. Compilation of Checklist of Flowering Plants of Goa through literature and herbarium records Q3. Compilation of Checklist of Flowering Plants of Goa through literature and herbarium records Q4. Finalization of Checklist and submission of the report. One Tour to Goa for field photographs and Goa University Herbarium consultation Total Field tour : 1, Herb. Tour: 1 (Q4) and Consultation tour : 1
50.	Bambusicolous Fungi of Goa. Dr. Rashmi Dubey, Scientist-E	2020-2024	Q1: Collection of literature from different sources.(Books/ web) Q2: Collection of literature from different sources (Books/ web) Q3: 1. Herbarium and library consultation tour to Agarkar Research Institute Pune; 2. Herbarium and library consultation to University of Pune, Pune; 3. Collection of literature. Q4: 1. One Field tour to Bhagwan Mahaveer WLS Goa and its adjoining areas for collection samples of bambusicolous fungi; 2. Isolation, identification and preservation of fungi samples collected in the tour; 3. Scanning Electron Microscopic studies of important fungal species. Field Tour : 1 and Herb Consult tours: 2 (Local Pune)

51.	<p><i>Ex-situ</i> Conservation of Phytodiversity of Western Ghats, Konkan and adjoining areas in the Botanic Garden of BSI, Pune</p> <p>i) Introduction and exsitu Conservation of Endemic, Conservation-dependent, Medicinal & Economic plants in WRC, Botanic Garden (C.R. Jadhav, Botanist & B.P. Kadam, Bot. Asstt.)</p> <p>ii) Collection and introduction of plants in WRC garden for enrichment of 'Speciation Spectrum – Genus diversification' section of WRC Botanic Garden (Prashant K. Pusalkar, Scientist-E & B.P. Kadam, Bot. Asstt.)</p> <p>iii) Introduction and exsitu Conservation of Orchids in WRC, Botanic Garden (J.S. Jalal, Scientist-E)</p> <p>(iv) Establishment of Aquatic Section through introduction and conservation of Aquatic flora</p>	2020-2021	<p>6 local tours (Pune) for live plants collection</p>
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	<p>(J. Jayanthi, Scientist-E & Madhuri Pawar, Bot. Asstt.)</p> <p>v) Introduction and exsitu Conservation of Bulbous & Rhizomatous plants for developing 'Bulbous section', wild ornamentals and collection and introduction of Aroids for enriching Aroidarium'' in WRC, Botanic Garden (Priyanka Ingle, Scientist-C & Madhuri Pawar, Bot. Asstt.)</p> <p>(vi) Introduction and exsitu Conservation of climbers for establishment of 'Climber Conservatory' in Mundhwa Garden, BSI, Pune (D.L. Shirodkar, Botanist)</p>		
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Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour	1			1+1	
Herbarium Consultation Tour			2	1	

INDUSTRIAL SECTION INDIA MUSEUM, KOLKATA

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
52.	Collection of algae specimens deposited at ISIM Dr. K. Pagag, Botanist, Dr. S. Dutta and Dr M. Bhaumik, Scientist- E <i>New Project</i>	2020 – 2021	Catalogue of around 2000 marine algae available in Industrial Section, Indian Museum. Q3 1000 sheets to be documented. Q4 1000 sheets to be documented.
53.	Documentation of exhibits and materials of Botanical Gallery in Industrial Section, Indian Museum. Dr. S. Dutta, Dr. K. Pagag, Botanist and Dr M. Bhaumik, Scientist -E <i>New Project</i>	2020 – 2022	Catalogue of exhibits and materials of Botanical Gallery in Industrial Section, Indian Museum.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour	0	0	0	0	0
Herbarium Consultation Tour	0	0	0	0	0

PLANT CHEMISTRY DIVISION, HEAD QUARTERS

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2019 – 20
54.	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 Dr. Tapan Seal, Scientist-D	2018 – 2022	45 Wild Edible Plants of NE India to be studied. One field tour in Q4 to be undertaken to N.E. India for collection of wild edible plants (subject to Covid situation and requirement of plant materials). Total Field tour : 1

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour	0	0	0	1	1

PUBLICATION DIVISION, HEADQUARTERS

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020-21
55.	Flora of Eagle Nest Wild Life Sanctuary and its adjacent regions, West Kameng District, Arunachal Pradesh. Sri Sanjay Kumar, Botanist Dr. S. S. Dash, Scientist -E	2018 – 2022	Q1. Processing and identification of Herbarium specimens collected earlier Q2. Description of 75 plant species to be completed. Q3. Description of 75 plant species to be completed. Q4. Processing, identification and inventorisation of collected specimens.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour	0	0	0	0	0
Herbarium Consultation Tour	0	0	0	0	0

TECHNICAL DIVISION, HEADQUARTERS

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2019-20
56.	Marine Macro Algal Flora of West Bengal Coast, India. Dr. S. K. Yadav, Botanist Sri Kaju Majumdar, Pres. Asstt.	2019 – 2022	Q1. Literature survey, Identification and description writing of collected specimens. Q2. Literature survey, Identification and description writing of collected specimens. Q3. Literature survey, identification and description writing of collected specimens. Study of algal herbarium specimens at ISIM / CNH. Q4. Literature survey and study of algal herbarium specimens at ISIM / CNH.

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour	0	0	0	0	0
Herbarium Consultation Tour	0	0	0	0	0

No. of projects carry forwarded :
Total No. of new projects :
Total No. of projects during 2020 – 21 :

ANNUAL RESEARCH PROGRAMME OF BOTANICAL SURVEY OF INDIA
ON PTERIDOPHYTES FLORA OF INDIA (2020 – 21)
(Vols. I, II, & III)

Sl. No.	Name of The Project	Period	Quantifiable deliverables for 2020 – 21
1.	Pteridophytic flora of India. 110 spp. Dr. A.Benniamin, Scientist-E, WRC,Pune Dr. Jesubalan, Bot.Asst will assist Dr. A.Benniamin.	2020-2021	Q1. Study Review of literature and consultation of Herbarium. Q2. Study Review of literature and consultation of Herbarium. Q3. Study Review of literature and one herbarium Consultation tour to Nationalised herbarium. Q4. Study Review of literature and 1herbarium Consultation tour to Nationalised Herbarium (ANRC,Portplair)
2.	Pteridophytic flora of India. 130 spp. Dr B.S.Kholia, Scientist-E, NRC, Dehradun Dr. Sachin Sharma will assist Dr. B.S. Kholia	2020-2021	Q1. Study Review of literature and consultation of herbarium Q2. Study Review of literature and consultation of herbarium Q3. Study Review of literature consultation of herbarium Q4. Study Review of literature consultation of herbarium.
3.	Pteridophytic flora of India. 90 spp. Dr. V. K. Rawat, Scientist-E, APRC, Itanagar	2020-2021	Q1. Data collection, compilation & preparation draft Mss(15 spp.) Q2. Data collection, compilation & preparation draft Mss(15 spp.) Q3. Data collection, compilation & preparation draft Mss(25 spp.) Q4. Data collection, compilation & Preparation of Mss(25 spp.)
4.	Pteridophytic flora of India 75 spp. Dr. Brijesh Kumar, Botanist, CRC, Allahabad Dr. Pushpesh Joshi will assist Dr.Brijesh Kumar	2020-2021	Q1. Data collection, compilation & preparation draft Mss. (15 spp.) Q2. Data collection, compilation & preparation draft Mss. (15 spp.) Q3. Data collection, compilation & preparation draft Mss.(23 spp.) Q4. Data collection, compilation & preparation draft Mss.(22 spp.)

Nature of Tour	Q1	Q2	Q3	Q4	Total
Field Tours/ ex situ conservation tour					
Herbarium Consultation Tour					