



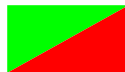
22 MAY 2015
INTERNATIONAL DAY
FOR BIOLOGICAL DIVERSITY
BIODIVERSITY FOR SUSTAINABLE
DEVELOPMENT



biodiversity for sustainable development



NATIONAL BIODIVERSITY AUTHORITY
CHENNAI



FOREST DEPARTMENT
ASSAM



biodiversity
for sustainable
development

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INTERNATIONAL DAY
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Published on the theme of
Biodiversity for Sustainable Development
on
International Day for Biological Diversity
2015



*"The Universe along with its creatures belongs to the Lord.
No creature is superior to any other.
Human beings should not be above nature.
Let no one species encroach over the rights and privileges of other species".*



Iso- Upanishads (1500-60 B.C.)

Shri Atuwa Munda

Hon'ble Minister, Environment & Forests,
Tea Tribes Welfare Department, Assam



Celebration of International Day for Biological Diversity is not merely a ritual. It is an occasion to remind ourselves of the responsibility we have for securing a better future for our younger generations.

The theme 'Biodiversity for Sustainable Development' offers an approach that is a necessity, not an option. Therefore, we must learn to take from nature only as much as is necessary and save the rest so that there is enough for posterity.

Let us dedicate ourselves for making Earth a better place.





*"So long as this earth is full of nature
(wild plants and animals)
human race is going to flourish".*



- Charak Samhita (4th -5th Cent. A.D.)



Shri Subhash Chandra Das, IAS

Chairman, Assam State Biodiversity Board
Addl. Chief Secretary, Assam

Local traditions and cultural practices develop from the collective wisdom of several generations. The science behind these traditions is infallible, albeit unrecognized. Aligning our bearings with our culture is the simplest and surest way to happiness and sustainability. I hope this book would help readers in this endeavor.



Shri Davinder Kumar, IAS

Addl. Chief Secretary,
Environment and Forests, Assam

Biodiversity conservation and sustainable development are inseparable, much like two sides of the same coin. To be mindful of our lifestyle is the easiest way to understanding this concept. Are our energy needs justifiable? Can our consumptions be moderated? These simple questions can lead to answers that we already know, but ignore in feigning modernity.



Shri Darash Mathur, IFS

Principal Chief Conservator of Forests &
Head of Forest Force, Assam

Biodiversity is mankind's life-insurance. It is this diversity of life that will sail us through the muddle created by mistakes we have been making in dealing with nature and natural resources. If we secure natural resources against misuse, we ensure our survival besides that of the future generation.





*"Man has no power to create life
therefore he has no right to destroy life".*



- Mahatma Gandhi

FOREWORD



Ancient civilizations originated and flourished in forests. People of these civilizations learnt from nature and lived in harmony with her. Over the ages man moved away from nature and developed new lifestyles. However, the dependency on natural resources not only continued but escalated. Consumption patterns overshoot production capabilities of the earth. New technologies enabled extraction from nature at unprecedented rates. The consequence of these developments were rewarding in a short run but could not be sustained for long. The chaos and disorder so created started affecting the well-being and survival of mankind. Puzzled, we tried to learn from our mistakes and searched for the right path.

Finding the right path is not rocket science. It can be learnt by being close to nature, as did our ancestors. Wise use of natural resources and giving back to nature in whatever little way we can, is the key.

Indian ethos and philosophy prescribe ways to regulate our needs for leading a contented yet blissful life. The local traditions and cultural practices have scientific basis. But with economic progress we are constantly moving away from them—endangering our own existence. Today we are at such a crucial juncture that if we do not take remedial measures, by regulating our needs and shunning greed, we would facilitate our own exit from this planet.

On the occasion of 'International Day for Biological Diversity' 2015, being celebrated on the theme of 'Biodiversity for Sustainable Development' we bring out this booklet for provoking thoughts, especially in the minds of children, who may suffer the most if the present generation does not live responsibly.

A handwritten signature in blue ink, appearing to read 'A. K. Johari'. The signature is fluid and cursive, with a long horizontal stroke extending to the right.

(A. K. Johari)
Member Secretary,
Assam State Biodiversity Board

Life on the Earth

Earth came into existence about 4.6 billion years ago. It took nearly 1 billion years for the first life form to appear.

Cyanobacteria were the first and the only solitary life form on this earth.

Since then, life has proliferated in its amazingly diversified forms into all nooks and corners.

Species like dinosaurs lived for a long time and then vanished.

Presently about 8.7 million species are estimated to exist; 6.5 million on land and 2.2 million in oceans.

Man may be ecologically the most advanced organism but depends on the largest number of species for survival. From food to medicine to everything needed in life we depend on life forms around us. The diverse the life forms the more secured we are. That is why it is said –



**'Biodiversity is
humankind's life insurance'**

Time Scale of Life on Earth

Big-Bang	Solar System formed	Earth is formed	Single-cell organisms	Photosynthesis	Multi-cell organism	First Human
13800 Million years (m.y.)	4600 m. y.	4540 m. y.	3600 m. y.	2000 m. y.	1000 m. y.	5-7 m.y.
9,260 million years after Big-Bang Earth came into being	940 million years for life to originate on Earth					
	3,400 million years for Oxygen to form after first life on Earth					

- Just as death is the ultimate truth of life ...
- Extinction is the ultimate truth of origin ...
- Nearly 80% of species that ever lived on Earth are already extinct and the remaining shall also disappear.
- Then what is the concern ?
- The concern is the rate at which species are becoming extinct.
- We are losing around 10,000 species every year.
- This current rate of Human-induced-extinction is 1,000 times higher than natural background rates.

Biodiversity is the variability among living organisms and their habitat. It is manifested at three levels:

1st level

Ecosystem Diversity:

It is the variation in the ecosystems found in a region or over the whole planet. e.g. forests, grasslands, deserts, wetlands, mountains etc. India has the most diverse kinds of ecosystems.



FOREST ECOSYSTEM



LAKE ECOSYSTEM



GRASSLAND ECOSYSTEM



DESERT ECOSYSTEM



MOUNTAIN ECOSYSTEM



MARINE ECOSYSTEM

2nd level

Species Diversity:

Species diversity is the number of different species that are represented in a given community. e.g. different species of herbivores and carnivores, birds etc.



3rd level

Gene Diversity:

It is the diversity manifest by characters. e.g. eye colour, seed colour of maize, rice varieties etc.

The genetic and species diversity are sub-sets of ecosystem diversity.



Estimates of Diversity of life

CATEGORY	GLOBAL	INDIA	ASSAM
INSECTS	5000000	60383	> 1000
ARACHNIDS	76654	14447	225
MOLLUSCS	200000	3271	39
FISHES	21730	2546	197
AMPHIBIANS	4522	197	> 60
REPTILES	6550	408	116
BIRDS	9702	1224	689
MAMMALS	4629	350	180
ANGIOSPERMS	250000	15000	4015
GYMNOSPERMS	750	64	21
FERNS AND FERN ALLIES	15000	1150	351

SOURCE: (<http://www.currentresults.com/Environment-Facts/Plants-Animals/estimate-of-worlds-total-number-of-species.php>,.....<http://ces.iisc.ernet.in/hpg/cesmg/indiabio.html>)

The International Union for Conservation of Nature and Natural Resources (IUCN) has prepared a list of species that need conservation- the Red List- 2013

TOTAL SPECIES ASSESSED = 70,294

Total threatened species = 20,934

Extinct = 799

Extinct in the Wild = 61

Critically Endangered = 4,227

Endangered = 6,243

Vulnerable = 10,464

Near Threatened = 4,742

Lower Risk = 241

Least Concern = 31,846

Data Deficient = 11,671

Source: (IUCN)



PYGMY HOG



GOLDEN LANGUR



RIVER DOLPHIN

Understanding Ecosystems ...

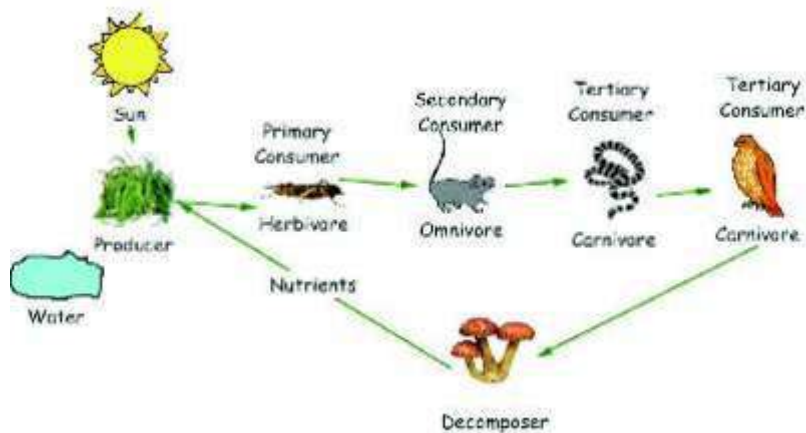
An ecosystem is like a 'home' to life created by nature.

An ecosystem includes all the living things (plants, animals and organisms) in a given area, interacting with each other and also with their non-living environment (soil, water, air, atmosphere).

Living component of an ecosystem are

- **Producers**, all green plants that convert solar energy into food.
- **Consumers**,
 - Primary Consumers that eat green plants
 - Secondary Consumers that feed on primary consumers
 - Tertiary consumers that feed on secondary consumers.
- **Decomposers**, that feed on dead organic matter and recycle nutrients back into the ecosystem.

Non-living components i.e. the substrate (soil, water) and the surrounding environment.

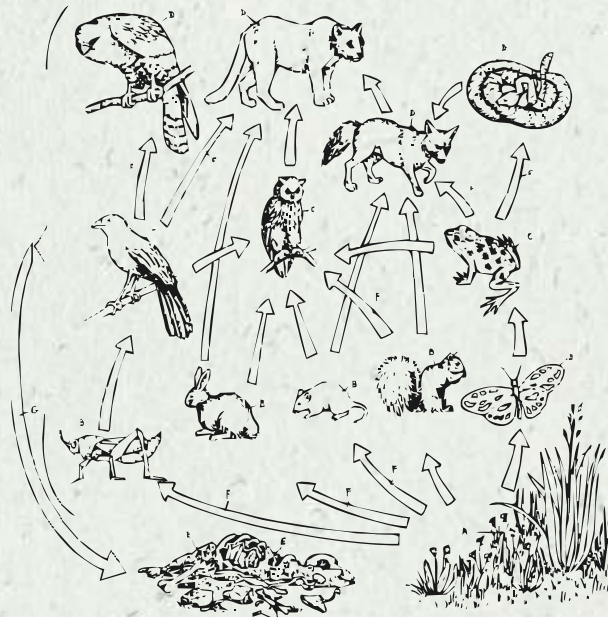


All ecosystems have a series of producers and consumers called **food chain**.



A SIMPLE FOOD-CHAIN

Many food-chains are linked to each other to create a **food-web**

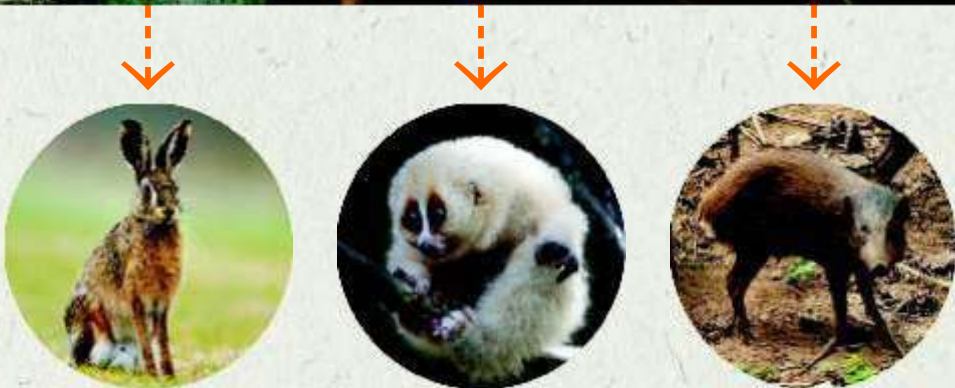


A FOOD-WEB

biodiversity for sustainable development

In an ecosystem there may be a few prominent species /flagship species but each species is equally important. Even if one species is removed, the others are affected and their survival threatened.

For example a tiger may be the flagship species but if the grass dries up, it would deplete prey base of tiger (deer and other herbivores) and thus the survival of tiger will be threatened.



NOTICE THE SURROUNDINGS WHERE THE TIGER LIVES, WHEN TIGER IS PROTECTED, ALL OTHER ASSOCIATED ORGANISMS OF THE HABITAT ALSO GET PROTECTED.

biodiversity for sustainable development

We know about the role played by some species but have no idea of significance of many others. In fact a large number of species are yet to be identified and described. Thus we must value each species, irrespective of whether we know about its role or not.



MANY UGLY LOOKING FROGS HAVE GIVEN US VALUABLE MEDICINES.

The simplest way to help species survive is to maintain various ecosystems as created by nature. The forests, grasslands, wetlands harbour significant biodiversity and must be conserved for posterity for our own well-being and survival.

We must remember that the survival of mankind depends on the survival of Biodiversity.



'Biodiversity is provider of goods and services'

Goods include:

- Food
- Fuel
- Fodder
- Fibres
- Fertilizer
- Timber
- Medicines
- Other raw materials
(Spices/Gum/Resin/Dyes etc)





Biodiversity Services include:

- Fresh air (Oxygen)
- Pure water
- Control of soil erosion
- Recycling of nutrients
- Recreation
- Climate regulation
- Cultural richness

Traditional Knowledge for Sustainable Management:

During ancient times, indigenous people developed, through observations, deep understanding of the dynamics of living systems and ascribed limits to exploitation of natural resources. They also found utilities in the plants and animals surrounding their habitation for their good health and prosperity. Knowledge acquired was transferred orally from generation to generation. This traditional knowledge (TK) or the traditional ecological knowledge (TEK) is highly relevant in today's scenario as it not only complements the 'scientific knowledge' but also shows ways for sustainability.

The Convention on Biological Diversity acknowledges the significance of TK and facilitates its documentation for conferring Intellectual Property Rights on the people/communities that hold the TK.

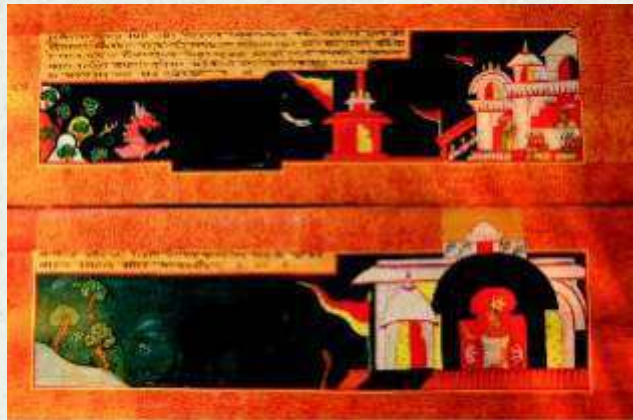
Have we ...

- Ever realised that most allopathic medicines are ultimately derived from ancient formula of use of plant and animal products ?
- Ever tried to find out what different 'chutneys' mother makes from the herbs in the backyard for warding off seasonal ailments ?
- Tried 'Ginger-Tulsi tea' during winters as a remedy against common cold and cough ?
- Ever noticed that different communities have different songs and rituals for annual chores such as planting, harvesting, fishing etc. ?

All the above practices exhibit the tradition of ancient knowledge being practiced in day to day life, perhaps without realization that there is a scientific base and millennium of research behind such practices.

Traditional Knowledge gets exhibited in

- Stories
- Songs
- Folk-lores
- Cultural values
- Beliefs
- Community laws
- Local languages
- Agricultural practices



In Assam, biodiversity has been associated with the lives of Assamese people since time immemorial. Folk/traditional music, mythology, scripts, beliefs and living styles give us a glimpse of our rich heritage.

"Pube bhoral, Pashime goral, Uttore soru, dakkhine goru, Pukhurit mas, barit tamul pan"

These words depict the *vastu* of Assamese households and have been used in various Assamese folk songs which gives us a glimpse of biodiversity dependent culture of Assam.

A traditional household of Assam is characterized by an Assam type house made up of thatch roof and bamboo walls plastered with mud and cow dung, a backyard garden with various plants /trees including medicinal, edible and timber species, a pond to fulfil the water and fish requirements, a cowshed, a warehouse to store grains. An ideal model for a sustainable lifestyle.

Bihu is the major festival of Assam. There are three major bihu festivals celebrated across the state associated with agricultural system of Assam. Rongali bihu is celebrated in April at the onset of agricultural year; Bhogali bihu is celebrated in the reaping season i.e. mid January and Kongali bihu is celebrated during mid October where *tulsi* plant is worshipped for well-being.

Ali-Aye-Ligang (Ali means seed, Aye means fruit and Lingang means sowing) is major festival of Mishing tribe of Assam, celebrated at the onset of seasonal agricultural cultivation.

Most of the folk musical instruments like Dhol, Pepa, Gogona, Bahi etc. are made from biological sources.

Biodiversity has special mention in Indian mythology. Animals have been used as carriers of God. Lord Krishna insisted that the people of Braj worship the Govardhan hill instead of worshipping other deities since that hill was the source of all resources for the villagers.

Agricultural biodiversity of Assam:

Most of our crops, paddy, wheat, pulses and millets have originated from wild crops. Presently new and high yielding varieties are replacing local varieties. In case of any disease outbreak, entire crop is lost. To find new varieties we depend on wild stock. It is therefore wise to have a mix of large number of varieties of major food crops on one hand and to conserve wild varieties on the other.

Wild relatives of cultivated crops: North Eastern India is considered to be the site of origin of rice and citrus crops. Assam, in particular still has remnants of this wild stock. These are precious resources and need to be conserved for posterity.

Indigenous rice varieties of Assam:

Ahu or Autumn Rice: *Dumai, Chengri, Murali, Ahu* etc.

Sali or Winter Rice: *Sali, Lahi, Joha, Ijong, Komol* etc.

Boro or Summer Rice: *Boro Dhan*.



Number of wild relatives of cultivated crops in India:

- Cereals and Millets	46
- Pulses	81
- Fruits	91
- Spices and Condiments	28
- Vegetables	76
- Fibre crops	15
- Oilseeds	14
- Miscellaneous plants	28
Total	379

Source: NBSAP, 2008

Do we know that Millets and coarse grains are better food than wheat and rice, especially for diabetic people, as they release carbohydrates gradually so that even with less insulin in body the sugar level is not suddenly raised.

- Do we know the millets that are grown in Assam, suit local environment- full of fibre and nutrition ?
- Have we tried millets and coarse grain ?

Fish diversity in Assam:

A network of rivers and wetlands provide home to variety of fish in Assam. As per an old survey there are 185 different types of fish in Assam. Many of the small fish varieties are becoming rare due to shrinkage and pollution of wetlands.

Keeping our water bodies clean and free from toxic pollutants is the only way to conserve rich fish diversity.

Fruit Diversity in Assam:

Studies reveal that some of local fruit varieties such as Leteku, Paniyal, Thekera, Kordoi etc. are extremely rich in nutrient content and have many medicinal properties. There are about 13 varieties of banana each with a unique taste and food value. Similarly there are different types of citrus fruits in Assam immensely rich in vitamin C. Some of the major citrus varieties cultivated in Assam includes Key lime, Savile orange, Pomelo, Acid lemon, Lemon, Pink grapefruit, Orange and Sweet orange. The Assam lemon or Acid lemon is endemic to the region.

- Have we ever tasted Paniyal, Leteku Thekea ?
- Have we tried to count the types of indigenous fruits that are available in local markets ?
- Are we aware that citrus fruit peel has much higher vitamin-c content ?



LETEKU



PANIYAL



BOR THEKERA



RUPOHI THEKERA

*“Earth provides enough
to satisfy every man's needs,
but not every man's greed”*

M.K. Gandhi

- Mahatma Gandhi



In the present scenario, it is difficult to separate Greed from Need ...

As we progress economically, our needs multiply.



The ability of the rich to fulfil their needs often makes them negligent towards the needs of the less fortunate.

Simultaneously for the poor it gets increasingly difficult to fulfil their basic needs.

This causes a great divide between those that can afford the luxuries of life and those that cannot meet their survival needs.

This is against the law of nature and therefore not sustainable.

'Earth's supplies are limited'

and

'If we continue with our current consumption pattern
by 2030, to support human population,
we would need another planet like earth'.



Source: WWF Living Planet Report 2010)

What if we do not find another planet like Earth ?

Is there an alternative ?

Perhaps yes,
The alternative is to

'use our resources wisely'

What shall constitute 'Wise-Use' ?



UN-WISE USE



WISE USE

'Wise-Use' in simplest terms, is taking only as much as can be replenished by Earth.



Since the capacity of Earth to replenish is not infinite, the demand has to be rationalised.

This requires asking ourselves:



1. Do I need everything that I own ?
2. What if I did not own this ?
3. What are my real needs ?

Answering these questions can greatly rationalise our consumption levels and this will bring sustainability in economic progress and development.



What is Sustainable Development ?

- Inter-generational equity, i.e. the next generation has the same quality of life, if not better, than the present generation.
- Development that meets the needs of the present without compromising the ability of future generations to meet their needs.
- Improving the quality of human life while living within the carrying capacity of supporting ecosystems.
- Simultaneous pursuit of economic prosperity, environmental quality and social equity.
- Approach that is Ecologically – Friendly; Economically – Sound and Socially – Just.

What is not Sustainable ?

- Killing the hen for its eggs.
- Uprooting a herb for its leaves.
- Cutting a sapling for firewood.
- Filling up wetlands for alternative uses.
- Replacing indigenous food varieties with exotic varieties.



We take so much from nature ...

Ask yourself ...



- i. Did I ever acknowledge nature's contribution ?
- ii. What have I given to nature in return ?
- iii. What can I do to repay the loan we owe to next generation because -

**WE DO NOT INHERIT
THE EARTH
FROM OUR ANCESTORS
BUT WE BORROW IT
FROM OUR CHILDREN**

(Anon)

www.recycling-guide.org.uk

How can we repay the loan ...

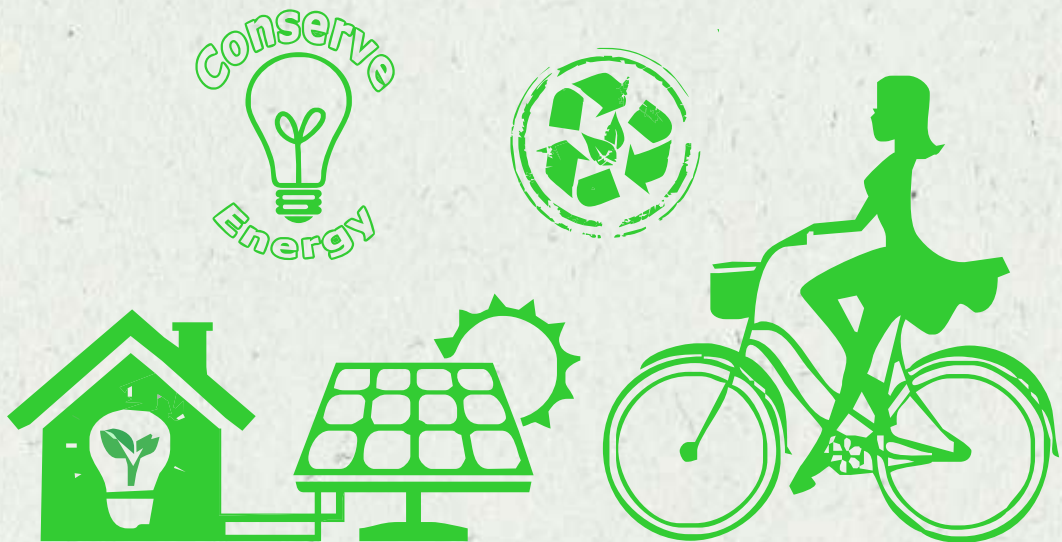
- By altering our consumption pattern and
- By preventing wastage of natural resources and following concept of the 3 'R'.

Reduce ... Reuse ... Recycle

By being mindful of our life style ...



- a. Do I order food as per need or as per status ?
- b. Do I buy local food varieties ?
- c. Do I segregate organic waste at home for recycle ?
- d. Do I travel short distances on foot ?
- e. Do I use most eco-friendly mode of transport ?
- f. Do I use electricity according to need or affordability ?
- g. Do I avoid wastage of paper ?
- h. Do I avoid wasting water at home and public places ?



Jeypore Reserve Forest- the venue for celebration of International Day for Biological Diversity, 2015



RAINFOREST ARE KNOWN FOR HIGHEST BIODIVERSITY. IN UPPER ASSAM THERE ARE SMALL PATCHES OF RAINFORESTS - ONE SUCH PATCH IS AT JEYPORE, DIBRUGARH.

The Jeypore Reserve Forest is one among the few remaining Rainforest patches of Assam. It is a part of the Eastern Himalaya Biodiversity hotspot region. Jeypore along with five other Protected Areas forms the Upper-Dehing West Complex, an Important Bird Area of Assam. They constitute largest contiguous tropical rainforest area in the whole Brahmaputra Valley. These sites are famous for the largest known population of the Endangered White-winged Wood Duck (*Cairina scutulata*), locally known as *Deo-hanh*.



It was notified as a Reserve Forest on 1888 with an area of 10,666.08 hectares. It also forms a transitional zone between India and Myanmar on either side of the Patkai hills. The river Burhi-dehing and Dilli rule and sustain the landscape with their solemn flow, rich aquatic life and water provisions. A number of small streams and waterfalls add to the richness of this landscape.

Some of its remarkable features include a multi-storeyed canopy structure with its predominant species of Hollong (*Dipterocarpus macrocarpus*). Other prominent tree species include *Tetrameles nudiflora* (Bhelu), *Shorea assamica* (Mekai), *Elaeocarpus ganitrus* (Rudraksha), *Canarium* sp. (Dhuna), *Artocarpus*

chaplasha (Sam Kathal), *Teminalia myriocarpa* (Hollock), *Cinnamomum glanduliflorum* (Gonsoroi) *Michelia* sp., *Magnolia* sp., (Sopa), *Garcinia* sp. (Thekera), *Mesua ferrea* (Nahor) and several *Ficus* sp. (Dimoru).

Major fauna of Jeypore include over 283 bird species, 276 butterfly species, 102 species of orchids, nearly 40 species of Dragonflies and Damselflies, 71 species of Reptiles and amphibians, 70 species of fishes and 46 species of mammals. One of its remarkable feature is that it harbours a total of seven species of cats, namely, Tiger (*Panthera tigris*), Leopard (*Panthera pardus*), Clouded leopard (*Neofelis nebulosa*), Asiatic Golden cat (*Felis temminckii*), Marbled cat (*Felis marmorata*), Leopard cat (*Felis bengalensis*) and Jungle cat (*Felis chaus*). The other common mammal species include Hoolock Gibbon, Slow loris, Pig-tailed macaque, Stumped-tail macaque, Capped Langur, Chinese Pangolin, Himalayan Black Bear, Binturong, Barking deer, Sambar and Porcupine etc.

Major tribes of the area include Tai Phake, Singpho, Wangchu, Naga, Nocte, Sonowal and Kachari.

The scope for developing ecotourism here is promising because of its rich biodiversity, all time favourable climate, well connected transport system such as road, rail and air. Other tourist destinations nearby include the Sitakunda, Hukanjuri, Namphake Lake and Buddhist monastery etc. To bring the unique rainforest into highlight and to create awareness among the local tribes, Jeypore Rainforest Festival is organized, where the local people and the ethnic groups actively participate.



JEYPORE RAINFOREST FESTIVAL



TAI PHAKE TRIBE

How is biodiversity Conserved?

“If a house is protected- the entire family gets protected. Similarly, if a habitat (ecosystem) is protected, a large number of plants and animals including micro-organisms get protected”.

There is more than one way to conserve biodiversity:

In Situ Conservation: Conservation in natural habitats such as in protected areas, nature reserve or national parks. One of the main examples of in-situ conservation in India is the 'Project Tiger'.

The main aim of the project is to conserve and protect viable population of Tigers along with the flora and fauna associated with its habitat.

In Assam, three Protected Areas namely Kaziranga, Manas and Nameri are declared as Tiger Reserves under the Project.

Ex Situ Conservation: Conservation in artificial conditions such as in a zoo or a botanical garden. One of the main examples of ex-situ conservation in India is the 'Pygmy Hog Conservation Programme'.

The Pygmy hog (*Porcula salvania*) is the smallest and rarest member of the pig family. Earlier it was found in India, Nepal and Bhutan, but now it is found in Assam only. It is a Critically Endangered species. About 150 or fewer individuals are found in wild.

The main aim of the program is reintroduction of the species in the wild through captive breeding in artificial centres so as to conserve the species from possible early extinction in wild.

In Assam, the Pygmy hog conservation centre is located in Basistha and the project is implemented by Rare and Endangered Species Conservation Unit (RESCU) of Eco-Systems-India in collaboration with Forest Department.

Diversity- the essence of life

As a German, I feel fortunate to be spending a year in Assam, and I marvel at many wonderfully different and exciting things around me the diversity of life the Bio-diversity

Let's take lunch, for example: *Thali*. A *thali* is a fantastic concept. Arranged around a mound of steaming white rice, I'll find small, mouthwatering helpings of seasonal vegetables, *daal*, and fish I had never heard of before – sometimes they don't have English names. Chutney, and pickle round off the meal. I can actually taste plant diversity by sampling the *thali* of the adjacent region – or even the neighboring village, for that matter. I find the same dishes on my plate, yet they are not identical. There's a slight variety in flavor, due to slightly different preferences and environmental surroundings. "Indian cuisine" offers a stunning kaleidoscope of scents and textures. In my personal opinion, Assamese cooking balances these particularly well, allowing the fresh mild flavors to unfold perfectly.

This, basically, amounts to a perfectly tangible example of biodiversity. Try to picture a world without ...

What if all your meals were alike, made from processed imported foods? What if you missed your favorite *alu pitika* (with a dash of mustard oil and just enough *jolokiya* to tickle your tongue)? Or never savored the refreshing sweet juiciness of a ripe winter orange, sprinkled with black salt? Imagine a *Maagh Bihu* – boasting only one type of *pitha*, just one choice of *laddu*. Variety is the very essence of food culture. This variety results from different edible and non-edible plants, themselves products of biodiversity.

Biodiversity envelopes us all. Living in cities, choking from exhaust fumes and traffic noises, we seem to lose touch with the greenery surrounding us. Especially in a place as beautiful and lush as Assam, though, one doesn't have to go far to be reminded of the essence of life.

Let's cherish and embrace all the diversity our lovely planet is offering to us – who knows? Maybe we'll end up gaining a more conscious interesting, a more rewarding and a more conscious lifestyle.

Julia Kiefer (Intern)

Centre for Environment Education, North-East Regional Cell.

E-Mail: julia.kiefer@t-online.de

An insect – A thread and Million Livelihoods

“Otikoi senehor mugare mohura
Tatukoi senehor maku
Tatukoi senehor Rongali bihuti
Nepati kenekoi thaku ”

(Paraphrase in English: Very dear is the Muga bobbin and dear is the shuttle, still dearer is the Rongali bihu, how can I stay without celebrating it).

The bobbin and shuttle mentioned in the Bihu song represents the loom that is dearer to the Assamese women along with the festival- Bihu. Linked with culture, the essence of rearing silkworm and weaving silk fabric forms the base of sericulture industry.

Sericulture, a traditional silk producing technology and a major agro- based cottage industry of Assam is deep-rooted in the Assamese culture. It is not only a cultural practice but is also a means of livelihood for rural people. It is estimated that about 75,000 villages out of 6.5 lac villages in India practice sericulture and Assam is considered as a hub for the production of Eri and Muga silk.

In Assam, 60% of the women contribute substantially to the rural economy by participating actively in almost all the activities of sericulture such as host plant leaf harvesting, silkworm rearing, collection of dry leaves for spinning cocoons, spinning of spun yarn, marketing of cocoons, pupae and silk fabric. Men are mostly involved in heavier duties such as land preparation, procurement of fertilizers, etc. Apart from being a mode of income, silkworms also form an integral part of Assamese cuisine. Eri polu i.e. pupae of Eri silkworm is used to prepare delicacies in Assam.

Truly said by Mahatma Gandhi - '*Every women of Assam is a born weaver. No Assamese girl who does not weave can expect to become a wife. And she weaves fairy tales in cloth.*'. This statement rightly reflects the strong essence of silk in the lives of rural woman of Assam and in their tradition.

Sangeeta Das

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Assam State Biodiversity Board



The logo of Assam State Biodiversity Board resembles a '*xorai*', which is a sacred symbol of Assamese culture. Here, it represents a Tree-of- Life. The lid of *xorai* is in the shape of a cuckoo bird, whose melodious voice echoes in the hills, heralding spring and *Rongali Bihu* celebrations. It is an icon of the rich faunal diversity. The '*pan*' leaves, widely used for social, religious and medicinal purposes symbolize plant diversity. The stem of *xorai* is a female figure symbolising fertility and creativity of Mother Earth. It also exhibits people's interface with the surrounding biodiversity and environment. A strand of DNA, representing genetic- diversity forms the base for this Tree-of- Life.

ASSAM STATE BIODIVERSITY BOARD

The Government of Assam constituted the “Assam State Biodiversity Board” on 29th September 2010 to promote biodiversity conservation in the state, sustainable use of its components and equitable sharing of benefits arising out of the use of biological resources and traditional knowledge associated with these resources. The Assam Biodiversity Rules were notified in 2010. The head quarter of the Board is located at Guwahati.

OUR VISION

Bountiful, secured and economically rewarding biological diversity.

OUR MISSION

Ownership rights to people for conservation and wise-use of local biological resources and equitable sharing of benefits on commercial utilisation.

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