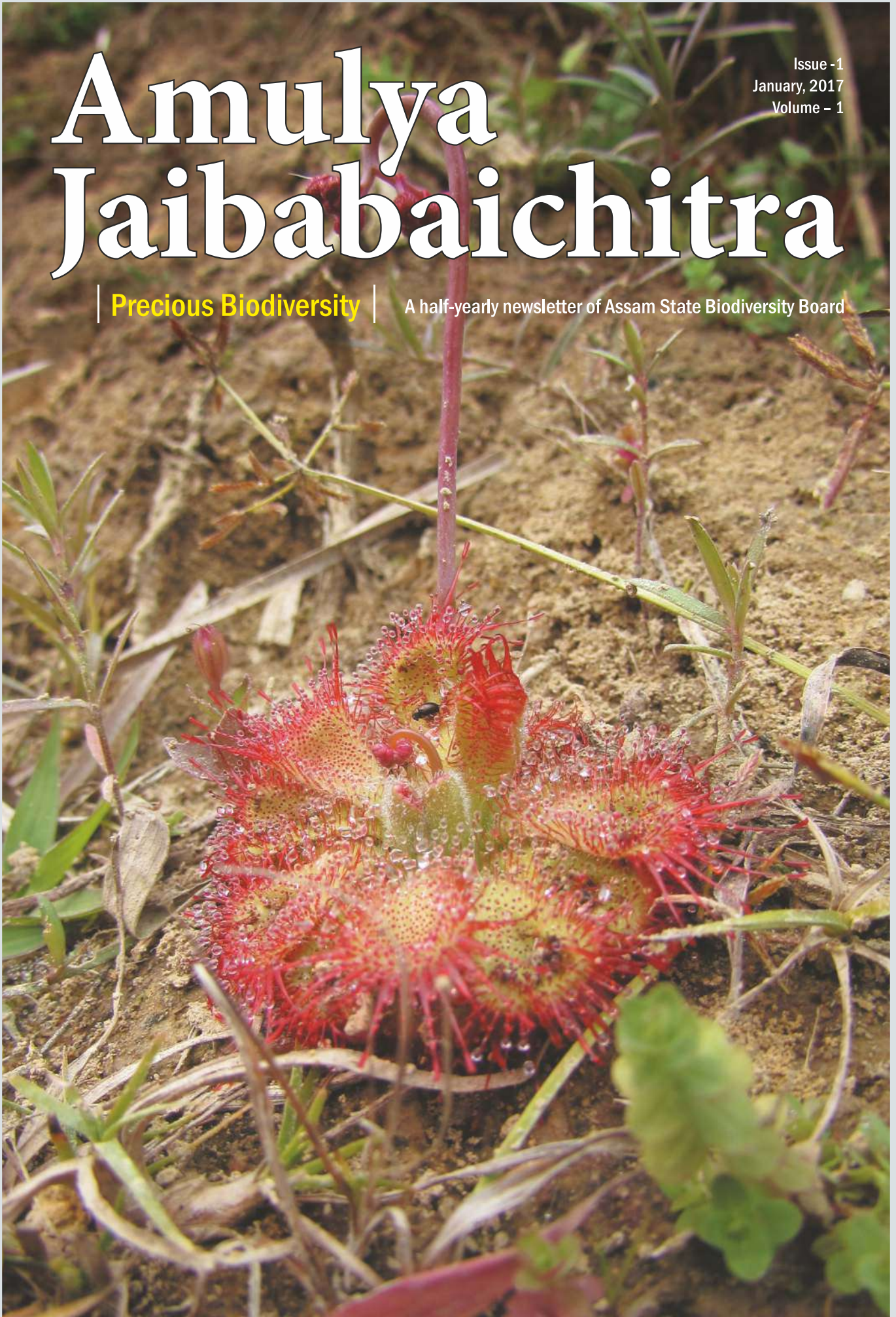


# Amulya Jaibabaichitra

Issue - 1  
January, 2017  
Volume - 1

**Precious Biodiversity**

A half-yearly newsletter of Assam State Biodiversity Board



# Amulya Jaibabaichitra

A half-yearly newsletter of  
Assam State Biodiversity Board

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*Drosera burmannii* (Carnivorous Plant)  
by Dr. Mazedul Islam



## OUR VISION

Bountiful, Secured and  
economically-rewarding biodiversity

## OUR MISSION

Ownership rights to local people for  
conservation and wise-use of biological  
resources and equitable share in benefits  
on its commercial utilization.

## Assam State Biodiversity Board

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# EDITORIAL



The richness of life-forms is intriguing and amazing. It is bountiful in some places such as the North-Eastern India which is reckoned as a Biodiversity Hotspot. Assam in particular has immensely rich biodiversity represented by a large number of rare, endangered and endemic species of both plants and animals.

Biological diversity is an insurance for mankind against adversaries such as climate change. Thus, its depletion is a bad sign. Earth's supplies are limited and we must tread on Earth very carefully. This brings in the concept of conservation and sustainable use of biological resources- the core principle of Biological Diversity Act-2002.

Conservation must bring prosperity and reward to local communities. This calls for mechanisms to facilitate flow of benefits to communities on commercial use of biological resources. The Biological Diversity Act prescribes Access and Benefit Sharing (ABS) agreements as a pre-condition to commercial use of biodiversity.

Any law is only as good as its implementation. The Biodiversity Boards have the mandate to implement Biological Diversity Act and empower local people in taking full charge of their natural resources. Awareness generation amongst stakeholders is the key to success.

This Newsletter is one such step for taking the message of biodiversity conservation further. We hope to enhance our outreach with this effort.

We solicit suggestions from the readers for making this Newsletter more informative and useful.

I wish to conclude by quoting Mahatma Gandhi:

*'The earth, the air, the land and  
the water are not an inheritance  
from our forefathers but  
on loan from our children.  
So we have to hand over to them  
at least as it was handed over to us'*

(Dr. Ranjana Gupta, IFS)  
Addl. PCCF (Wetlands)  
O/o Principal Chief Conservator of Forests and Head Forest Force  
& Permanent Invitee to the Assam State Biodiversity Board

# Major Conservation Concerns in Assam

Dr Anwaruddin Choudhury

The state of Assam occupies a key position on the global biodiversity map as it is located in two hotspots - the Himalaya and the Indo-Burma. The valley of the Brahmaputra River dominates the physiography of Assam. The hill ranges and plateau are in the central areas with the smaller plains of the Barak River in the south. The highest peak is near Laike on the Barail Range, which is 1959 m high. The habitat in Assam is diverse ranging from tropical wet evergreen 'rainforests' to the wet savanna grasslands as well as wetlands, swamp forests, tropical moist deciduous forests and in the higher hills the subtropical broadleaf forests.

Assam has eight species of primates, highest diversity in India. Golden langur, Phayre's leaf monkey and Hoolock gibbon are some of the primates. Three species of bears, a rare case, occurs in Assam, the Asiatic black bear, Sloth bear and the Malayan Sun bear. The Tiger has become rare but the Leopard is relatively more abundant and occurs even in Guwahati, the capital of Assam. The Clouded leopard, Fishing cat, Asian golden cat and Marbled cat are relatively rare. A sizeable population of Asian elephants occurs here. For the Great Indian One-horned Rhinoceros, about two-third of its world population is confined to five protected areas in Assam. The Pygmy hog has been listed as 'critically endangered' by IUCN. Its known world population is now found in Assam. For the Wild water buffalo, Assam is its stronghold (82% of the world population). The Swamp deer, Hispid

hare, Ganges River dolphin are some other threatened species.

Assam has the highest number of bird species in India with more than 800 species. Many rare and threatened species such as the White-bellied heron, Greater Adjutant stork, Lesser Adjutant stork, White-winged wood duck, Baer's pochard, Pallas's fish eagle, Greater spotted eagle, Bengal florican, Swamp francolin, Blyth's tragopan, Pale-capped pigeon, Rufous-necked hornbill, Black-breasted parrotbill and Yellow weaver or Finn's baya. The Green peafowl has vanished from Assam. The White-backed and Slender-billed vultures are now threatened with extinction.

Among reptiles, the Gharial is now extremely rare. Indian narrow-headed softshell turtle, Elongated tortoise, Three-striped roofed turtle, Assam roofed turtle, Asian brown tortoise and Keeled box turtle



Wetlands are being silted up and polluted by industrial activities

© Anwaruddin Choudhury



Opencast coal mining, Upper Assam

are noteworthy endangered turtles and tortoises.

Among the protected areas, Assam has the world famous Kaziranga and Manas National Parks that are also world heritage sites.

During the past few decades, mainly due to increase in human population and increasing demand for forest produce, the forests and wildlife habitat are getting adversely affected. Though the forest cover in Assam may not have changed a great deal but it has suffered in terms of decrease in densities and fragmentation of habitat. The total very dense forest in the State as per the India State of Forest Report, 2015, is only 1.83% of the total geographical area. Similarly the grasslands and the wetlands are also under tremendous pressure and need sustained efforts for their conservation.

The pressure of international trade in wildlife, especially in the Rhino horns, is another serious problem faced by the State. The incidents of man-animal conflicts are on the rise. Pollution affects all species at various levels but waterfowls and birds of prey are particularly vulnerable to this. Disease is also a major threat. The most glaring example is

the case of White-backed and Slender-billed vultures, from plentiful even in early 1990s to 'critically endangered' now. The White-winged wood duck, hornbills, etc., need natural hollows or cavities in mature trees, which are usually on top of logger's agenda.

Creation of more protected areas (some potential areas are: Chirang–Ripu, Behali, Ranga, Dulung, Poba, Joypur, Dum Duma–Dangori, Hologaoon, Kundil Kaliya, Chandubi, Dhansiri, Inner Line, Barak and Patharia forests), protection of the remaining dense forest, adequate protection of endangered species, adequate protection to existing protected areas, conservation education, awareness, eco-tourism and other such activities that may help locals become stake holders and earn some extra income should be priorities in the years to come as a long-term conservation strategy.



**Anwaruddin Choudhury**, PhD, DSc,  
Divisional Commissioner, Barak Valley and  
Commissioner & Secretary, PPG Deptt.



Photo Source: Internet

# Understanding Climate Change

A. K. Johari

Climate cannot *not change*. But if the change is too sharp, it is worrisome. Present day concerns about climate change arise on two accounts. First, the change is a bit too sharp and second that it is largely anthropogenic. The interpretation that since man is a part of nature and therefore anthropogenic changes are also natural, is a bit naive. Such 'natural' changes may create conditions unfavorable to our own existence. The worry is therefore, justified. It calls for understanding the whole issue in a rather commonsensical way.

The Ozone layer in the stratosphere around 30-50 KM above the earth protects life on earth against harmful

ultraviolet radiation of the Sun and the gases of the atmosphere trap heat to provide warmth to the earth. It was noticed by scientists that this Ozone layer was getting depleted and the atmospheric temperature was rising.

The substances responsible for Ozone layer depletion were termed CFCs (chloro fluoro carbons) that are organic compounds that contain only carbon, chlorine, and fluorine, produced as volatile derivatives of methane, ethane, and propane.

The substances responsible for rise in earth's temperature are called GHG (Green House Gases). The primary greenhouse gases in the Earth's atmosphere are water vapour, carbon dioxide, methane, nitrous oxide, and ozone. Without greenhouse gases, the average temperature of Earth's surface would be about  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) rather than the present average of  $15^{\circ}\text{C}$  ( $59^{\circ}\text{F}$ ). Earth's average temperature has risen by  $1.5^{\circ}\text{F}$  over the past century, and is projected to rise another  $0.5$  to  $8.6^{\circ}\text{F}$  over the next hundred years. Small changes in the average temperature of the planet can translate into large and potentially dangerous shifts in climate and

weather. The Industrial age of eighteenth century has been the trigger point.

Rising global temperatures bring about changes in rainfall, resulting in more floods, droughts, intense rain, as well as more frequent and severe heat waves. The oceans are warming and becoming more acidic, ice caps are melting, and sea levels are rising. As these changes become more pronounced in the coming decades, they will present challenges to our society and our environment. A warming climate will bring changes that can affect our water supplies, agriculture, power, transportation systems, the natural environment, besides our health and safety.

Increased level of Carbon dioxide is primarily responsible for increased atmospheric temperatures. The CO<sub>2</sub> can stay in the atmosphere for nearly a century. There are two approaches to reducing CO<sub>2</sub> in atmosphere, one is by enhancing carbon absorption by green plants (carbon sequestration) and, second is by reducing emissions from deforestation and forest degradation (REDD). Both these approaches are termed as 'Mitigation' actions, that is, the actions that slow down the process of climate change. On the other hand we prepare to respond to climatic change by 'Adaptation' actions. These include preparing for higher levels of floods, for example, raised dwellings, growing flood-resistant varieties of crops, preparations to counter epidemics, dry spells, reducing energy consumptions in daily lives and use of non-conventional energy sources.

The mitigation actions are ecologically and economically viable, their results are certain but slow. On the contrary, adaptations are expensive, they need innovations and tend to change the way of life. For example emission reduction through clean development mechanism (CDM) in developing countries. This needs technology support and capacity building from the developed nations.

China and India are amongst the top gross emitters of GHG but their per capita emissions are low. The per capita emissions of US and European nations are very high though their gross emissions may be relatively less. Neither is good for Earth. Emission reduction is a necessity, not an option.

In December last year there was a United Nations Conference on Climate Change in Paris. It was the 21<sup>st</sup> yearly session of the Conference of the Parties (COP) to the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and the 11<sup>th</sup> session of the Meeting of the Parties to the 1997 Kyoto Protocol. All 196 participating nations including India agreed to a common agenda. The universal agreement's main aim is to keep the global temperature rise in this century well below 2 degrees Celsius and to drive efforts to limit the temperature increase even further to 1.5 degrees Celsius above pre-industrial levels.

For a common man, to become climate friendly, it is all about limiting energy use and choosing right energy options. Let us look at how can this be achieved.

1. Plant trees and protect them.
2. Conserve water and save water bodies from pollution and siltation.
3. Use energy efficient appliances, be conscious of star ratings on air conditioners, refrigerators fans bulbs etc. Use LEDs instead of ordinary bulbs or tube-lights.
4. Make it a habit to switch off lights and fans while exiting any place.
5. Use natural light as much as possible, in the office/home
6. Promote use of non-conventional energy, such as solar energy, to substitute use of conventional energy.
7. Compost your green waste/food waste.
8. Stick to 'reduce, reuse and recycle' principles in day-to-day life
9. Use and encourage use of local varieties of food-grains, fruits and vegetables.

Spread the word that energy efficiency is good because it lowers greenhouse gas emissions and air pollution.



**A. K. Johari, IFS**  
Addl. PCCF, (Biodiversity & Climate Change)  
Member Secretary–  
Assam State Biodiversity Board

# Following the trails of *Paphiopedilum spicerianum*: a rare and beautiful orchid of South Assam

Dr. Aparajita De

## Discovery

*Paphiopedilum spicerianum* is one of the members of Lady slipper orchids. Unlike other brightly coloured orchids the flowers of *P. spicerianum* has a quiet dignified beauty. The first valid description (and the most apt one) is found in the Gardeners Chronicle issue of October 1879. It is described as “a small-flowered species with the upper sepal white, marked with a central purple line, lateral sepals greenish also with a central line, the lip greenish, shining and the top of the column white, spotted violet and wavy at the margins.” (*Gard. Chron.*n.s. 12: 505 - 1879).



*Paphiopedilum spicerianum* has a long standing history in South Assam. The story of its discovery is almost like reading an adventure fiction. It was collected for the first time by a tea planter named Mr. Robert Spicer who sent it to London. The flower was then popularly known as Spicer's orchid. It was so unique in its appearance that a single pot of the species sold for sixty guineas. It may be mentioned here that at that time, guineas were considered to be equivalent to pounds. Therefore sixty guineas would mean sixty pounds that is roughly equivalent to 5000/- rupees!! The exact location of the species was kept a secret by the Spicer family and after a lot of undercover investigations it was found out that the flower was sent by a tea planter named Robert Spicer who was the owner of some tea plantations near Silchar, South Assam. With this meagre knowledge, a 27 year old orchid collector

Ignatz Forstermann began his journey from St. Albans, UK in the late spring of 1881 and reached Silchar in the autumn of the same year, taking almost 5-6 months to reach here. He then located the tea garden belonging to Mr. Spicer. He had to undergo several difficulties making his way through dense forests, deep gorges and streams when he found the species somewhere in one of the tributaries of the present Sonai river. It was shipped in huge consignments to England, where it became a collectors' delight. All this happened more than 130 years ago.



It was next reported by Pradhan (1971 and 1975) again from the tributaries of Sonai River. This was over 90 years after its original discovery. There have been some more reports of its discovery in Assam (Bhattacharjee 2010) in the recent times, but the species is still elusive as the exact location remains unknown. It is because of this reason that one cannot be fully sure about its status in the Barak valley. In our study we have found the species growing in neighbouring areas but we have failed to locate it in the Barak valley itself.

## Description

*Paphiopedilum spicerianum* is a lithophytic orchid. The leaves are linear-oblong. The scape (inflorescence) is usually 1, rarely 2 flowered. Flowers are ca 8-10 cm across. The dorsal sepal is obovate in shape and white in colour with a greenish base. The perianth has undulate margins and are yellowish-green in colour. The lip is shiny, brownish and flushed with a crimson hue. The dorsal sepal has a crimson streak in the middle.

## Threats

The threats have been mainly due to over collection in the past. The species has been collected from this region and sent to nurseries that have been established elsewhere where the species is being propagated and exported. However now the species cannot be found in all the earlier reported areas.

Habitat degradation could also be another reason for the absence of the species. The river Barak and its tributaries that flow in this region



has changed its course in these 130 years. The human population has increased manifold. Most of the potential habitats for this orchid are now non-existent because of the rampant habitat destruction.

Another reason leading to the disappearance of this species from this region could be the change in climate and consequent warming of the environment. It has been observed in China which also has some small populations of *Paphiopedilum spicerianum* that the populations growing in the steep cliffs are moving upwards in an altitudinal gradient. This phenomenon has also been observed in the Barak valley, where the species has been located in a relatively higher altitudinal location in adjoining areas. These populations are likely to shrink or even become locally extinct as the warming continues because they have no higher places to which

they are able to migrate. Natural poleward migration is unlikely for these populations because of the complex terrain, small size of the populations and human-dominated surroundings. Species with narrow distributions and/or small population sizes will be the most vulnerable.

## Remedial measures

The best remedial measure that would address the dwindling population would be to propagate the species under ex-situ conditions, identify suitable habitats for their relocation using techniques like Ecological niche Modelling and undertake massive relocation programmes after standardizing the techniques of propagation. Constant monitoring of the relocated species is also mandatory to ascertain their establishment and propagation.

The species could also be introduced among the professional gardeners and nurseries of the region. However it has to be ensured that the commercial exploitation is done from seedling propagated in the ex-situ conditions and not from the wild.

Spreading awareness about the species amongst the common people could be another way of conserving this beautiful and valuable orchid from south Assam.



**Dr. Aparajita De, PhD**  
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# Assam State Biodiversity Board Highlights 2016

## Documentary on 'Biodiversity of Assam' launched during the visit of Prince Williams & Princess Kate Middleton to Assam

The 15 minutes English documentary on “Biodiversity of Assam” prepared by Assam State Biodiversity Board (ASBB) for generating awareness among stakeholders was presented to Prince William and Princess Kate Middleton during their visit to Assam in April 2016. The same has been circulated among senior government officials of line departments and media persons. It was also distributed to the Managers of Protected Areas and state Biodiversity Management Committees for screening during orientation workshops and capacity building of the Eco-Development Committees. ■

## Exposure Visit of ASBB staff to Sikkim Biodiversity Board (SBB)



ASBB staff with members of SBB

The Technical staff of ASBB went to Sikkim Biodiversity Board for an exposure visit during 12<sup>th</sup> -17<sup>th</sup> April 2016. The visit was planned for the staff to interact and learn good practices of other State Biodiversity Boards on implementation of the Biological Diversity Act at the grass-root level. ■

## Bio-safety Protocol Workshop at Chennai

Two Board Staff participated in the 'Capacity building workshop on bio-safety & trans-boundary movement of Living Modified Organisms' at Chennai on 9<sup>th</sup> May 2016 organized by BCIL, Bangalore in association with National Biodiversity Authority. ■

## Celebration of International Day for Biological Diversity 2016:



Celebration of International Day for Biological Diversity, 2016 at Nameri National Park

The ASBB celebrated the “International day for Biological Diversity” on 22<sup>nd</sup> May, 2016 on the theme of “Mainstreaming Biodiversity; Sustaining People and their Livelihoods” at Wildlife Range Office, Nameri National Park and Tiger Reserve, Potasali, Tezpur, Assam. This function was jointly organized by the Board and the Assam Forest Department. The event was sponsored by National Biodiversity Authority (NBA), Chennai.

The event was attended by Senior Forest Officers, DCs of both Biswanath and Sonitpur Districts, representatives of government departments, NGOs, Panchayat Members, EDCs, JFMC members, BMC members and local people. Around 1500 participants including school children gathered to celebrate the

main function. A plantation drive was also conducted to celebrate the event and saplings of various multi-utility fruit plants were distributed among the local people.

As part of the celebrations, competitions were organised on drawing, painting, slogan and essay writing for the school children besides, weaving and handicrafts for the local Self Help Groups (SHGs) to generate awareness about the rich biodiversity of Assam. About 1000 school children from 15 different government schools participated in the competitions. ■

## 18<sup>th</sup> Board Meeting in July 2016



18<sup>th</sup> Board meeting at conference hall of Chief Secretary

The 18<sup>th</sup> Meeting of the ASBB was held on 25<sup>th</sup> July 2016 in the conference hall of the Chief Secretary, Assam at Dispur and was presided over by Shri V. K. Pipersenia, IAS, Chief Secretary to the Government of Assam and Chairperson of ASBB. The Member Secretary presented the last quarter progress of the Board before the Members present. ■

## 19<sup>th</sup> Board meeting in November, 2016

The 19<sup>th</sup> Meeting of the ASBB was held on 29<sup>th</sup> November 2016 in the conference hall of the Chief Secretary, Assam at Dispur and was presided over by Shri V. K. Pipersenia, IAS, Chief Secretary to the Government of Assam and Chairperson of ASBB. The Member Secretary presented the last quarter progress of the Board before the Members present. ■



19<sup>th</sup> Board meeting at conference hall of Chief Secretary, Assam

## Access and Benefit Sharing (ABS) Workshop at Guwahati

The Technical staff of the Board participated in the Access and Benefit Sharing Workshop held at NEDFi house, Guwahati on 22<sup>nd</sup> June 2016, organised by Biotech Consortium India Limited (BCIL) in collaboration with National Biodiversity Authority. ■

## Celebration of 70<sup>th</sup> Independence Day 2016

The ASBB in collaboration with Assam Forest Department celebrated the 70<sup>th</sup> Independence Day in 2016 by organising three day training and capacity building workshops at 152 Biodiversity Management Committees (BMCs) from 13<sup>th</sup>-15<sup>th</sup> August 2016. To commemorate the celebration the Board organised the following events:

- I. Plantation of 70 multi-utility fruit trees under the jurisdiction of each Biodiversity Management Committee.
- ii. Screening of Assamese documentary on implementation of Biological Diversity Act-2002, Assam Biodiversity Rules-2010 and roles of BMCs.
- iii. Capacity building programmes of BMC Members along with hands-on training of BMC Member Secretaries on writing of Annual Reports and Utilization Certificates etc.

- iv. Hoisting of Indian National Flag in each BMC/Panchayat office on 15<sup>th</sup> August 2016.



Hatidhura Anchalik Panchayat BMC: Independence day celebration and biodiversity awareness programme

The training programmes were conducted by Board staff and BRAP Fellows from the Assam State Biodiversity Board. ■

## Regional Meeting of State Biodiversity Boards at Kolkata

The Board participated at the Regional Meeting of State Biodiversity Boards (SBBs) at Kolkata on 22<sup>nd</sup> August 2016, organised by National Biodiversity Authority to discuss the issues and challenges faced by the SBBs in implementing the Biological Diversity Act and Rules at grass-root level. ■

## Declaration of Biodiversity Heritage Sites of Assam

Under Section-37 of Biological Diversity Act-2002 the State Government in consultation with local bodies may notify areas of biodiversity importance as **Biodiversity Heritage Sites (BHS)**.

BHS are unique ecosystems having rich biodiversity comprising of any one or more of the following components:

- richness of wild as well as domesticated species or intra-specific categories,
- high endemism,
- presence of rare and threatened species, keystone species, species of evolutionary significance,

- wild ancestors of domestic/cultivated species or their varieties,

past pre-eminence of biological components represented by fossil beds and having significant cultural, ethical or aesthetic values that are important for the maintenance of cultural diversity, with or without a long history of human association with them.

*“The creation of BHS may **not** put any restriction on the prevailing practices and usages of the local communities, other than those voluntarily decided by them. The purpose of declaring BHS is to enhance the quality of life of the local communities through conservation of such sites.” ■*

## Notification of 'Threatened Taxa' for Assam

Under section-38 of Biological Diversity Act-2002 and the Rules-24 (1) of the Assam Biodiversity Rules-2010, and in consultation with Stakeholders, the State Government of Assam intends to notify certain species of plants and animals as “Threatened Species”.

The first candidate list of such plants and animals to be notified as Threatened Species are available at [www.asbb.gov.in](http://www.asbb.gov.in) (in *Whats New* Section) ■

## Status on constitution of Biodiversity Management Committees (BMC)

In Assam, the Biodiversity Management Committees are to be constituted at 189 Anchalik Panchayats or Blocks and at the three Autonomous Councils where there is no Panchayat system.

### Status of BMC Constitution:

- i. Anchalik Panchayats/Blocks: 189 BMC constitutions completed.
- ii. Bodoland Autonomous Council: 16 BMC constituted out of 21 proposed.
- iii. Dima Hasao Autonomous Council: 9 BMC proposed
- iv. Karbi Anglong Autonomous Council: 12 BMC proposed. ■

## Status on Preparation of People's Biodiversity Registers (PBR)

In Assam, the works for preparation of People's Biodiversity Registers (PBR) has been started at 139 BMCs with financial assistance from National Biodiversity Authority and from the State Government.

### Status on preparation of PBR:

- i. Completed PBR : 5
- ii. Draft ready for TSG vetting: 50
- iii. On-going work: 84

## Status on formation of Technical Support Group (TSG)

The Technical Support Groups (TSG) are District level committees comprising of officials from line departments such as Agriculture, Horticulture, Veterinary, Fishery etc/institutions/persons with excellence and expertise on the biodiversity related issues at local level, that shall guide the BMCs in their operation. The PBRs so formed by the BMCs have to be validated by the TSG.

In Assam, so far 19 District TSGs are formed and process is on for formation in the remaining districts. ■

## Status of Research Projects/ consultancy works undertaken

The following research projects/ consultancy works were undertaken by the Board so far -

### Completed Projects:

- Study on the Diversity of Spiders of Upper Assam with special reference to KNP: A book “**Common Spiders from select PAs of upper Assam**” published by ASBB as outcome of the project.
- Documentation of the commonly traded Rare & Endemic Wild Edible Bio-Resources from the Local Markets of Central Assam: A book “**Edible Bio-resources & Livelihoods**” published by ASBB as outcome of the project.



Release of Spider book during 17<sup>th</sup> Board meeting



Release of Edible Bio-resources & Livelihoods book by Hon'ble Forest Minister, Assam.

### Consultancy Work to ASBB by Power Grid Corporation

- Biodiversity Assessment study along proposed 132 KV Power Line from West Phaileng to Marapara in Buffer Zone of Dampa tiger Reserve, Mizoram. *(Report prepared and submitted to Power Grid Corporation)*

### On-going Projects

- Inventory and Documentation of Insect Fauna of Assam from existing entomological resources/ information. *(Final report submitted by the PI)*
- Study on the Fish Diversity in Brahmaputra River of Assam to identify the threatened species, evaluate and determine their present conservation status and needs. *(Mid-term report submitted by the PI)*
- Preparation of Assam Biodiversity Strategy and Action Plan by Wildlife Institute of India *(1 year Project started from August 2016 onwards).* ■

# Biodiversity Research Associate Programme (BRAP)

The Assam State Biodiversity Board provides fellowships under the BRAP to Graduates, Post-graduates and young professionals to assist the Board in fulfilling its mandates.

**Objective of the Programme:** To inculcate scientific temper among young talent in the state of Assam and motivate them to work for conservation of biodiversity. This program would enhance the understanding of the Associates about the present day challenges in promoting conservation and sustainable use of biodiversity and provide them an opportunity to contribute towards meeting these challenges.



BRAP fellow interacting with villagers for the preparation of PBR

**Time duration:** The program is for short duration, maximum up to 6 months. This is with a view to allow the interested persons an opportunity to utilize their free time, e.g., summer vacations/winter vacations/time between two semesters/time while preparing for competitive exams etc. and work productively in the field of biodiversity.

### Fellowship:

- I. 3 months programme (Rs 5000 - 8000/- pm + total contingency of Rs 10,000/- towards field visits, documentation etc.)
- ii. 6 months programme ( Rs 5000 - 8000/- pm + total contingency of Rs 20,000/- towards field visits, documentation etc.)

**Area of Work:** The BRAP Fellow can work in any part of Assam but will have to work in close association with the Board. This may require visits to the Board Office for discussions/ guidance or interaction with Board Members or Experts at Guwahati or any other designated place as per the requirement of the work.

### Broad themes for works assigned to the BRAP Fellows

1. Awareness generation amongst local people
2. Capacity building of the Biodiversity Management Committees (BMCs)
3. Assisting BMCs in preparation of their People's Biodiversity Registers(PBRs)
4. Species based studies/documentation of biodiversity
5. Identifying biodiversity concerns and prescribing management methods

Under the BRAP, so far 52 Fellows have been engaged.

## BRAP Fellows:

### First Batch (15/10/2014 to 14/01/2015) –

Name of the Fellow	BMC Assisted
1. Nazrul Islam	Hajo Block BMC
2. Nilutpal Mahanta	Hajo Block BMC
3. Somoyita Sur	Hajo Block BMC

### Second Batch (01/02/2015 to 30/04/2015) –

Name of the Fellow	BMC Assisted
1. Nazrul Islam	Mayong Anchalik BMC
2. Nilutpal Mahanta	Mayong Anchalik BMC
3. Somoyita Sur	Mayong Anchalik BMC

### Third Batch (15/06/2015 to 14/09/2015) –

Name of the Fellow	BMC Assisted
1. Nilutpal Mahanta	5 No. Jorhat, AP BMC, Baghchung
2. S. S. M. Hussain	Balipara Anchalik BMC
3. Bidisha Sarkar	Barbaruah AP BMC
4. Samujjal Saharia	Bechimari Block BMC
5. Nanka Lakra	Behali Anchalik BMC

6. Pranjali Mahananda	Bihaguri Anchalik BMC
7. Surashri Das	Chamoria Anchalik BMC
8. Nazrul Islam	Goroimari Anchalik BMC
9. Nayanika Devi	Kamalpur Block BMC
10. Nirmal G Das	Pub Nalbari Block BMC
11. Bhaskar J Kalita	Sivasagar Anchalik BMC
12. Shah Nawaz Jelil	Sootea Anchalik BMC
13. Dharitri Das	Sualkuchi Block BMC
14. Sukanya Talukdar	Tihu Block BMC
15. Sabita Nath	Barpeta Block BMC
16. S Arandhara	Kakopathar AP BMC
17. M Parashar	Pachim Nalbari Block BMC
18. Pragoti Kalita	Baghmara Anchalik BMC

#### Fourth Batch (02/11/2015-01/02/2016) –

Name of the Fellow	BMC Assisted
1. Pragoti Kalita	Biswanath Anchalik BMC
2. Dharitri Das	Bongaon Anchalik BMC
3. Nirmal G Das	Barkhetri Block BMC
4. M Choudhury	Moirabari Anchalik BMC
5. Nanka Lakra	Rupsi Block BMC
6. Nayanika Devi	Pachim Mangaldai Block BMC
7. Bhaskar J Kalita	Gaurisagar Anchalik BMC
8. Shah Nawaz Jelil	7 No. Naduar Anchalik BMC
9. Nazrul Islam	Madhya Jorhat AP BMC, Chipahikhola
10. Nilutpal Mahanta	Titabor AP BMC, Titabor
11. Samujjal Saharia	Pub Mangaldai Block BMC
12. S. S. M. Hussain	Sipajhar Block BMC
13. Manisha Borborah	Kaliapani AP BMC, Kaliapani
14. Chayanika Das	Boitamari Anchalik BMC
15. Sabita Nath	Dangtal Anchalik BMC
16. Surashri Das	Bajali Block BMC
17. Biswajit Singh	Salchapra Anchalik BMC
18. Demsai Reang	Lakhipur Anchalik BMC
19. Nazimur R Talukdar	Algapur Anchalik BMC
20. Amir S Choudhury	South Hailakandi Anchalik BMC

#### Fifth Batch (15/07/2016-14/10/2016) –

Name of the Fellow	BMC Assisted
1. Jenima Sultana	Pachim Koliabor Anchalik BMC
2. Vivek Chetry	Manikpur Anchalik BMC
3. Lily Singson	Raha Anchalik BMC
4. Urmika Phangchopi	Lumding Anchalik BMC
5. Mayuri Borthakur	Uttar Pachim AP BMC, Dhekorgorah
6. Fatima Begum	East Jorhat AP BMC, Selenghat
7. Tanbeer Ahmed	Kathiatoli-I Anchalik BMC
8. Mrinal J Daimary	Kathiatoli-II Anchalik BMC
9. Papori Khatonier	Hapjan AP BMC
10. Sumit Nath	R.K. Nagar Anchalik BMC

### Internship Programme on Biodiversity Conservation

The Internship Programme on Biodiversity Conservation was launched by the Board in order to sensitize larger section of students and motivate them to work for the conservation of biodiversity in the state. This programme aims at enhancing the understanding of the Interns about the present day challenges in conservation and sustainable use of biological resources by providing them an opportunity to hone their skills and contribute in meeting these challenges.

**Programme Duration:** 3 months

**1<sup>st</sup> Batch:** 9<sup>th</sup> January to 8<sup>th</sup> April 2017.

**Total Intake:** 20 Students

**Fellowship:** Rs 5000/- per month + Rs 10000 contingency for entire 3 month duration.

#### Broad themes of works for the selected Interns:

1. Assist the Board in Awareness generation programmes.
2. Capacity building of the Biodiversity Management Committees (BMC)
3. Assist in preparation of People's Biodiversity Registers (PBR): One PBR has to be completed by each intern for the assigned BMC.

4. Data entry in state Digital PBR database
5. Photo and video documentation of rich biodiversity of the state with associated Traditional Knowledge.
6. Species and habitat based studies
7. Identification of biodiversity concerns and prescription of management methods

### Other benefits of the Programme for the selected Interns:

1. Access to library at the Board office in Guwahati
2. An opportunity to learn and interact with eminent Scientists/Researchers/Wildlife Conservationists/Forest Officers through 'Lecture Series' on varied topics of biodiversity Conservation.
3. Outdoor visit to training centers, wildlife rich areas and research laboratories.
4. Experience Certificate
5. Best Intern Award

#### 1<sup>st</sup> Batch Interns: 20 Students

Name	BMC Assigned
1. Ms Citumoni Gogoi	Dhemaji Anchalik BMC
2. Ms Mridusmita Borah	Boginodi Anchalik BMC, Lakhimpur
3. Mr Kunal Chanda	Guijan AP BMC, Tinsukia
4. Ms Neeharika Gogoi	Jeypore AP BMC, Dibrugarh
5. Ms Minakhi Borah	Amguri Anchalik BMC, Sivasager
6. Ms Sushmita Devi	Golaghat Central Anchalik BMC,
7. Ms Himadri Borah	Morangi Anchalik BMC, Golaghat
8. Mr Tanbeer Ahmed	Bokakhat Anchalik BMC, Golaghat
9. Mr Pankaj Saikia	Jogijan Anchalik BMC, Nagaon
10. Mr Ankur Jyoti Borah	Lumding-2 Anchalik BMC, Hojai
11. Mr Genius Teron	Lumding-1 Anchalik BMC, Hojai
12. Ms Lonie Lahkar	Rani AP BMC, Kamrup

13. Mr Simanta Medhi	Dimoria AP BMC, Kamrup
14. Ms Angkana Sarma	Bezera Block BMC, Kamrup
15. Mr Franklin Rongphar	Manja BMC, Karbi Anglong
16. Ms Dimpoly Toppo	Salkocha BMC, Kokrajhar
17. Mr Mrinal J. Daimary	Guma BMC, Kokrajhar
18. Mr Paris Basumatary	Rupshi BMC, Kokrajhar
19. Ms Dipika Parbo	Langting BMC, Dima Hasao
20. Ms Silpi Sorongpong	Mahur BMC, Dima Hasao

### Resource persons for Internship Programme

A 'Panel of Experts' has been constituted under the 'Internship programme on Biodiversity Conservation' for assisting the Board, comprising of the following.

1. Mr. Udayan Barthakur, Head, Wildlife Genetic Division, Aaranyak
2. Dr. Bibhuti P. Lahkar, Ecologist & Conservation Activist, Aaranyak
3. Dr. Dilip Chetry, Director & Head, Primate Research & Conservation Division, Aaranyak.
4. Dr. Smarajit Ojah, Assistant Professor, Nagaon Girls College, Nagaon.
5. Dr. Kushal Choudhury, Assistant Professor, Kokrajhar Science College, Kokrajhar.
6. Dr. Narayan Sharma, Assistant Professor, Cotton College State University, Guwahati
7. Dr. Namita Brahma, Ornithologist & Conservation Activist, Aaranyak & TISS (Tata Institute of Social Science)
8. Mrs. Purnima Devi Barman, Ornithologist & Conservation Activist, Aaranyak
9. Dr. Puspa Komor, Subject Teacher/ Social Scientist, Dawson Hr. Sec. School, Nagaon
10. Dr. Bhrigu Prasad Saikia, Post Doctoral Fellow, Manchester University, UK.



11. Mr. Khyanjit Gogoi,  
Regional Orchid Germplasm Conservation &  
Propagation Centre, Assam.
12. Dr. Pranjal Bezbarua,  
Secretary, Grasshopper, Assam.
13. Dr. Rajeev Basumatary,  
Assistant Professor, D. R. College, Golaghat,
14. Mr. Neelam Dutta,  
Organic Farming Specialist, Pabhoi Green, Tezpur.
15. Dr. Hilloljyoti Singha,  
Assistant Professor, Assam University, Silchar.
16. Dr. Robindra Teron,  
Assistant Professor, Dept. of Life Sciences, Assam  
University, Diphu Campus, Karbi Anglong.
17. Mr. Jayadita Purkayastha,  
General Secretary, Help Earth NGO, Guwahati
18. Dr. Jihosuo Biswas,  
Coordinator, Primate Research Centre, Guwahati.
19. Dr. Hemen Deka,  
Assistant Professor, Dept. of Botany, G.U.
20. Dr. R. M. Pant,  
Director, NIRDPR, Guwahati

## Expert committee constituted for various technical works of Board

### I. Expert committee for the Project titled “Study on the Fish Diversity in Brahmaputra River inside Assam to identify the threatened species, evaluate and determine their present conservation status and needs.”

1. Dr. Amallesh Dutta, Retd. Prof,  
Dept. of Zoology, (Fishery), GU
2. Dr. P. C. Bhattacharjee,  
Expert Member-ASBB
3. Dr. B. K. Bhattacharjya,  
Principal Scientist & Head, CIFRI
4. Dr. M. M. Goswami, Retd. Prof & HoD,  
Dept. of Zoology (Fishery), GU

### II. Expert committee for evaluation of Majuli Biodiversity Heritage Site (BHS) proposal

The following committee was constituted for consideration of proposal for declaration of Majuli as a Biodiversity Heritage Site under section-37 of

the Biological Diversity Act-2002.

1. Sri Jadav Molai Payeng,  
Padmashree awardee - Chairman
2. Sri Anil Kr. Goswami,  
Expert Member-ASBB - Member
3. Sri M. Tungnung, IFS,  
Conservator of Forests (EAC) - Member
4. Chairman- Majuli AP Biodiversity  
Management Committee -Member
5. Member Secretary Majuli AP BMC - Member
6. Chairman- Ujani Majuli AP Biodiversity  
Management Committee - Member
7. Member Secretary Ujani Majuli AP BMC  
Member
8. Dr. Prasanna Kr. Pathak,  
Associate Director, AAU, Jorhat - Member
9. Dr. Dandeswar Dutta,  
Scientist B, RFRI, Jorhat - Member
10. Dr. B. S. Bhau,  
Principal Scientist, CSIR-NEIST, Jorhat  
- Member
11. HoD, Botany department, JB College, Jorhat  
- Member
12. HoD, Zoology department, JB College, Jorhat  
- Member
13. HoD, Department of Life Sciences,  
Dibrugarh University - Member
14. HoD, Department of Geography, Majuli College  
- Member
15. One representative from Biomix Nature Club,  
Nayabazar, Majuli - Member
16. One representative from Heritage Majuli  
Samiti, Majuli - Member
17. Dr. Debabhuson Borah,  
Aranya Suraksha Samiti, Majuli - Member
18. One representative from SADVABNA,  
Garmur, Majuli - Member
19. One representative from IMPACT-NE,  
Kamlabari, Majuli - Member
20. Mrs Madhabi Das,  
Social Activist, Kamalabari, Majuli - Member
21. Mrs Minoti Saikia,  
Social Activist, Garmur, Majuli - Member

22. Mrs Rinumala Dutta,  
Social Activist, Garmur, Majuli - Member
23. Divisional Forest Officer (DFO),  
Jorhat Forest Division - Member
24. Divisional Forest Officer (DFO),  
Social Forestry, Golaghat - Member Secretary

### III. Expert Group for Assam State Biodiversity Strategy and Action Plan (ASBSAP)

Expert Group constituted to oversee implementation of the assignment for preparation of ASBSAP by Wildlife Institute of India, Dehradun and to periodically review its progress:

1. Dr. Anil Kr. Goswami,  
Expert Member- ASBB
2. Dr. P. C. Bhattacharjee,  
Expert Member- ASBB
3. Director, ASTEC, Guwahati
4. Sri Utpal Bora, IFS,  
Chief Conservator of Forests-HQ,  
O/o. PCCF & HoFF
5. Dr. Diganta Narzary,  
Asst. Professor, Dept. of Botany, GU
6. Dr. Narayan Sharma,  
Asst. Professor,  
Dept. of Zoology, CCSU
7. Sri A. K. Johari, IFS,  
APCCF (Biodiversity & CC) &  
MS -ASBB
8. Dr. O. Sunanda Devi,  
Scientific Officer-ASBB



# ASSAM BIODIVERSITY NEWS

## A new species of *Garcinia* (Clusiaceae) from Manas National Park



© Jatindra Sarma

*Garcinia assamica*, a new species of *Garcinia* from Assam, is described by Jatindra Sarma, Peerumuhamed Subaida Shameer and Narayanan Nair Mohanan in 2016. The new species is allied to *Garcinia nigrolineata*. The species is locally found in Manas National Park and its surroundings. The fruit is edible and is used for making pickle.

*Garcinia assamica* is closely related to *G. nigrolineata*, an Indo-Malayan species found in almost the same ecological conditions, but is distinguished by characters like bark colour, leaf shape, size and apex, female flower, latex, fruit etc. ■

Source:  
Phytotaxa, Vol. 252 (1): 073-076 (8<sup>th</sup> March 2016)  
A journal published by Magnolia Press

## White-browed Crake *Amaurornis cinerea* a new avian species for Assam & India

White-browed Crake *Amaurornis cinerea* was reported by Deborshee Gogoi & Porag Jyoti Phukan from Maguri-Motapung Beel of Tinsukia district. This is a new addition to the avian fauna of India. This crake is easily distinguishable from sympatric crakes by its strikingly diagnostic face pattern; black eye stripe intersecting white patches on eyebrows and upper cheeks.



© Deborshee Gogoi

The White-browed Crake was previously thought to occur mainly in Myanmar, Thailand, Cambodia, Vietnam, Laos, South-western China (including Ningming and Baise, Guangxi, Xichang, Sichuan), Malaysia, Singapore, Philippines, Indonesia, New Guinea and North Australia. ■

Source:  
Indian Birds, Vol. 11 (3): 79-80 (11<sup>th</sup> April 2016)  
A journal of South Asian Ornithology published by  
New Ornis Foundation

## New record of two Butterfly Species from Assam



© M. J. Gogoi

Fawcett's Pierrot



© M. J. Gogoi

Multispotted Oakblue

Two new butterfly species Fawcett's Pierrot (*Niphanda asialis marcia*) and Multispotted Oakblue (*Arhopala anthelus*) were recorded for the first time from Barail Wildlife Sanctuary in Southern Assam. Earlier these species were thought to be found only in Myanmar and Thailand, not in India. The findings were published in the *Journal of Entomology and Zoology Studies* by M. J. Gogoi, H. J. Singha & Panna Deb of Assam University Silchar.

The study also recorded 343 species of butterflies from the wildlife sanctuary, second only to Kaziranga National Park. ■

Source:  
*Journal of Entomology & Zoology Studies*, Vol. 4 (4):  
547-560 (27<sup>th</sup> June 2016)  
A Journal of Entomology published by Akinin  
Publications, New Delhi

## Orchid species *Vrydagzynea nuda* recorded from Dehing-Patkai Wildlife Sanctuary



© Khyanjeet Gogoi

*Vrydagzynea nuda* has been recorded for the first time in India, from Dehing-Patkai Wildlife Sanctuary by Khyanjeet Gogoi. The species was earlier recorded from China, Hong Kong, and Indonesia (Java) and Malaysia (Borneo). The flowering season of the orchid is in between March to May. It is a terrestrial orchid and generally grows in damp forests and humid places. ■

Source:  
Richardiana, Vol. 16: 347-350 (25<sup>th</sup> July 2016)  
A quarterly journal of orchids published by Tropicalia

## Rajiv Gandhi Orang National Park has been declared as fourth Tiger Reserve in the state

Rajiv Gandhi Orang National Park has been declared as a Tiger Reserve - a significant step towards long term big cat conservation in Assam. The state government through its 24<sup>th</sup> February 2016 notification had given the final

approval for according Rajiv Gandhi Orang National Park as Tiger Reserve under Section 38 V (I) of the Wildlife (Protection) Act, 1972. With the approval, Orang has become the fourth Tiger Reserve in the state and 49<sup>th</sup> in the country.

The National Tiger Conservation Authority (NTCA) had given its nod for declaring a total 492.46 square km of the park as Tiger Reserve.

Out of 492.46 square km, 79.28 square km is the core and 413.18 square km is the buffer area of the reserve. Located on the north bank of Brahmaputra, Orang has been known for its rich one-horned rhino habitat after the Kaziranga National Park which is on the southern bank of Brahmaputra.

However, Orang also has viable tiger population as the park forms contiguous landscape with Kaziranga, connected through numerous sand islands on Brahmaputra.

During 2013 camera trap census, 24 tigers including 4 cubs were found in Orang. NTCA's report on status of tigers, co-predators and prey in India (2010), underscores the significance of Orang-Kaziranga tiger corridor.

The report pointed out that Kaziranga's tiger population is connected to Orang's through sand island systems that forms the single largest landscape of big cat population in the state. This landscape also includes Loakhowa and Burachapori wildlife sanctuaries which are also tiger habitats. ■

Source:  
National Tiger Conservation Authority/Project Tiger  
website [www.projecttiger.nic.in](http://www.projecttiger.nic.in)

## New record of Pitcher Plant from Assam



© Jeremiah

For the first time, the pitcher plant (*Nepenthes khasiana*) which is known to be found only in Meghalaya has been recorded from Assam. The endangered species was spotted in the wild by Albert LS Betlu in 2016 who is working at the North Eastern Region Community Resource Management Project in Dima Hasao district of Assam.

It was found at Vaitang Hebron in Biate village, 150 km from Haflong, the headquarters of Dima Hasao at an altitude ranging from 510 to 1,115 metres. The sighting has been reported in the *Current Science* journal.

In Meghalaya, the plant is found in the Jarain area of Jaintia hills, the Baghmara area of Garo hills and adjacent areas of Khasi Hills. The IUCN Red List of Threatened Species says it is intensively exploited for its medicinal value. ■

Source:  
Current Science, Vol. 111 (8): 1311 (25<sup>th</sup> October 2016)  
A Fortnightly Journal of Research published by  
Current Science Association & Indian Academy of  
Sciences, Bengaluru

# NATIONAL & INTERNATIONAL BIODIVERSITY AWARDS

## India Biodiversity Awards, 2016

Across the country, people, communities and governments have played an outstanding and innovative role in conserving India's rich heritage.

The India Biodiversity Awards (IBA) is a joint initiative of the Ministry of Environment, Forest and Climate Change and UNDP India, to recognize and honour outstanding models of biodiversity conservation, sustainable use and governance at the grassroots level.

Since 2012, the India Biodiversity Awards have recognized excellence in biodiversity governance and conservation. The first India Biodiversity Awards were jointly announced by the Ministry and UNDP India in 2012 at the high level segment of the Eleventh meeting of Conference of Parties to the Convention on Biological Diversity, during India's Presidency of the Conference of Parties to the Convention on Biological Diversity. Following its success, the second India Biodiversity Awards were announced in May, 2014 at the International Day for Biological Diversity.

The categories of the India Biodiversity Awards have been modified to link them with the provisions of the Biological Diversity Act, 2002, in order to incentivize stakeholders for the conservation of biodiversity and the effective implementation of the Act.

### The four categories of the India Biodiversity Awards 2016 are:

- Conservation of threatened species (both wild and domesticated)
- Sustainable use of biological resources
- Successful mechanisms/ models for access and benefit sharing
- Biodiversity Management Committees

#### Category: Conservation of Threatened Species

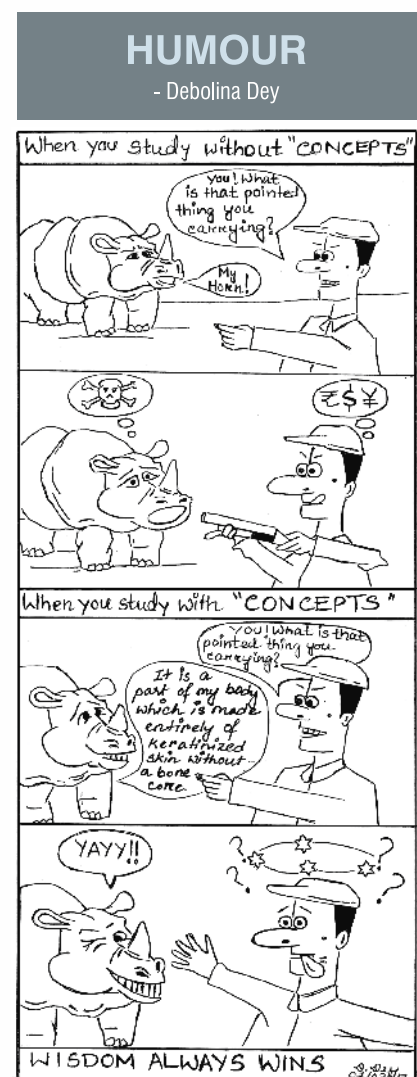
Conservation efforts by individuals and institutions that have led to protection, management and restoration of habitats and population recovery resulting in significant reduction in the threat level to wild and domesticated species.



Purnima Devi Barman receiving India Biodiversity Award, 2016

### Purnima Devi Barman and the Hargilla Army

The Greater Adjutant bird, is found only in two areas in India and Cambodia. Purnima Devi Barman and the women's *Hargilla* army protect this endangered species increasing nests threefold in six years.



## IUCN Heritage Heroes Award

**Ecologist Bibhuti P. Lahkar bags Heritage Heroes Award of IUCN**

Assam-based ecologist and conservation activist Bibhuti Lahkar has become the first Asian to be awarded the prestigious Heritage Heroes Award by the International Union for Conservation of Nature (IUCN). Lahkar received the award at the IUCN's World Conservation Congress in Honolulu, Hawaii. Lahkar was among five conservationists across the globe to be nominated for this year's Heritage Heroes Award, aimed at recognising "outstanding efforts" around the world in making a difference in the conservation of



Bibhuti P. Lahkar with IUCN Heritage Heroes Award, 2016

World Heritage sites in challenging situations.

Lahkar has been working to save the grasslands, flora and fauna of Manas National Park area for the past two decades and is currently engaged as Manas Landscape Administrator for Aaranyak, an NGO working for biodiversity

conservation in northeast India. The ecologist has intensively studied the grasslands of Manas and is now globally recognised as an expert in the threatened flora and fauna of the Terai region along the southern foothills of the Himalayas. ■

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# Charismatic Species of Jeypore Reserve Forest

Dr. Mazedul Islam



*Pyros candalaria*  
Yellow Spot Lantern Fly



*Gasteracantha diadesmia*  
Spiny Orb-weaver



*Gasteracantha* sp.  
Long-horned Orb-weaver



*Chikila gaiduwani*  
Gaiduwan's Chikila (Amphibia)



*Odorrana chloronota*  
Copper-cheeked Frog



*Pangshura sylhetensis*  
Assam Roofed Turtle



*Draco norvillii*  
Norvill's Flying Lizard



*Boiga gokool*  
Arrowback Tree Snake



*Terpsiphone paradisi*  
Asian Paradise Flycatcher



*Aristolochia saccata*  
Pouch Birthwort



*Calanthe lyroglossa*  
Lute-shaped Lip Calanthe



*Tacca chantrieri*  
Bat Flower



**Dr. Mazedul Islam**, PhD  
Technical Associate  
Assam State Biodiversity Board  
Email: mazedul.islam@yahoo.com



# Rice variety of Hapjan Anchalik BMC

Papori Kathoniar



*Ahum Hali Dhan*



*Batkopahi Dhan*



*Henduri Bor Dhan*



*Kolahi Dhan*



*Maniki Modhuri Dhan*



*Pakhi Loga Bora Dhan*



*Huwakmoni Dhan*



*Jai Bangla Dhan*



*Kola Joha*



*Ronga Bora Dhan*



*Ronga Jengoni Dhan*



*Tora Boli Dhan*



**Papori Kathoniar, MSc.**  
BRAP Fellow, Hapjan Anchalik Panchayat BMC  
Assam State Biodiversity Board  
Email: parikhatonier@gmail.com

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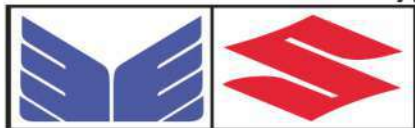
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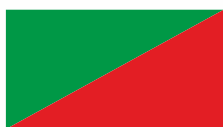


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## Assam Biodiversity Conservation Network



Assam Forest Department



To become part of our network you can email us with your logos.

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Tel.: 0361-2333917/2332278, Fax: 0361-2333788  
Email: [assambioboard@gmail.com](mailto:assambioboard@gmail.com)

[www.asbb.gov.in](http://www.asbb.gov.in)