



E-ZINE OF BIOLOGICAL SCIENCES

ISSN: 2456-7264 | Issue – 16 | Published On 05/12/2020

Dehing-Patkai

(Amazon of East)

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Forest is the primary source of nature where all the biotic and abiotic components intertwine with each other. The North-East India has well-diversified forests and landforms that are well known all over the world. The flora and fauna found in this region are very rare and much sought after by the scientific community as well as the nature lovers. There are 7 Tiger Reserves, 5 Elephant Reserves, 5 Biosphere reserves, 2 RAMSAR Wetland Sites, 2 UNESCO Natural Heritage Sites, 16 National Parks and as many as 52 Wildlife Sanctuaries in this region; thus making it one of the potential biological hotspots of the world. Among all the natural forest areas, Dehing Patkai Wildlife Sanctuary needs a special mention.

Dehing Patkai Wildlife Sanctuary is geographically located in the Dibrugarh and Tinsukia Districts of Assam and comes under the Forest Division of Digboi and Dibrugarh. Dehing Patkai covers an area of 111.19 sq. km (42.93 sq. mi) rainforest. It is the only patch of virgin rainforest in Assam which is interspersed with lush green and semi-evergreen flora that are deciduous in nature. Thus, the forest is often referred to as the '**Amazon of the East**' owing to its expanse and the thick forest. Dehing-Patkai primarily consists of three parts: Jeypore, upper Dihing River and Dirok rainforest. Dehing is the name of the river that flows through the forest while Patkai is the hill at the foothills of which the sanctuary lies. On 13 June 2004, it was declared as a Wildlife sanctuary under the Wildlife Protection Act, 1972 and became the 13th Wildlife Sanctuary of Assam. This sanctuary is also a part of the Dehing-Patkai Elephant Reserve. The rainforest stretches for more than 575 sq. km (222 sq mi) in the districts of Dibrugarh, Tinsukia and Charaideo. A part of the forest was declared as a wildlife sanctuary by the Government of Assam, while another part falls under the Dibru-Deomali Elephant Reserve. The forest further spreads over in the Tirap and Changlang districts of Arunachal Pradesh. The Dehing Patkai forms the largest stretch of tropical lowland rainforests in India. The climate of the region is mostly tropical with an annual rainfall of more than 4,000 mm. Being a completely

virgin rainforest, this sanctuary is very rich in biodiversity. It is an ideal habitat for non-human primates. The Dehing Patkai Forest region has a rich cultural heritage. There are more than a dozen different ethnic groups living in the area including the indigenous Assamese communities, particularly Tai Phake, Khamyang, Khampti, Singpho, Nocte, Ahom, Kaibarta, Moran and Motok, Burmese, and non-indigenous Nepali people.

Flora

The flora of this region has many unique, rare and diversified groups of plants. Many plant species of herbs, shrubs and trees of various sizes are seen throughout the forest. Several exotic species of orchids, abundant ferns, epiphytes, wild banana, arums, climbers and lianas are found in this forest habitat. Important tree species such as: Mekai, Dhuna, Udiyam, Nahar, Sam kothal, Bheer, Hollock, Nahor, Au-tenga (elephant apple), different species of Dimoru etc. envelope the forest. The Hollong tree, which is also the state tree of Assam, is found here.

Important over wood species such as: *Dipterocarpus macrocarpus*, *Mesuaferrea*, *Castanopsis indica*, *Shorea assamica*, *Vatica lanceaefolia*, *Amoora wallichii*, etc. are also found in the forest. The other species found are *Garcinia lanceaefolia*, *Michelia muni*, *Baccaurea sapida*, *Bischqfia javanica*, *Myristica limifolia* etc.

The shrub and herb layer has *Glochidion* spp., *Alpinia* spp., *Mallotus philippinensis*, Wild Banana, Tree fern, Pepper etc. The ground cover mainly has *Melinstoma*, *Leea* and other species.

Orchids:

The Dehing Patkai Forest is one of the most important forests of Assam in terms of orchid diversity. So far, 101 species of orchids within 45 genera have been recorded here, which include 79 epiphytic, 21 terrestrial and one species of saprophyte. Eight of the species found here are critically endangered, 15 species are endangered, 5 species are near threatened and 28 species are in the vulnerable category. Dehing Patkai Forest has the distinction of several new orchid records for the region. *Thrixspermum acuminatissimum* is a new record to India from this region; 9 other species from Assam have been newly recorded, out of these *Bulbophyllum ebulbum*, *Chrysoglossum erraticum*, *C. robinsonii*, *Eriaconnate*, *Hetaeria affinis*, *Thelasis pygmaea*, *Taeniophyllum crepidiforme* and *Zeuxine clandestine* are new records from Assam and 12 species: *Anoectochilus brevilabris*, *Bulbophyllum protractum*, *B. spathulatum*, *Calanthe gyro glossa*, *Ceratostylis sabulata*, *Cleisostoma discolor*, *Podochilus khasianus*, *Tainia minor*, *T. waryana*, *Thelasis longifolia*, *Trichotosia velutina*, and *Tylostylis discolour* are new records from Upper Assam. It is important to focus on conservation of species like *Acanthephippium striatum*, *Anoectochilus brevilabris*, *Bulbophyllum spathulatum*, *Cymbidium bicolour*, *C. dayanum*, *Dendrobium nobile*, *Eria paniculatum*, *Gastrochilus calceolaris*, *Phalanopsis manni*, *P. parishii* and *Zeuxine clandestine* that are already very rare in Dehing Patkai.

Fungi:

Hasin and Islam (2009) found that there were a total of 38 species of microfungi occurring in dry and wet seasons in this forest. Among all these species, *Penicillium* and *Aspergillus* were found to be dominant. They also revealed that the population of fungi in wet season was higher than that of the dry season.

Fauna

The rich biodiversity of Dehing Patkai include about 46 species of mammals, 283 species of birds, 276 species of butterflies, 70 species of fish, 71 species of reptiles and 70 species of dragon flies that are found scattered within the sanctuary. The most common mammal species that are often encountered in this sanctuary are: hoolock gibbon, slow loris, pig-tailed macaque, stump-tailed macaque, capped langur, Asian elephant, Asiatic black bear, Indian leopard, gaur and Chinese pangolin.

A wildlife biologist named Karishma Kakati documented 46 species of mammals in Dehing Patkai during a camera-trapping study conducted between 2007 to 2009. Most of the carnivores (19 species in all) would have gone unrecorded if not for camera-traps. Her study through camera-traps revealed for the first time in the world, seven species of feline recorded from just one site. Thus, it is the **only sanctuary in India** which is **home to seven different species of wild cats** - tiger, leopard, clouded leopard, leopard cat, golden cat, jungle cat and marbled cat.

This sanctuary has also proved to be the heaven for primates, as out of 15 species of non-human primates found in India, seven inhabit this rainforest. These are: Rhesus macaque, Assamese macaque, Slow loris, Capped langur, Pig-tailed macaque, Stump-tailed macaque and Hoolock gibbon. Hoolock gibbons are declared endangered in the Red Data Book of the Zoological Survey of India and also in IUCN red list.

Elephant Reserve

The Dehing-Patkai Wildlife Sanctuary was identified as an Elephant reserve on 17-04-2003 under the Project Elephant (1992) by the Indian Government. This Reserve ranges within the eastern-south of the sanctuary, having a total area of 937 Km² with 295 numbers of Asiatic elephants (**data given as per Elephant reserves of Project Elephant in India 2005**). Project Elephant has been formally implementing MIKE (Monitoring of Illegal Killing of Elephants) programme of CITES in 10 Elephant Reserves since 01.04.2004 including Dehing Patkai.

Other rare mammal species that reside over this forest area are: Chinese pangolin, Flying fox, Wild pig, Sambar, Barking deer, Gaur, Serow, Malayan giant squirrels, Porcupine, Himalayan black bear, Himalayan squirrel, clouded leopard, porcupine, crab eating mongoose, sun bear, binturong, barking deer and many more.

Dehing-Patkai is also the home to beautiful and rare birds; around 283 species of birds inhabit this region, some of which have been marked threatened. Bird species like: White-winged Wood Duck, Slender-billed Vulture, Spotted Eagle, Marsh Blabber, different species of Warbler, Painted Stork, Hill Myna, Osprey, Black Baza, Besra, Nuthatch, Oriental Darter, Lesser Adjutant Stork, White-backed Vulture, White cheeked Hill Partridge, different species of Pheasant, different species of Hornbill, and several rare species of pегionetc. Some of the reptile species present in the sanctuary are Rock python, King cobra, Asian leaf turtle, Monitor Lizard, etc.

The sanctuary is the heaven for entomologists and lepidopterologists, as it hosts a wide range of butterfly species that are extremely rare.

Gogoi (2013) described sighting some of the rare butterfly species during February 2010-October 2011 in the lowland semi-evergreen areas of this region. Altogether, 292 species were recorded based on the survey conducted in different seasons. Important sightings included White Punch longicaudata, Pale Striped Dawnfly *Capilia zennara*, Blue Quaker *Pithecopс fulgens* etc. and range extension of Andaman Yellow-banded Flat *Celaenorrhinus andamanicus hanna* to northeastern India.

Singh (2017) did random surveys from November 2014 to September 2016 in Dehing-Patkai Wildlife Sanctuary covering three districts (Tinsukia, Dibrugarh & Sivasagar) in the eastern part of upper Assam, which forms part of the Indo-Burma hotspot. His survey revealed 237 species, which included 33 species listed as protected under various schedules of the Indian Wildlife (Protection) Act, 1972 and 58 species that have distribution restricted to the eastern Himalaya and northeastern India in India. Further, an annotated list of 375 species of butterflies so far observed from eastern Assam was also recorded which includes a large number of very rare species, some examples are: (Indian Yellow-vein Lancer *Pyrroneura margherita*; Grey-lined Lascar *Pantoporia dindinga assamica*; Baby Swift *Polytremis minuta*; Magnificent Oakblue *Arhopala anarte*; Blue Baron *Euthalia telchinia* etc.

Tribes within the sanctuary:

In the region of Dehing Patkai, there live a large number of ethnic tribal communities who are socio-culturally and physically akin to South East Asia. Among the tribes, the important ones are the Singphos, Tangsas, Neotes, Wanchos, Khamtis, Tai-Phakes, Duanias, Kacharis, other Bodos, Sema, Nagas, Deoris and non-tribals such as Ahoms, Mattaks, Morans, extra garden labourers, Nepalis are also seen living beside the sanctuary. Most of the indigenous and ethnic people benefit themselves from the forest natural resources and also helps in conserving the bio-diversity. Plants that are conserved, serve as a source of wild edible food in the form of roots, tubers, rhizomes, seeds, fruits and as agricultural and horticultural plants. Many of the plants conserved by ethnic people are used for medicinal purposes also such as: antidotes for

snake bites and scorpion stings, for setting bone fractures by traditional healers, for curing wounds or arthritis, or as abortifacients and as cures for menstrual problems, etc. They also utilize forest produce such as forest timber and fuel wood. Plants are conserved in abandoned sites of shifting agriculture by the tribals and also in sacred groves as *in situ* conservation of biodiversity and ecological restoration.

Back in early 2000's, most of the people belonging to the tribes were uneducated, poor and socially isolated within the boundaries of the forest; they had limited exposure to other parts of Assam. The Government of Assam decided to promote upliftment of these societies by giving emphasis on Eco-cultural tourism so that there is community integration between the indigenous people and visitors to the festival. Thus, Dehing Patkai Festival came into being from December 2002 onwards.

The Dehing Patkai festival promotes eco-tourism, ethnic tourism and cultural tourism in Margherita subdivision particularly and Assam in general. The festival is organized by the Government of Assam to promote the sanctuary's pristine beauty and to attract more tourists into the state at the best time of the year, i.e. during the winter of month of January. It is a once-a-year festival held at Lekhapani in Tinsukia district of Assam. The festival is named after the majestic Patkai range and the mesmerizing Dehing River. The first edition of the festival which started in December 2002, was inaugurated by the then President of India Dr. A.P.J. Abdul Kalam who was also the honourable Chief guest of the festival. As many as 20 tribes residing in and around the sanctuary actively participate in the 3-day event. Traditional handicrafts, artisans, cloths etc. are displayed for sale along with cultural programs throughout the day. Some of the programs of the events are: traditional dance and live music forms along with games and local fashion, food festival, craft affairs, tea tours, adventure sports and Assamese tribal culture, highlighting the life of the people there.

The concept of ethnic tourism has gained much importance in this region after Swapawng Yawng Manau Poi (The dance festival of the Singphos) in the year 1985 and the Dehing Patkai festival was celebrated in the year 2002. One such example is **Singpho Eco-lodge**, which is a community venture established in the year 2007 to promote cultural tourism, ethnic tourism and eco-tourism and to generate employment as well as income. It is a centre of the Singphos to exhibit their culture. It is located at Inthong, 5 kms. away from Marghetira town. Here the community preserves traditional custom and culture for tourists who come to visit Dehing-Patkai. Of late, the Eco-lodge has all the necessary infrastructure and provides all the facilities to tourists to visit the locality as well as the region. They also provide their traditional recipe which contains Chi (soup), Chithu, Tongtep (rich cakes grounded rice), Khawlam (boiled rice in bamboo) Pungkhang sat (steamed rice), roasted fish and meat etc., which are very delicious and popular among the tourists.

Biomass within the forest:

Rainforests of North-East India especially in the Eastern Himalaya form a part of the Himalayan biodiversity hotspot with rich biodiversity with dense vegetation of trees, thus making rainforest ecosystems a major carbon sink. Despite the biological richness, forest degradation is a matter of serious concern in this region. The rainforests of Assam had been subjected to large scale commercial timber collection from the colonial period till the early twentieth century, which is currently still going on and this has resulted in the shrinkage of those forests. Also the forest is rich in oil, natural gasses, coal and timber which attract illegal mining and other activities such as deforestation, rapidly causing degradation of the forest area. Thus, reduction in trees and destruction of forest will increase carbon within the forest.

Sahoo (2017) did an assessment of biomass and total carbon stock in tropical wet evergreen rainforest of Eastern Himalaya along a disturbance gradient. He found that the forest disturbance showed a significant inverse relation with carbon storage and concluded that carbon sequestration in forest ecosystems was influenced by the anthropogenic disturbances in the present study. The results depict a wide variation in carbon stock between different forest sites showing an inverse relation between the density of carbon stocks and the level of disturbance. There was higher tree density in the least disturbed sites than the other sites and higher significant relationships between basal area with biomass carbon and SOC stock. The study further confirms the important role played by dominant tree species in contributing more to the carbon storage in the tropical rain forest. The lower carbon stocks in the highly disturbed forest sites nevertheless were due to anthropogenic disturbances which affected forest productivity in the stands. Trees and other woody forest components lock atmospheric carbon dioxide in the form of carbon and hence they reduce atmospheric greenhouse gas accumulation. The study, therefore, recommends regular monitoring of these forests for their carbon stock changes over time in different pools so that suitable silviculture treatments are prescribed to enhance carbon stock in the tropical rainforest of Northeast India.

The Controversy

On April 24, 2020, National Board for Wildlife (NBWL), the apex body to review all wildlife-related matters, permitted the use of 98.59 hectares of land at Saleki, a part of the Dehing Patkai Elephant Reserve in Assam for coal mining project done by North-Easter Coal Field (NECF), a unit of Coal India Limited. The decision was revealed by the minutes of the 57th Meeting of the Standing Committee of National Board for Wildlife (NBWL) chaired by the Minister of Environment, Forest and Climate Change (MoEFCC), Prakash Javadekar on April 17, 2020 through video-conferencing.

NBWL had in July 2019 formed a committee comprising its member R. Sukumar, Assam Chief Wildlife Warden and a representative of local wildlife division for assessing the mining area. In April 7th, 2020 meeting, Mr. Sukumar stated that 57.20 hectares of hilly forest land had already been broken up by the user agency, North-Easter Coal Field (NECF) and the remaining

41.39 hectare was unbroken. He recommended a “Cautious approach” for pursuing the basic integrity of this forested hill slope. After detailed discussion, the Standing Committee “Recommended for approval” the proposal for mining in the broken-up area. Later on, the Standing Committee gave permission for coal mining on 98.59 hectares of land, of which the broken-up 57.20 hectares will be done by open cast mining and 41.39 hectares by closed cast mining.

Campaign and Protest: Since, coal mining has detrimental effects to the forest and the environment, there was mass protest seen online through various social media platforms. Some offline protests were also seen near the highways and the lanes connecting to the Dehing-Patkai Wildlife Sanctuary. In Tinsukia district bypass road, people wearing protective masks while maintaining social distance formed large human chain, holding placards against Government to save Dehing-Patkai. The protesters were mostly students who were backed by Student unions, various NGO’s, environmental activists and concerned general public.

Recent events: After mass uproar protest from all over India, there were several steps taken by the concerned people of the society as well as the government:

- On 14th May 2020, Gauhati University’s Eco-club submitted a memorandum to the Prime Minister demanding that the decision of NBWL be withdrawn immediately in order to conserve the bio-diversity of the region and also demanded a high level enquiry committee be set to investigate the alleged illegal mining in the area.
- On 26th May 2020, three PILs on Dehing Patkai were filed. One of the petitions were filed by advocate Mrinmoy Khataniar and mountaineer Amar Jyoti Deka on May 26 under Article 226 on the violation of the provisions of Wildlife (Protection) Act, 1972, the National Wildlife Actions Plan (2002-2016) and Centrally Sponsored Scheme, 2009. The other PIL was filed by advocate Santanu Borthakur with his colleague Vikram Rajkhowa and their petition sought to declare the “Amazon of the East” as a heritage site under the Biological Diversity Act 2002. After hearing the two public interest litigations filed by a mountaineer and some advocates, the bench comprising of Chief Justice Ajay Lamba and Justice Soumitra Saikia said that a *suo-moto* PIL be registered upon receiving a letter from a concerned citizen.
- On 28th May 2020, the Government of Assam cleared that there was no approval given for mining at Dehing Patkai. Further, government officials concluded by saying that Coal India Limited (CIL) and the forest department would have to fulfill 28 conditions and the compliance report will be placed before the government of India for grant of stage II clearance. Only on stage II clearance, mining could begin.

- On 4th June 2020, three writ petitions against Dehing Patkai open cast mining approval for Coal India were moved in the Gauhati High Court. The government of Assam has been asked to submit a report by July 14 and the court heard the petitions on July 20. The matter will come up before division bench of Chief Justice Ajay Lamba. Advocates, D.K. Das and Rakhee S. Chowdhury will be representing the PIL.
- On 6th July 2020, the Government of Assam decided to upgrade Dehing Patkai Wildlife Sanctuary into a National Park. Dehing-Patkai has an intimate relationship between man and nature, benefitting humans the most. The pristine beauty and its resources have always remained entangled with lives of the residents and as such the vegetation, its flora-fauna etc. are prayed, sympathized and respected by the people living there. The greed of men is unbounded; the vast natural resources such as coal, trees, wild exotic animals etc. within the region have been in the eyes of thugs for decades. Few corrupt minds can devalue nature and hamper the entire ecosystem. Thus, it is the duty of every citizen to protect and respect nature and teach the future generation about the importance and significant role of nature and us.



Though used as a source of energy, mining pose a widespread threat to the nature. (Picture Credit: Twitter- @kaustubhdeka, Assistant Professor at Dibrugarh University)



Picture Credit: Ratna Bharali Talukdar (2005)



Picture Credit: Samsul Huda Patgiri

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