

Annual Report

2009-10



Indoptadenia oudhensis

U.P. State Biodiversity Board
Lucknow

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Introduction

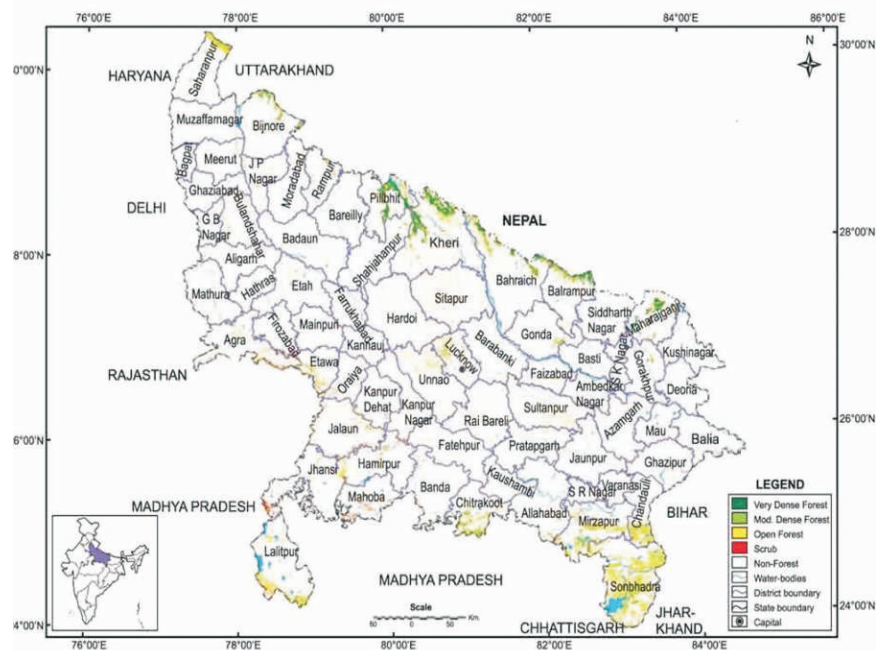
The State of Uttar Pradesh has a geographical area of 240,928 Km² which is 7.3% of the total area of the country. Population of this State is 166.05 million (Census 2001) constituting 16.2% of country's population. The livestock population to the State is 58.53 million (livestock census 2003) which is the largest in the country and 12% of the country's total livestock.

Forest cover map of Uttar Pradesh

The tree cover in the State is 7381 Km² and the forest cover is 14,341 Km². Thus, the forest and tree cover together are 21,722 Km² which is 9.01% of the total geographical area of the State.

The Biological Diversity Act 2002 No. 18 of 2003 was passed on 5th February, 2003. The Act provides for conservation of biological diversity, sustainable use of its components and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or incidental thereto.

As per the Act, each state is to establish State Biodiversity Board under Section 22 of the Act. Accordingly the Govt. of Uttar Pradesh has established the Board vide G.O. No. 1498/14-5-2006-57/2006 dated: 20 September, 2006 and it has started functioning from 20 September 2006.



Constitution of Board

The Board consists of the following members :

1.	Principal Secretary, Forest Department, Government of Uttar Pradesh	Chairman
2.	Nominee of Principal Secretary/Secretary, Environment Department, Government of Uttar Pradesh	Member
3.	Nominee of Principal Secretary/Secretary, Horticulture Department, Government of Uttar Pradesh	Member
4.	Nominee of Principal Secretary/Secretary, Agriculture Department Government of Uttar Pradesh	Member
5	Nominee of Principal Secretary/Secretary, Animal Husbandry Department, Government of Uttar Pradesh	Member
6-	Principal Chief Conservator of Forests, Uttar Pradesh	Member
7 to 11	Five Specialist Members	Specialist Members

a. Committees made by Board

Five Expert Members were nominated vide GO No. 64/14-5-2007-57/2006 dated: 11 January, 2007 which are as follows :

1.	Dr. Nityanand , Ex-Director, Central Drug Research Institute, Lucknow Lumbini, B-62, Nirala Nagar, Lucknow- 226 020	Specialist Member
2.	Dr. Rakesh Tull , Director, National Botanical Research Institute, Rana Pratap Marg, Lucknow- 226 001	Specialist Member
3.	Dr. S. K. Singh , Ex-Prof. and H.O.D. Botany Department, Gorakhpur University, Village and Post-Jagdishpur, District- Jaunpur	Specialist Member
4.	Sri. A. N. Chaturvedi , Ex- Addl. PCCF (Research) U.P. 202, Priyanka Apartment, Jopling Road Lucknow- 226 001	Specialist Member
5.	Dr. K. Dev Singh , Director, Central Tobacco Research Institute, ICAR (Rajamundry-533105, Andhra Pradesh)	Specialist Member

During the year 2009-10 the board has constituted following committees :

1. Committee of scientists for Biodiversity Park guidance

- a) Prof. J. S. Singh, Ex-Prof. B.H.U., Varanasi
- b) Dr. Rakesh Tuli, Director, N.B.R.I, Lucknow
- c) Dr. W. S. Lakra, Director, N.B.F.G.R., Lucknow
- d) Dr. S.C. Sharma, Vice President, I.S.E.B.
- e) Dr. D.C. Saini, Scientist, B.S.I.P., Lucknow
- f) Dr. Omkar, Reader, Zoology Department, Lucknow University
- h) Dr. Neelam Pathak, Integral University, Lucknow

2. Scientist/Expert Committee for Scientific Input

- a) Prof. J. S. Singh, Ex-Prof. B.H.U. Varanasi
- b) Dr. Rakesh Tuli, Director, N.B.R.I, Lucknow
- c) Dr. W. S. Lakra, Director, N.B.F.G.R., Lucknow
- d) Dr. S. C. Sharma, Vice President, I.S.E.B.
- e) Dr. P. K. Singh, Registrar, Authority of Plant Variety Protection and Formers Rights, New Delhi
- f) Dr. D. K. Pandey, Sr. Scientist, Indian Institute of Sugarcane Research, Lucknow
- h) Dr. Meera Singh, Lecturer, Lucknow University, Lucknow

3. Editorial Board for publication of e-magazine of UPSBB

- a) Dr. D. C. Saini, Scientist, B.S.I.P., Lucknow
- b) Prof. H. B. Singh, Agriculture Science Department, B.H.U., Varanasi
- c) Dr. Rakesh Pandey, Scientist E-1, CIMAP, Lucknow
- d) Sri Radhey Krishna Dubey, Assistant Conservator of Forest, U.P. State Biodiversity Board, Lucknow

The third meeting of Uttar Pradesh State Biodiversity Board was held on 08-12-2009 under the chairmanship of Principal Secretary (Forests)/Chairman, UPSBB in the Meeting Hall of U.P.State Pollution Control Board, PICUP Bhawan, Lucknow. The following members/officers were present in the said meeting:

S. No	Name	Designation
1	Shri Chanchal Kumar Tewary, IAS	Principal Secretary (Forests) and Chairman, UPSBB
2	Shri Pawan Kumar, IFS	Secretary (Forests) and Secretary, UPSBB
3	Shri D. N. S. Suman, IFS	Principal Chief Conservator of Forests, U.P. and Member U.P.State Biodiversity Board
4	Shri Dinesh Kumar	Deputy Secretary, Environment, U.P.
5	Dr. Shiv Prasad	Director, Deptt. of Fisheries, U.P.
6	Shri Chandrika Prasad Tiwari	Special Secretary, Horticulture, U.P.
7	Dr. Nityanand	Ex-Director, CDRI, Lucknow and Member UPSBB
8	Shri A. N. Chaturvedi	IFS Retd. and Member, UPSBB
9	Dr. Rakesh Tuli	Director, NBRI, Lucknow
10	Ms. Indrani Lal	Under Secretary, Finance, U.P.
11	Sh. M. C. Saxena	F.D.O., Deptt of Animal Husbandry, U.P.
12	Prof. S.K.Singh	Member, UPSBB
13	Dr. D. C. Saini	Sr. Scientist, Birbal Sahni Institute of Paleobotany, Lucknow
14	Dr. Neelam Pathak	Assistant Professor, Integral University, Lucknow
15	Dr. Smita Rastogi	Assistant Professor, Integral University, Lucknow
16	Shri A. P. Tripathi	DFO, Gorakhpur
17	Sh. Amar Nath Upadhyaya	Under Secretary, Agriculture, U.P.
18	Sh. Achchney Lal	Review Officer
19	Sh. R. K. Dubey	Astt. Conservator of Forests, UPSBB

Board Meeting

The following major decisions were taken in the meeting:

- (i) Board unanimously decided to include names of some more eminent scientists/experts in the scientific committee already constituted for framing guidelines for constructing Biodiversity Parks and for providing scientific inputs to the Biodiversity Parks and other projects.
- (ii) Board decided to delete the word 'Renovation' from the budget proposals and to engage security guards and vehicle drivers on contract basis through service providing agencies only. Mobile bill payments with a maximum ceiling of Rs 400 were also approved for staff.
- (iii) Board approved the proposals for printing of two coloured flora books in 500 copies each from Govt. press at the rates countersigned by the Directorate of Information and Publicity, U.P. The Board also decided to sell the books by taking 30% profit on the capital cost and allowing discount of 30% on the sale cost to the book sellers.
- (iv) Board approved the proposal for opening of a sale counter of UPSBB publications and inclusion of the books of other publishers also on the sale counter by depositing 10% of the sales proceeds into the Board Accounts.
- (v) A quarterly e-News Letter is to be published by the Board and put up on the website www.upsbdb.org
- (vi) Uttar Pradesh State Biodiversity Board may coordinate with National Bureau of Agriculturally Important Microorganisms, Mau, U.P.

Activities

The activities taken up by the U. P. State Biodiversity Board during the year 2009-10 were as follows :

1. Formation of Biodiversity Management Committees (BMCs)

One BMC has been formed Saidapur Devkali in the district of Lakhimpur kheri in the Tarai Agro climatic zone.

Name of the Panchayat Samiti	:	Saidapur Devkali
Taluk/ Block	:	Lakhimpur
District	:	Lakhimpur-Kheri
State	:	Uttar Pradesh
Geographical Area of the Panchayat Samiti	:	575.053 Ha.
Population under the Panchayat Samiti		
Total	:	4351
Male	:	2308
Female	:	2043

Details of Biodiversity Management Committee (BMC) of the Panchayat Saidapur Devkali

- 1) Name of the Chairperson : Sri Yasheen Mohamad
Age : 35 Years
Gender : Male
Address : Saidapur Devkali



- 2) Name : Sri Ambrish
Age : 31 Years
Gender : Male
Address : Saidapur, Majra Saidapur
Area of specialization : Devkali
Agriculture





3) Name : Sri Mobeen Mohamad
Age : 31 Years
Gender : Male
Address : Ghosiyana, Majra Saidapur
Area of specialization : Devkali Dairy farming/
Agriculture



4) Name : Sri Rafiq Ahmad
Age : 36 Years
Gender : Male
Address : Ghosiyana, Majra Saidapur
Devkali
Area of specialization : Dairy farming/ Agriculture



5) Name : Km Rufi
Age : 19 Years
Gender : Female
Address : Ghosiyana,
Majra Saidapur Devkali
Area of specialization : Dairy farming/ Agriculture



6) Name : Km Nazrana
Age : 20 Years
Gender : Female
Address : Ghosiyana,
Majra Saidapur Devkali
Area of specialization : Dairy farming/ Agriculture



7) Name : Sri Badlu
Age : 30 Years
Gender : Male
Address : Saidapur,
Majra Saidapur Devkali
Area of specialization : Rice Milling Industry

2. Preparation of Peoples Biodiversity Register (PBR)

In addition to regular visits to the village by the UPSBB Staff, the following visits were organized for preparation of People's Biodiversity register:

Saidapur Devkali in the district of Lakhimpur Kheri on :

- **15 October 2009** : Shri Ashok Kashyap, Dy. Ranger and Shri Satyendra Bahadur Singh, Forest guard both from the UPSBB visited the village and facilitated the process of formation of BMC.
- **1st December 2009** : Second visit by specialists and UPSBB team consisting of Shri. R. K. Dubey, ACF, Shri Ashok Kashyap, Dy RO, Forester and Shri Satyendra Bahadur Singh, FG from UPSBB and Dr VP Singh, Head of Zoology Department, Y. D. College, Lakhimpur Kheri, Dr. Sunil Tripathi, Botany Department, Y. D. College, Lakhimpur Kheri, Dr. D. C. Saini from BSIP visited the area and along with villagers did the exercise of identifying flora and fauna.
- **6th - 8th December 2009** : visit by specialists and UPSBB team consisting of Shri R. K. Dubey, ACF, Shri Ashok Kashyap, Dy RO, Shri Santosh, Forester and Shri Satyendra Bahadur Singh, FG from UPSBB and Dr. V. P. Singh, Head of Zoology Department, Y. D. College, Lakhimpur Kheri, Dr. Sunil Tripathi, Botany Department, Y. D. College, Lakhimpur Kheri, Dr. D. C. Saini from BSIP visited the area and along with villagers did the exercise of identifying flora and fauna.
- **23 Feb. 2010** : visit by specialists and UPSBB team consisting of Shri. R. K. Dubey, ACF, Shri Ashok Kashyap, Dy RO and Shri Satyendra Bahadur Singh, FG from UPSBB and Dr. V. P. Singh, Head of Zoology department, Y. D. College, Lakhimpur Kheri, Dr. Sunil Tripathi, Botany Department, Y. D. College, Lakhimpur Kheri, Dr. D. C. Saini from BSIP visited the area and along with villagers did the exercise of identifying flora and fauna.

Preparation of People's Biodiversity Register at the village of Saidapur Devkali (Lakhimpur Kheri District)



Staff members of UPSBB with Knowledge holders of Village Saidapur Devkali



Village resource persons and BMC members of Saidapur Devkali with Board Staff



Members of BMC



Gram Pradhan and Knowledge holders of Village Saidapur Devkali with Board Staff



Simian friends having fun with cattle!

Biodiversity Day

3. International Day for Biological Diversity-2009 Celebration and National Conference on “Invasive Alien Species” organized by U.P. State Biodiversity Board, Lucknow



Uttar Pradesh State Biodiversity Board celebrated the International day on Biological Diversity (IDB-2009) on 22-05-2009 at Dr. Ram Manohar Lohia National Law University Campus, Lucknow. On this occasion, one day National Conference on "Invasive Alien Species" was also organized in which approx. 300 delegates including various research organization/ institute, Universities, Officers from U.P. State Forests Department and other states as well NGO's etc participated. The conference was inaugurated by the Hon'ble Minister for Forests, U.P. Shri Fateh Bahadur Singh. The Guests of Honour for this event were Padamshree Prof. Ram Badan Singh, Ex-ADG and former member, National Farmers Commission, Govt of India and Dr. A. K. Ghosh, Ex. Director, Zoological Survey of India, Kolkata. Dr. R. B. Singh gave the key-note address.

Shri Parmeshwaran Aiyer, Principal Secretary (Forests) and Chairman, U.P.State Biodiversity Board, in his talk stated that biodiversity

conservation is directly linked with our livelihood. It is our prime responsibility to conserve biodiversity on priority for sustainable use of bioresources.

Speaking on this occasion, Secretary of the U. P. State Biodiversity Board, Sri Pawan Kumar informed about the objectives of the conference and stressed the need to create awareness among the masses for the Invasive Alien Species to overcome their perceptible impacts on ecosystems, community and above all the economy of the nation.

Prof. Balraj Chauhan, Vice Chancellor of RML National Law University, Lucknow in his lecture informed that we have ample of literature regarding knowledge of traditional medicines, natural resource conservation etc. The need of the hour is to strengthen the same legally and economically for sustainable development.



Honorable Minister of Forests Shri Fateh Bahadur Singh, PCCF UP Shri DNS Suman and Dr. Balraj Chauhan, VC DR.RML National Law University



Shri. Pawan Kumar, Secretary UP State Biodiversity Board

There were three technical sessions of the conference in which the following guest speakers from different organizations of the country delivered their valuable views on “Invasive Alien Species”.

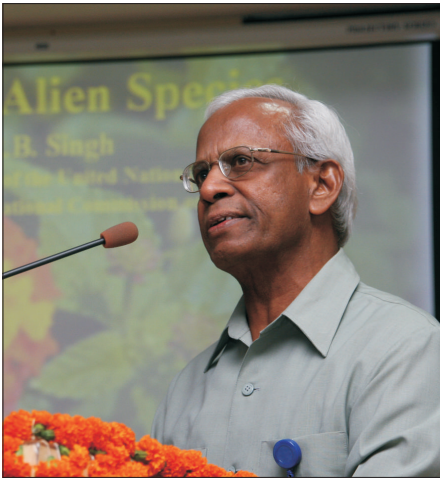
1. Sri. Asad Rehmani, Director, Bombay Natural History Society, Mumbai spoke on invasive bird species.
2. Dr. C. S. Jha, National Remote Sensing Centre, Hyderabad, ISRO spoke on IAS and its mapping using remote sensing and GIS.
3. Sri. Manoj Singh, Rural Development Commissioner, U.P.
4. Shri. Pawan Kumar, Secretary Biodiversity Board
5. Prof. Satyadev Dev Dwivedi, Banaras Hindu University, Varanasi.
6. Dr. K. K. Khanna, Jt. Director, Botanical Survey of India, Allahabad gave a presentation on the floristic diversity vis-a-vis invasive alien species in U.P.
7. Dr. A. K. Singh from National Bureau of Fish Genetic Resources, Lucknow, U.P. spoke on alien fish species in India
8. Dr. S. P. Singh, Ex. Director-Research, A.N.D. Agriculture University, Faizabad. U.P.
9. Dr. Neelam Pathak, Reader, Integral University, Lucknow gave a talk on genetically modified crops.



Hon'ble Sri Fateh Bahadur Singh,
Minister of Forests and Wild Life U P Govt.



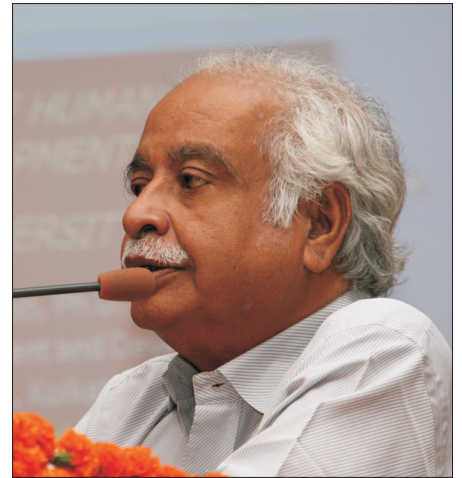
Hon'ble Sri Fateh Bahadur Singh,
Minister of Forests and Wild Life U P Govt., releasing the Souvenir



Padma Bhusan Prof. R.B. Singh



Dr. Asad Rahmani, BNHS



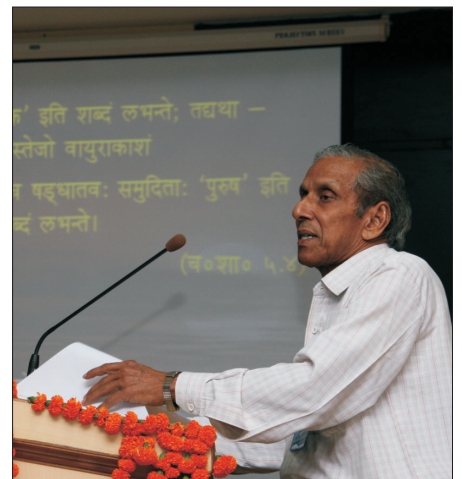
Dr. A. K. Ghosh, NBA, Member



Dr. C.S. Jha NRSC, HYD



Dr. Neelam Pathak, Integral University



Prof. Satyadev Dwivedi, BHU



Dr. K. K. Khanna, BSI



Dr. A N Chaturvedi Retd.



Dr A. K. Singh,
National Bureau of Fish Genetic Resources



S. C. Biswas, IIT, Kharagpur



Shri. R. K. Dubey



Padma Bhushan Prof R. B. Singh, Shri. D. N. S. Suman, PCCF ,
Shri. C. P. Goyal, CCF Lucknow



Delegates and guests

Research Projects

4. Research projects and special studies:

The following research projects have been initiated during the year 2009-10 .

a. Survey, Mapping and Documentation of Floristic Diversity and Antiquity of Vegetation in Lucknow and Adjoining Areas

Duration of the Project	:	February 2009-February 2010
Principal Investigator	:	Dr. D. C. Saini, Sr. Scientist, Birbal Sahni Institute of Palaeobotany, 53, University Road, Lucknow- 226 007

Objectives:

i. Floristic inventory and vegetation mapping

The whole area has been intensively surveyed and observed. Most of the part of district is occupied by residential colonies, government offices, parks and rest of the area is being under various developmental activities. Major part of the outskirts is under cultivation. Vegetationally, the area is very poor. The forest area is negligible in the district except some small area of natural formation preserved in Kukrail Reserve forest, spread along both sides of Kukrail River in Moosabagh and Rehmankhara on Hardoi road, near Chandrika Devi and near Dilkusha garden. Thus the flora of Lucknow may be correctly said as agrarian characterized with introduced flora in considerable numbers and with a large number of truly cultivated species. Such a critical time of reducing natural vegetation cover in Lucknow district, the entire area has been intensively surveyed during 2009-2010.

In all 1299 species, 94 species are reported as new record for Lucknow flora 10 species as new record for Upper Gangetic Plain and 3 species as new record for India (Hooker).

The families of the flowering plants are arranged according to Bentham and Hooker's system of classification in the floristic inventory of this report. Each family is provided with alphabetically arranged genera and all species are also arrange in same order within their respective genus giving correct name, basynonym, important synonyms, detailed description, field observation, uses and phenology. The floristic composition of every habitat in each area of district has been provided under mapping of vegetation.

ii. Antiquity of vegetation in Lucknow and adjoining areas

The area of proposed investigation is also abounding with a number of extant and extinct lakes of various dimensions. These could serve as archives to infer the vegetation antiquity, inception,

agricultural practice and its subsequent pace during the past few millennia, using pollen proxy records. Thus, to study the chronological sequence of the development of vegetation, **Kathauta Tal** was selected. After critical study of pollen recovered from the sediment it has been found that, the entire vegetation composition depicts the presence of mixed scrub forest, which is more or less comparable to the present day vegetation of the region. The consistent representation of taxa like *Chenopodiaceae*, *Alternanthera* and *Asteraceae* in good frequencies throughout denotes the extensive crop cultivation in the region as they are the prominent indicators of anthropogenic activities. The other herbage, viz., *Lamiaceae*, *Brassicaceae*, *Caryophyllaceae*, *Cannabis*, *Xanthium*, *Justicia* and *Polygonaceae* were sporadic. The arboreal were feeble in values. Thus, the entire vegetation composition depicts the presence of mixed scrub forest that is more or less comparable to the present day vegetation of the region. The consistent representation of all these taxa in good frequencies throughout denotes the extensive crop cultivation in the region, as they are the prominent indicators of anthropogenic activities. The swampy condition, prevailing along the margin of lake was profusely inhabited by sedges followed by *Polygonum plebeium*, whereas *Eriocaulon* and *Apiaceae* were feebly represented.

The aquatic vegetation was quite luxuriant as evidenced by good representation of *Nymphoides*, *Lemna*, *Potamogeton* and *Nymphaea*, more particularly in the lower half of the profile. *Eichhornia*, the chief aquatic element of the lake water, and *Myriophyllum* were extremely sporadic. Thus the higher values of aquatic plants in the beginning of the sequence suggest that the lake had a wider spread as compared to the present day status of the lake.

b. Base line survey and mapping of microbial diversity of newly developed Kukrail Forest

Duration of the Project : October 2009-October 2011
Principal Investigator : Dr. Neelam Pathak, Associate Professor
Department of Biotechnology
Integral University, Kursi Road, Lucknow

First Six monthly Progress Report

Environmental microbes are immensely diverse and have numerous metabolic activities and products that could have industrial as well as agricultural applications. However, >99% of environmental microbes cannot be cultured under current laboratory conditions, leaving their potential largely untapped. Microbial diversity within an environment can therefore be analyzed by two types of studies viz. culture-dependent studies and culture-independent studies. Metagenomic approaches have been used successfully in recent years to obtain novel microbial products from culture-independent microorganisms. The extraction of DNA from soil, followed by the use of Polymerase Chain Reaction (PCR) to amplify a gene common to all organisms can provide information about microbial community structure and microbial diversity.

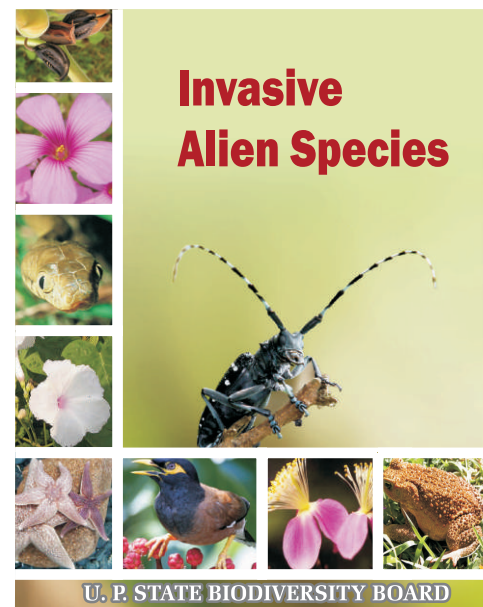
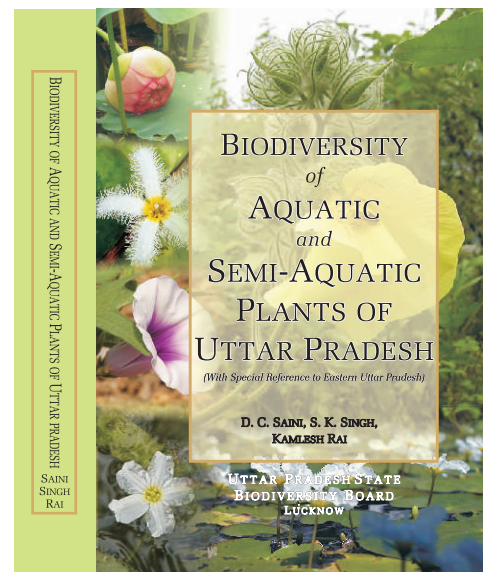
Three different mannitol-based methods were developed for DNA extraction from the soil and evaluated on the basis of PCR-based 16S ribosomal DNA analysis. DNA was extracted from soil collected from various sites of Kukrail forest, Lucknow using direct lysis with liquid nitrogen followed by Mannitol with CTAB, polyethylene glycol precipitation, and Phenol/Chloroform/Isoamylalcohol. The inclusion of mannitol in the extraction buffer has been proved to increase the efficiency of extraction. Probably all three methods showed high yield. The primary assumption in this work was that greater DNA recovery reflected a more diverse sample of DNA from the microbial community. New tools to rapidly compare the DNA diversities of extracts are needed to better estimate the effectiveness of DNA extraction protocols. Furthermore, development of procedures for extracting DNA directly from soil and determining DNA sequences will eventually lead to test-kits that could be used to identify and quantify such microbes in situ, thereafter base line mapping will be easily performed.

5. Publications by the Board:

- a. "Biodiversity of Aquatic and Semi-Aquatic Plants of Uttar Pradesh"
(With Special Reference to Eastern Uttar Pradesh)
by D. C. Saini, S. K. Singh and Kamlesh Rai

The book has attempted to inventorize the wetland biodiversity in Eastern Uttar Pradesh (biodiversity of aquatic and semi-aquatic plants). The book has covered essential points necessary for study of hydrophytes. The book has a general key for easy identification of the families. The topics include topography and general features of the area followed by climate, soil and rivers are well represented by self explanatory and beautiful maps. The different habitats of aquatic and semi-aquatic plants are categorized and provided with accurate representatives. Some endangered and exotic plants, harmful to native plants are listed in separate chapter for general awareness about invasive alien species. The major chapters of this book are the description of phanerogams and vascular-cryptogams with 547 beautiful photographs which comprise of 751 species belonging to 432 genera and 114 families. This book will be very useful to persons interested in studies on taxonomy, ecology, limnology, hydrobiology, phyto chemistry and for comparative study of palaeobotanical samples. This book can be purchased from the UP State Biodiversity Board at a cost of Rs.1500.

b. Invasive Alien Species - 2009. On the occasion of the International Day for Biological Diversity 2009 a compilation of papers presented by various guest speakers and eminent scientists and field practitioners was done. The 121 pages book has the following papers in it.



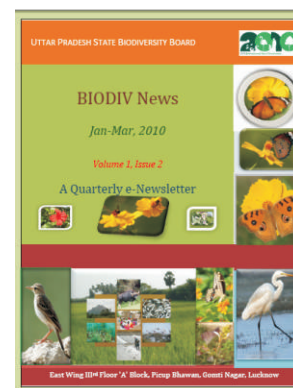
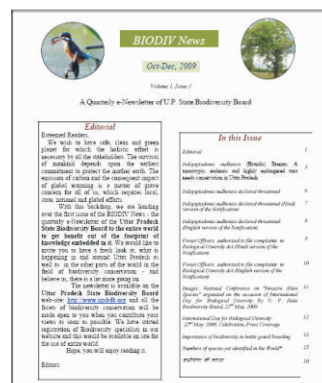
S.No	Name of the Paper	Authors	Page No.
1	Are Our Staple Food Crops Under threat from Invasive Alien Species	M.P.Pandey, R.L. Pandey, S.B.Verulkar, and A.P.Singh	1
2	Invasive Alien Species	Pawan Kumar, P.K.Singh and R.K.Dubey	5
3	Preliminary Investigation on Invasive Alien Species of Uttar Pradesh	Shantanu Chatterjee, Madhabi Chakraborty and D.C. Saini	21
4	Invasive Alien Species: Major threats for Food and Agriculture Commodities	H. B. Singh and D. P.Singh	33
5	Invasive Alien Species and Climate Change	Tariq Hussain and Priyanka Agnihotri	36
6	Invasive Alien Species: An Impact of globalization	Neelam Pathak and Smita Rastogi	40
7	Ageratum conyzoides and Parthenim hysterphorus: Alternate host of Begomo virus and Phytoplasma	Pallavi Somvanshi, M. S. Khan, S. K.Raj and P.K. Seth	44
8	Invasive Alien Species : Strategic Management of Some Species	Rachna Mishra	46
9	Utilization of U. P. State Biodiversity Database for Inventory and Study of Invasive Alien Species	V. S.Chitale, S. Matin, M. D. Behera and S. K. Dutta	50
10	Invasive Alien Plant Species of Azamgarh District, Uttar Pradesh	Gaurav Srivastava and S. N. Srivastava	55
11	Invasive Alien Species and its Impact on Soil, Water and Environment	P. Dey	61
12	Biotics and Mesobiotics as Invasive Alien Species	Neeta Sharma and Basant Prabha	65
13	Plant Health vs Invasive Alien Soil Microbes	Rakesh Pandey, Arun K. Mishra, Alok Kalra and H.N. Singh	77

S.No	Name of the Paper	Authors	Page No.
14	Invasive Alien Plant Pathogens: A Threat to Agriculture	B. K. Sarma, B. N. Singh, S. P. Singh and H. B.Singh	84
15	Some Invasive Alien Fish Fauna of Northern India	Ajai Kumar Agha	90
16	Using Potentially Invasive Alien Species Eisenia Foetida for Vermiculture : A Threat to Local Biodiversity	Gyaneshwer Shukla and Shailja Kant Mishra	94
17	Eco-Restoration of a Degraded Land: A Case Study	A. N. Chaturvedi	98
18	Livestock Development and Conservation of Genetic Resources	Shekhar Srivastava	102
19	Fungal Diversity in Rice-Wheat Cropping System	Ravindra Kumar, Asha Sinha, Seweta Srivastava and B. K. Sarma	109
20	Invasive Alien Species vs Local Plant Biodiversity (FOMEAG) Cafeteria : Conservation of endangered plant and Habitats)	V. N. Pandey, R. K.Pandey, A. K. Dwivedi, Nidhi Gupta, A. K. Srivastava, Rakesh Kumar and Rakesh Pandey	115
21	Invasive Alien Weeds : A threat to Agriculture and Biodiversity	R. P. Singh and R.K.Singh	118

6. News Letter: e-Magazine:

A Quarterly e-Newsletter of U. P. State Biodiversity Board is published on line. This can be viewed on <http://www.upsbdb.org> under e-magazine. Two issues have been completed till March 2010 :

1. October -December 2009
2. January - March 2010



Finance & Accounts

7. Finance and Accounts

During the financial year the expenditures of the Board were as follows:

	AMOUNT in ₹
Office expenditure	713,245
Pay and allowances	395,856
National Conference exp	522,378
Birbal Sahani Institute of Palaeobotany - Survey, Mapping & Documentation	272,840
Integral University for Baseline - Survey -mapping of Microbial Diversity	240,000
Survey and Documentation of P.B.R.	16,920
Miscellaneous expenses	19,770
GRAND TOTAL	2,181,009

8. Tours and exposure/field visits

1. **Kasargod, Kerala** on July 10, 2009. This meet was organized by PPV & FRA (Protection of Plant Varieties and Farmers Rights Authority) Authority to develop a road map for tropical and subtropical plantation crops based on recommendations. Shri. R.K. Dubey, ACF took part in the meet organized at Central Plantation Crops Research Institute,.
2. **Pune, Kothrud**- 17th July 2009. Workshop on "Prospectives of Vriksh Ayurveda" organized by Regional Research Institute (Ay), Pune. Shri R.K.Dubey, ACF participated in the workshop.
3. **Sohelwa Wildlife Sanctuary**, Balrampur District- 23 July 2009. Shri Ashok Kashyap and Shri Satyendra Bahadur Singh visited Barhawa Range, Sohelwa Wildlife Division, district Balrampur to survey *Indopiptadenia oudhensis*. These trees were located about 6 Km away from the Forest Rest House on the Indo-Nepal border. On extensive survey of the area, one tree was found in the middle of Siriya nala, Bhaisasur Compartment-1, Tulsipur Range in a Bhabhar area. Lower down the nala in Barhawa Range, Nanmehra Compartment, one more tree was found. The trees were having pods on them and some seeds were collected by the Staff for growing saplings.
4. **Calcutta** on Sep 10th and 11th, 2009. Shri Pawan Kumar, Member Secretary attended the meeting of all Member Secretaries at Calcutta.
5. **5th CMS Vatavaran 2009 New Delhi** - October 27-31, 2009 at India Habitat Center. Shri K. K. Tiwari and Shri Ashok Kashyap attended a Competitive Environment and Wildlife Film Festival. It is India's one and only environment and Wildlife Film Festival for generating awareness on environmental issues and lending recognition to the endeavors of environment and wildlife filmmakers.
7. **Dudhwa National Park - Dudhwa, Bankati, Sonalipur ranges visited by UPSBB team on 24th and 25th Feb. 2010. The following new species were identified at Dudhwa** "The flora of Dudhwa National Park" by Shri K. K. Singh provides details of floristic and phytogeographical accounts of 821 Angiospermic taxa. Besides, it also provides plant wealth of the area, ethnobotanical uses of plants by the Tharu tribe of the park. The visit organized by the UP State Biodiversity Board this time revealed an additional 49 species for the first time as reported by Dr. D. C . Saini. The listing of new species is as follows:

S No	Botanical name	S No	Botanical name
1	<i>Abutilon theophrastii</i>	31	<i>Ixora arborea</i>
2	<i>Acrdamine hirsuta</i>	32	<i>Launaea nudicaulis</i>
3	<i>Alternanthera philoxeroides</i>	33	<i>Malachra capitata</i>
4	<i>Ammannia verticillata</i>	34	<i>Merremia aegyptia</i>
5	<i>Bupleurum hamiltoni</i>	35	<i>Merremia tridentata</i>
6	<i>Canscora oppositifolia</i>	36	<i>Mesoneurum cuculatum</i>
7	<i>Capsella bursa-pastoris</i>	37	<i>Nasturtium officinale</i>
8	<i>Cardamine scutata</i>	38	<i>Oxalis corymbosa</i>
9	<i>Casearia tomentosa</i>	39	<i>Portulaca pilosa</i>
10	<i>Cassine glauca</i>	40	<i>Pouzolzia indica</i>
11	<i>Celsia chinensis</i>	41	<i>Ranunculu muricatus</i>
12	<i>Clematis munroiana</i>	42	<i>Rauwolfia tetraphylla</i>
13	<i>Clematis triloba</i>	43	<i>Rivea hypocraterifolia</i>
14	<i>Cleome spinosa</i>	44	<i>Rotala rotundifolia</i>
15	<i>Cotula australis</i>	45	<i>Sassuria affinis</i>
16	<i>Cotula hemisphaerica</i>	46	<i>Sesbania aegyptiaca</i>
17	<i>Crotalaria alata</i>	47	<i>Solanum americanum</i>
18	<i>Crotalaria pallida</i>	48	<i>Solanum diphyllum</i>
19	<i>Cuscuta santapau</i>	49	<i>Solanum purpulineatum</i>
20	<i>Dalbergia latifolia</i>	50	<i>Solanum purpulineatum</i>
21	<i>Diospyros montana</i>	51	<i>Solanum torvum</i>
22	<i>Heliotropium indicum</i>	52	<i>Soliva anthemifolia</i>
23	<i>Heliotropium ovalifolium</i>	53	<i>Sonchus asper</i>
24	<i>Heliotropium supinum</i>	54	<i>Sonchus brachiotis</i>
25	<i>Hoppea dichotoma</i>	55	<i>Stephnia japonica</i>
26	<i>Hydocotyle sibphorthianum</i>	56	<i>Strychnos nux-vomica</i>
27	<i>Indigofera cordifolia</i>	57	<i>Thunbergia fragrans</i>
28	<i>Indigofera tinctoria</i>	58	<i>Tragia involucrata</i>
29	<i>Ipomoea trifolia</i>	59	<i>Vernonia divergens</i>
30	<i>Ixaris polycephala</i>	60	<i>Waltheria indica</i>

UPSBB team in Dudhwa on 24th Feb 2010



9. Others news

1. *Indopiptadenia oudhensis* (Brandis) is an endemic threatened plant species found in the forests of Sohelwa Wildlife Sanctuary, Balrampur District of Uttar Pradesh. Under Section 38 of the Biological Diversity Act , 2002 the collection of this species has been prohibited and it has been declared as a species on the verge of extinction.(GOI notification no S.O. 998 (E) dated 15th April, 2009)

Indopiptadenia oudhensis is an endangered species in Uttar Pradesh. The major reasons for this are over glazing and over exploitation by local people for the fodder weeds of livestock. Local vernacular names are Hathi paula, Genti, Gainti.

By the GOI Notification of 15 April 2009, The U.P. State Biodiversity Board shall initiate or conduct:-

- (i) Studies on all aspects of the notified species for holistic understanding.
- (ii) Propagation of the notified species for the purpose of in situ and ex-situ conservation and rehabilitation and
- (iii) Awareness programmes and provide educational material on notified species for forest department personnel, Biodiversity Management Committees and forest dwellers and tribals.



Leaves of *Indopiptadenia oudhensis*



Pods of *Indopiptadenia oudhensis* are 9-12" long, nearly straight and flat about less than an inch wide

NOTIFICATION

New Delhi, the 15th April, 2009

S.O. 998(E).—In exercise of powers conferred by section 38 of the Biological Diversity Act, 2002 (18 of 2003), the Central Government, in consultation with the Government of Uttar Pradesh, hereby notifies the species of plants and animals which are on the verge of extinction, as listed in column (2) of the Table given below, and prohibit and regulate the collection thereof, subject to the conditions specified in the Annexure to this notification, for the State of Uttar Pradesh, namely:—

TABLE

Sl.No.	Name of the species
(1)	(2)
	Plants
1.	<i>Indoptadenia oudhensis</i> (Brandis) Brenan

Annexure

Condition
No.

Conditions

1. No plant or animal species as notified above shall be collected in live or dead condition by any person except; for purposes mentioned below, with the approval of the concerned State Biodiversity Board; and also in accordance with the provisions of the Indian Forest Act, 1927 (16 of 1927) and the Wild Life (Protection) Act, 1972 (53 of 1972) or the relevant State forest and wildlife legislations, namely:-
 - (e) Scientific research;
 - (f) Herbarium and museum of scientific and academic institutions;
 - (g) Propagation; and
 - (h) Any other scientific investigation.
2. The concerned State Biodiversity Board shall initiate or conduct :-
 - (iv) studies on all aspects of the notified species for holistic understanding;
 - (v) propagation of the notified species for the purpose of *in situ* and *ex situ* conservation and rehabilitation; and
 - (vi) awareness programmes and provide educational materials on notified species for forest department personnel, Biodiversity Management Committees, ecotourism programmes, and forest dwellers and tribals.

[F.No.28-12/2008-CS-III]

A. K. GOYAL, Jr. Secy.



Sapling of *Indopiptadenia* growing naturally in river bed



Seeds of *Indopiptadenia*



Pods of *Indopiptadenia oudhensis* are 9-12" long, nearly straight and flat about less than an inch wide



Indopiptadenia oudhensis is a medium size tree

अन्तर्राष्ट्रीय जैव विविधता दिवस 2009 प्रेस की नजर में



अमेरिकी जैविक प्रजातियाँ भारत के लिए खतरा

सहारा (एराणजी) - लखनऊ व पश्चिम में अमेरिकी विदेशी जैविक प्रजातियों का भार में संक्रमण वर्ष 1965 में अमेरिका से आने वाले पौधों के साथ आया कि विदेशी प्रजातियों के आगमन को रोकना ही है और जलवायु परिवर्तन भी नष्ट होता है।

संयुक्त राष्ट्र के तौर पर विदेशों से आने वाले जैविक प्रजातियों को रोकना ही है और जलवायु परिवर्तन भी नष्ट होता है।

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लोहिया विधि विधि। संगोष्ठी का उद्घाटन करते वन एवं जल मंत्री फतेहबहादुर सिंह। फोटो: एसएनबी

राष्ट्रीय स्वरूप लखनऊ, शनिवार, 23 मई, 2009

जैव विविधता संरक्षण में जनसहभागिता आवश्यक

स्वरूप समाचार - लखनऊ। अन्तर्राष्ट्रीय जैव विविधता दिवस को अवसर पर उत्तर प्रदेश राज्य जैव विविधता बोर्ड द्वारा 'इकोलॉजिकल एलिमेंट्स सीरीज' विषय पर आयोजित राष्ट्रीय स्वरूप कार्यक्रम का उद्घाटन किया गया।

उत्कृष्ट फोटोग्राफी के लिए पुरस्कार - लखनऊ, शनिवार, 23 मई, 2009



Need to root out alien species from ecosystem

WORLD BIODIVERSITY DAY

carrot grass and parthenium are alien and threatening to existing species. The number of natural species are going down because of these alien species.

Bio-diversity is also threatened by hunting, excessive extraction of resources and environmental pollution. India has world's 7 per cent floral and 6.5 per cent faunal species and that makes India rich in bio-diversity.

The speakers also highlighted other ill-effects of alien and invasive alien species. Decrease in agricultural production is one of them besides decline in the number of native species. On the occasion, winners of photography competition organised by bio-diversity board were given away prizes by forest minister, Fateh Bahadur Singh. Senior officials of the department along with experts were also present in the seminar.

Lucknow: There is a need to root out invasive alien species from ecosystem. These species are a threat to bio-diversity. The environmental effects like global warming and climate change are taking place because of these alien species which are destroying natural resources.

The points were highlighted during a seminar on 'Invasive alien species' organised by forest department on Friday. The seminar was organised to mark World Biodiversity Day by bio-diversity board. Species like lantana,



पर्यावरण संरक्षण के लिए चलेगा अभियान

लखनऊ, 22 मई (संयु): अन्तर्राष्ट्रीय जैव विविधता दिवस के अवसर पर लखनऊ के वन विभाग में विभिन्न कार्यक्रमों का आयोजन किया गया। इनमें पर्यावरण संरक्षण के लिए जागरूकता अभियान चलाने की रणनीति बनी। इस मौके पर जल विधि विधि में मुख्यमंत्री मायावती ने अपने संबोधन में कहा कि जैव विविधता ही हमारे अस्तित्व का मूल आधार है। नगर विकास मंत्री नकुल दुबे ने भी विज्ञापित कर जैव विविधता संरक्षण की अपील की है।

उत्तर प्रदेश जैव विविधता बोर्ड की ओर से डॉ. राम मनोहर लोहिया विधि में आयोजित एक संगोष्ठी में वन एवं जल मंत्री फतेह बहादुर सिंह ने कहा कि लैंडमैन, गाजर घास, फॉयनियम व जलकुंजी जैसी आक्रामक प्रजातियाँ स्थानीय प्रजातियों के लिए खतरा बनी हुई हैं। अगर इन्हें नष्ट न किया गया तो वह जैव विविधता को नुकसान पहुंचाएगा वन संरक्षण डीएनएस समन, मनोहर लोहिया राष्ट्रीय विधि विभाग के कुलपति प्रो. बलराम चौहान ने भी सम्बोधित किया। विभाग की ओर से सहकारिता आयोग 'अ' विदेशी प्रजातियों के विविधता के विषयक गोष्ठी में प्रमुख सचिव ए. आलोक रंजन ने कहा कि पेड़, पौधों में से एक का क्षय जैव विविधता नष्ट होने का कारण बनता है। निदेशक डा. यशपाल सिंह, विशेष पर्यावरण जीएस राउफ, प्रदूषण बोर्ड डा. सीएएस भट्ट और उप-आपी यमन ने सम्बोधित किया। विज्ञान क्लब की ओर से कार्यशाला शुरू हुआ।

जैव विविधता संरक्षण के लिए जन-जन की सहभागिता आवश्यक: फतेहबहादुर

लखनऊ 22 मई (सं.) - अमेरिकी जैविक प्रजातियों का भार में संक्रमण वर्ष 1965 में अमेरिका से आने वाले पौधों के साथ आया कि विदेशी प्रजातियों के आगमन को रोकना ही है और जलवायु परिवर्तन भी नष्ट होता है।

संयुक्त राष्ट्र के तौर पर विदेशों से आने वाले जैविक प्रजातियों को रोकना ही है और जलवायु परिवर्तन भी नष्ट होता है।

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हिन्दुस्तान जैव संसाधनों की पहुँच को नियमित

लखनऊ, शनिवार, 23 मई, 2009

जलवायु में तेजी से परिवर्तन हो रहा है। स्थानीय जीव जन्तुओं की प्रजातियाँ विलुप्त हो रही हैं। इसे रोकने के लिए जैव संसाधनों की पहुँच को नियमित किया जाए ताकि जैव संसाधनों से मिलने वाले लाभ व ज्ञान को प्राप्त किया जा सके। यह बात बतौर मुख्य अतिथि पर आयोजित हिन्दुस्तान संवाद लखनऊ में कहा कि जैव विविधता जीव व जीवन दोनों के लिए आवश्यक है। इसलिए विकास व जैव विविधता संरक्षण के बीच तालमेल होना चाहिए। इस मौके पर राज्य जैव विविधता बोर्ड के सचिव पवन कुमार ने कहा कि जैव विविधता में हो रहा क्षरण प्राकृतिक आपदाओं का कारण बन रहा है। डॉ. राम मनोहर लोहिया विधि विधि के कुलपति विमोचन वन मंत्री ने किया। इस संगोष्ठी में राष्ट्रीय कृषक आयोग के पूर्व सचिव प्रो. राम बदन सिंह तथा प्रदेश भर से वन विभाग के अधिकारी मौजूद रहे।

सहकारिता भवन में हुए कार्यक्रम में प्रमुख सचिव पर्यावरण आलोक रंजन ने बताया कि पर्यावरण विभाग को विदेशी जन्तु एवं वनस्पति प्रजातियों से स्थानीय पारिस्थितिकीय तंत्र को रक्षा के लिए जन चेतना अभियान चले

गॉयस ऑफ लखनऊ मानव जीवन के लिए जैव विविधता

लखनऊ, 22 मई (सं.) - अमेरिकी जैविक प्रजातियों का भार में संक्रमण वर्ष 1965 में अमेरिका से आने वाले पौधों के साथ आया कि विदेशी प्रजातियों के आगमन को रोकना ही है और जलवायु परिवर्तन भी नष्ट होता है।

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पर्यावरण संरक्षण पर गोष्ठी स जलवायु परिवर्तन का जीव जन्तुओं पर असर:फतेहबहादुर

लखनऊ, 22 मई (सं.) - अमेरिकी जैविक प्रजातियों का भार में संक्रमण वर्ष 1965 में अमेरिका से आने वाले पौधों के साथ आया कि विदेशी प्रजातियों के आगमन को रोकना ही है और जलवायु परिवर्तन भी नष्ट होता है।

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पर्यावरण संरक्षण के तत्वधान में अन्तर्राष्ट्रीय जैव विविधता दिवस का आयोजन

लखनऊ, 22 मई (सं.) - अमेरिकी जैविक प्रजातियों का भार में संक्रमण वर्ष 1965 में अमेरिका से आने वाले पौधों के साथ आया कि विदेशी प्रजातियों के आगमन को रोकना ही है और जलवायु परिवर्तन भी नष्ट होता है।

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