

PANORAMA

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In Focus: The North-East

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Introduction: North-eastern India is replete with high biodiversity, geographic complexity and world-known distinct cultural identities. Commonly known as “The Seven Sisters”, the north-east includes Indian states Arunachal Pradesh, Assam, Meghalaya, Manipur, Mizoram, Nagaland and Tripura – but this was prior to Sikkim being included in the region. Geographically the region spans the most shared international border of India with multiple countries in the wet-Himalayas and countries in the wet-tropics south of them. The region can also be categorized more geographically into the Eastern Himalaya and the two river valley plains of the Brahmaputra and Barak – harnessing all the complex geographical or topological diversity of the Indo-Malayan, Indo-Chinese and Indian biogeographical realms. The region has a predominantly humid sub-tropical weather with hot and humid summers, severe monsoon rains and mild winters. This is of course leaving aside the very high elevation areas and the highest peak in the region Kangchenjunga. The valleys are food bowls for much of humanity that live in these regions as well as far beyond fed by mighty rivers carrying valuable sediments to plains and forming deltas outside of the region. The altitude ranges from over 7000 meters to almost sea-level and the regions’ rainfall can average around 390 inches or 10,000 milliliters! High seismic activity, large river systems lead to floods and earthquakes that impact.

Biodiversity: The north-east of India is part of the Indo-Burma biodiversity hotspot. The range in altitude, ample moisture and geographic complexity alone can point to how biodiverse the region can be. However, the region remains largely undiscovered still with major estimates still pointing out the remaining documentation to be undertaken to truly understand the floral and faunal diversity in the region. A few statistics can perhaps lend us a notion of the same – 51 forest types are identified in the region, in turn these forests are refuges for 8000 flowering plants with Arunachal Pradesh and Sikkim topping the lists with 5000 species and 4500 species respectively. In India, of the 1500 endangered species of flora, 800 are from the north east. Out of 9 important vegetation types, 6 are found in the north-east. In terms of fauna, the region is rife with charismatic species (with many also endangered) – tiger, rhino, elephants, the Hoolock gibbon and the Red panda are just a few to mention. The bird diversity rivals those of other tropical biodiversity hotspots with species that are range-restricted and endemic to a degree that world over they are well-known among wildlife professionals and enthusiasts.

People: The north-east is a indigenous stronghold. With too many communities to mention here (>200!) we hope you (dear reader) will go explore how the many stories of these people are tied to the place they inhabit. A reason for many anthropologists to study them remains their distinct and traditional identities even as modernization takes over. The language diversity in the region is also a testament to the tribal diversity and how culture in such places follows more ecological and geographic limits (aligned with range-restricted and endemic flora and fauna). Perhaps some of the famous and familiar tribal names can lead you down a little anthropological search of your own! The Bodo tribe is a large tribal system with many populations in Assam and it is said they introduced rice cultivation, tea plantations, poultry and silkworm rearing to the region at large – the north-east is well-known for being an important node for rice germplasm.

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Photo: Trangsuanjian Nauiak

The Kuki tribe is more of a migrant tribe and is largely grouped by those people speaking the Kuki language. They are well known for handicrafts of yarns and costumes. The Adi tribe are from Arunachal and have their own sub-divisions are the previous two tribes mentioned. The Atapani are well-known for their traditional tattoos and jewellery. Among notable tribes we cannot omit mentioning – the Nyishi, the Angami, the Sumi, the Bhutia, the Garo and the Khasi tribes. Check each of them out and explore more – the human diversity in the north-east rivals the biodiversity.

Nature-People Interface: The tribal lands of the north-east face modern problems and those begot from colonial modernization. Originally, with small populations, the hunting and jhum-cultivation (slash and burn) food systems were ways to manage everyday needs in a geographically tough and ecologically bountiful region. With colonial influences and those from far-away came more commercial exploitation of the tribal lands and in many cases the modernization of tribes themselves that led to narratives of tribes destroying nature. A short-sighted and unjust reading of the history of the region's cultural origins. More recently, as conservation begins to shun its own colonial origins, there is a resurgence to understanding the tribal ways of living instead of advancing outside livelihoods. Where conservationists have given due regard to the land owners and stewards of the north-east, there have been amazing outcomes that respect tribal rights, have seen communities go from hunting to protecting wildlife and become ambassadors of the region as a whole. We provide a few links below for you to explore more of the endemic people and nature interactions that exist in the north-east region of India – a place unlike any other on the planet!

1. [The Living Bridges of Meghalaya](#)
2. [The Eaglenest Memory Project](#)
3. [When hunters become conservationists!](#)
4. An on-ground capacity building effort to rewards tribal filmmakers with fellowships to tell their stories! – [Green Hub India](#) (origin in North-East)

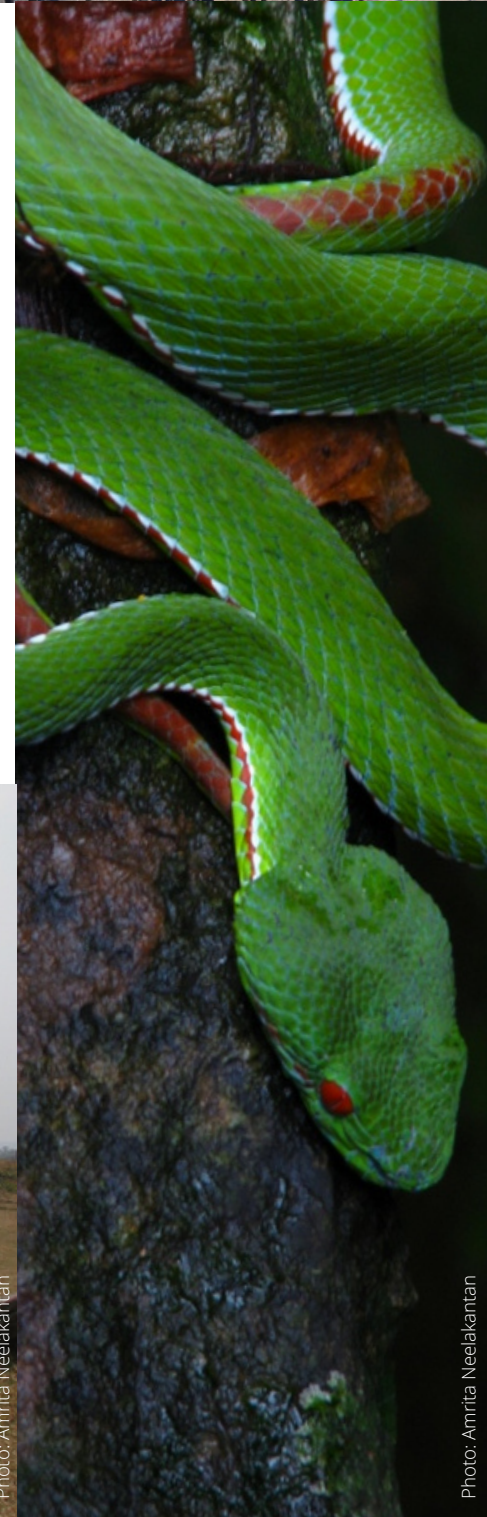


Photo: Amrita Neelakantan



Photo: Amrita Neelakantan



Sustainable Landscape Management through Traditional Knowledge in Ziro Valley of Arunachal Pradesh

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Mountain dwelling communities in the Himalayas majorly depend upon forest-based resources and farming for their livelihood, which is sustainably maintained with traditional ecological knowledge gained through years of self-experimentation. As they stay close to nature, their culture and lifestyles have always been in sync with nature and both were mutually benefitted. Every dimension of their life is embedded in nature, which helps conserve biodiversity, like in the case of 'sacred groves' and 'sacred species'. Arunachal Pradesh is a state of northeast India that is a part of Eastern Himalaya and a part of the 12th mega biodiversity region of the world. It has a vast forest area of 51,407 km² which is 61.39% of its geographical area. It shares 2.5% of the country's total geographical area and 15.76% of the Indian Himalayan region. 26 major tribes and 110 sub-tribes also inhabit it. Apatani is one of the significant ethnic tribal groups of Arunachal inhabiting the ecologically valued zone in Ziro valley, sharing 2.26% of the Arunachal Pradesh population.

Ziro valley is a scenic valley of Arunachal Pradesh, under the Lower Subansiri district, mainly consisting of subtropical and temperate forests with a vast diversity of flora and fauna. It is the home for the Apatani tribes, whose distinctive land use pattern, efficient resource management and vivid culture have made them a focal point of attraction. It is also popularly called as "Rice Bowl of Arunachal Pradesh". The Valley covers an area of nearly 1060 km², of which 43 km² is cultivated land while other sites come under forest, plantations, and settlement. The forest in this area mainly consists of species like *Castanopsis indica*, *Acer sp.*, *Pinus wallichiana* and *Pinus roxburghii* in the Subtropical regions. In contrast, *Quercus glauca*, *Alnus nepalensis*, *Castanopsis indica*, *Pyrus sp.*, *Prunus sp.*, *Populus sp.* and *Acer sp.* are found in the temperate regions. Species like *Berberis wallichiana*, *Viburnum foetidum*, *Prunus sp.*, *Rubus sp.*, *Spirea sp.* and *Symplocos sp.* are commonly found in forested areas.

As it is evident from the land-use that Apatanis in Ziro valley majorly prefer agriculture, they use different agricultural practices in upland regions like several types of shifting cultivation systems, fallow agriculture system, home/kitchen gardening, and sedentary agriculture system such as valley rice cultivation etc. They have a unique nature of managing natural resources, which are sustainably managed through traditional knowledge, which has evolved through informal experimentations over centuries. This traditional knowledge also provides diverse Non - timber Forest Products (NTFPs), Kitchen Garden products, and agroforestry which can generate a massive economy for the region. They have an age-old tradition of practising rice-cum-fish cultivation with finger millet on the bund (risers) irrigated through well-managed canal systems that diverted the streams from the forest into the canal to the agriculture field. This kind of agricultural practice is often regarded as one of the advanced tribal farming practices in the northeastern region of India. This is the high-energy efficient agro-ecosystems, mostly in contrast to common jhum cultivation of northeast India. The extra addition of pisciculture in valley rice cultivation is a distinct characteristic of the Apatani agro-ecosystem, which has enhanced the local economy. They have considerable expertise in land and water resources management. Besides, most of their agricultural practices are organic in nature as they use livestock excreta and farm waste composts as fertilizers. They also have a well-managed secondary forest, mostly community forests and sacred groves. The blue pine and bamboo plantations on the fringes of a wide mosaic of wet rice fields surrounded by thickly forested mountains on all sides form a picturesque landscape.





Photo: Bishal Kumar Majhi

The traditional forest management is also done in slopes by the Apatanis, which lies in the fringe of agricultural and bamboo-Pine plantations, and settlements are found between forest and agriculture, making both the land use accessible hence reducing the effort. In the clan or village forest, we can see clear zonation, the first zone above the cultivation is a monoculture of bamboo or mixed vegetation with bamboo, pine and *Castanopsis spp.* The next zone consists of *Pinus wallichiana* forest followed by a third zone, a monoculture of *Castanopsis spp.*, and or mixed vegetation of *Castanopsis spp.* with *Quercus spp.* etc. The last zone is the subtropical broad leaf mixed vegetation that consists of *Quercus lanata*, *Castanopsis spp.* etc., and temperate vegetation such as *Taxus wallichiana*, *Cephalotaxus sp.* etc. The Bamboo and pine groves fulfilled the timber requirement for housing, furniture, and fuel wood. Besides that, it also provides material for food in the form of edible bamboo shoots and other activities like fencing, erosion control, handicrafts and materials for ritual ceremonies. The individual forest also helps in providing fuelwood and other materials for festivals like Myoko, Murung etc. And more importantly, it provides sources for an ethnobotanical purpose for the community, which has been used for traditional medicines, spices and condiments.

Traditional knowledge links the intangible beliefs, which provides the community with tangible benefits. But that alone cannot be adequate; hence it needs to integrate with modern methods and scientific validation to bring about ecological conservation and sustainable development. However, every traditional knowledge cannot be misjudged, as it has proven effective in several places. The current need of the hour is to create 'hybrid' technologies involving the traditional knowledge system and modern methods by the involvement of institutions to conserve and manage mountain biodiversity for the benefit of mountain people and others in the plains below. As the green revolution devised, modern practices mostly emphasize monoculture plantations boosted by chemical fertilizers that are harmful to soil health and the ecosystem; these traditional practices followed by Apatanians are much better than that. The community also practices sustainable forestry in mountain landscapes through secondary forest management. This integration of traditional ecological knowledge through proper scientific validation will help reintroduce ecological keystone species that can regain soil fertility through nutrient cycling processes. This approach will also get popular support from the community in establishment and reinforcement as it has been adopted. In this way, Traditional Knowledge will also form the basis for several natural resource management with a community enabled landscape management system.

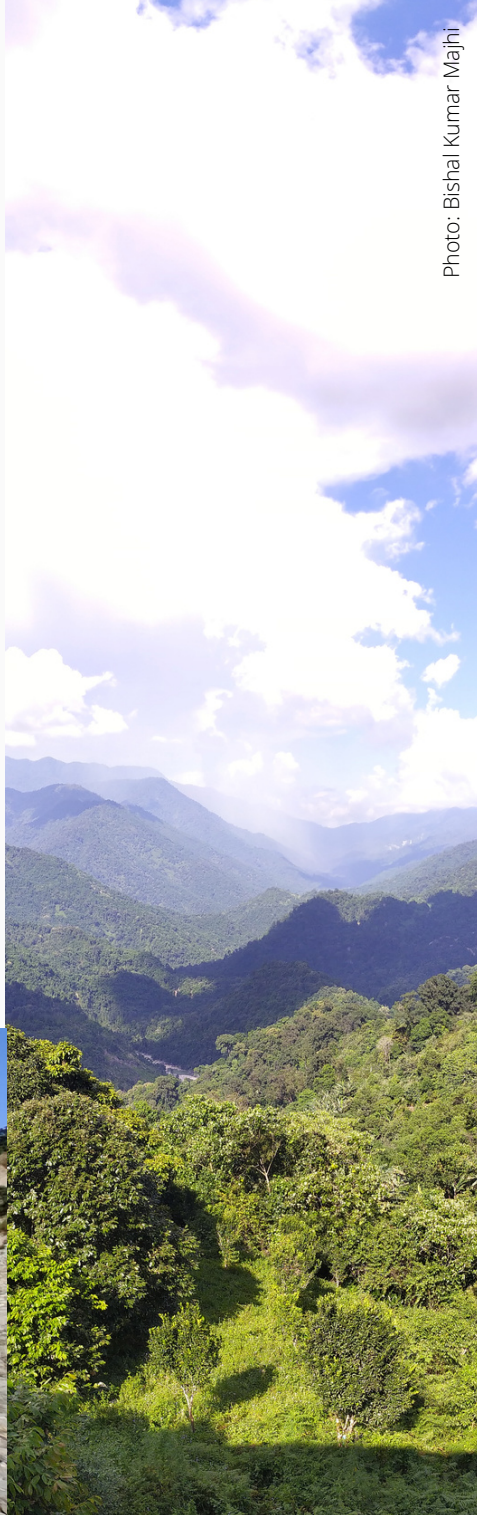


Photo: Bishal Kumar Majhi



Photo: Shah Nawaz Jilil



Photo: DE Amonge

HI-LIFE India: A new opportunity for landscape tourism in the unique Far Eastern Himalaya

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The Landscape Initiative for Far Eastern Himalayas (HI-LIFE) is a regional conservation and development initiative jointly implemented by the International Centre for Integrated Mountain Development (ICIMOD) and several partner organizations from China, India and Myanmar. The initiative aims to enhance regional cooperation between the three countries in addressing the various transboundary issues and the challenges for conservation and development to achieve the twin goal of conserving biodiversity and sustainable development. The entire landscape spans over an area of 71,452 km² across China (22%), India (12%) and Myanmar (66%). Out of the seven protected areas in the region, four are transboundary in nature with existing natural forest connectivity. The Indian part of HI-LIFE includes Namdapha Tiger Reserve and Kamlang Tiger Reserve, which are highly connected to the Myanmar rain forests and protected areas. The area has huge potential for developing a community-centred way of practising tourism which is among many concepts under sustainable tourism, also called 'community-based tourism'. When a multicultural community of a landscape participate and generate alternate livelihood from such tourism activity, it is postulated as 'landscape tourism' that provides immediate financial benefits to all the communities. The concept of 'landscape tourism' applies to the Indian HI-LIFE region because the landscape holds many different rich cultural, tribal groups such as Chakma, Singpho, and Lishu, etc., with diverse ethnic cuisine, cultural festivals, and living styles. In addition to the rich culture, the region is a global biodiversity hot-spot. Other notable attractions like Pangsau Pass International Festival, World War II Cemetery, Lake of No Return, and Nampong add exceptional value to the landscape as a cultural tourist destination. Every year, many national and international tourists visit the Changlang district of Arunachal Pradesh on different occasions.

Considering the available potential and future prospects, community-focused 'landscape tourism' is being promoted in the HI-LIFE region as a potential alternate livelihood to benefit diverse cultural tribal communities. Under HI-LIFE India, a total of 5 homestays have been developed as 'model homestays' and handed over to the selected beneficiaries/local communities for their operation. In addition, two river rafting boats and angling equipment were also given to two self-help groups of the region. The landscape is crossed from east to west by the beautiful Noa Dihing River that originates at the Chaukan Pass of the Indo-Myanmar border. Small to large hillocks on both sides of the river add more beauty to the landscape. In addition to the well-known Namdapha Tiger Reserve, the newly launched, well-planned short and long white water rafting tour will be a memorable one for adventure seekers of all levels. Angling is an exciting activity that is enjoyed by many people who are adventurously inclined. Though India is not too famous for this activity, but it has gained popularity over the last few years. This recreational activity is a pleasure to be enjoyed by many naturalists. Tourists visiting our model homestay will also enjoy the newly introduced angling facility. Each model homestays destination has a different culture, tradition, food and many diverse experiences to offer. These are the valuable experiences travel explorers seek when travelling to unknown destinations. We also provided training to those local communities to cherish their culture and present it to their guests while offering a comfortable stay is an enriching experience for tourists. These experiences are the ones tourists go back with and share with their friends and family. This drives to form a unique positive image of the HI-LIFE landscape. However, our five homestays are the single model of the holistic approach to 'landscape tourism' in the HI-LIFE India region. The livelihoods generated from these homestay models will inspire other diverse cultural tribal communities in the landscape to create their own homestays in the future and encourage them to adopt these alternative and sustainable livelihoods.



Photo: MS Sarkar



Photo: Bidyut Sarania

CHALLENGES IN SPATIO-TEMPORAL STUDIES OF BIOTA IN NORTHEAST INDIA

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Northeast India covers (8 states of India) 7.9% of the total landmass of India. The ecosystem of Northeast India (NEI) is complex and dynamic, influenced by its uneven physiographic and climatic characteristics. The landscape of NEI comprises extensive Himalayan mountain ranges (both high and lesser Himalaya) and Arakan hills, including Patkai and Garo-Khasi-Jayantia hills, and the alluvial riverine floodplains. The two major rivers- the Brahmaputra and the Barak, and their tributaries curve through these hill ranges. The elevational gradient ranges from ~20 m to 7000 m (above mean sea level), and it exerts considerable impact on bioclimatic variabilities in the region. The rainfall pattern in NEI is greatly influenced by the Indian monsoon resulting in the highest average rainfall in the entire country. Although the average 'mean annual rainfall' is highest in NE during the southwest monsoon, the spatial distribution pattern of rainfall within different parts of the region is heterogeneous. The amount of rainfall received fluctuates on a local scale due to variation in topography, elevational gradient, and the rain shadow effect. Thus, the variable climatic conditions result in varied types of floral and faunal diversity. Evidently, NEI is a part of the two biodiversity hotspots: Eastern Himalaya and Indo-Burma. However, scientific understanding of the climatic influence on species distribution and population structure from the region is limited.

In the recent past decades, a few attempts have been made to study the relationship between climatic variables and species distribution on varying scales particularly for a few threatened flora and fauna of the region. It is noteworthy that these studies are chiefly the outcomes of statistical algorithm based prediction of the fundamental niche of the studied species. The enumeration of spatial patterns of distribution of flora and fauna based on available location information (in the form of geo-coordinates) becomes difficult owing to the heterogeneity of climate and the unavailability of local scale climatic data. Another major obstacle while enumerating ecological niche in the NEI region is the hilly nature of the terrains that makes data collection more tedious and inconvenient. Although advancement in the domain of Species Distribution Modelling (SDM) helps in understanding the basic patterns of the ecosystem as a whole, the major drawback of SDM is the non-consideration of biotic factors that are critical for understanding the fundamental characteristics of biota distribution. The reported studies on flora and fauna of this region especially using SDM techniques were dependent on various global datasets freely available online (e.g., worldclim, CHIRPS, etc.). The coarse resolution of these global datasets, although predicts the species distribution, may be not as robust as it would have been with (more accurate) local-scale data. Recent developments in satellite remote sensing technology have made long-term climatic data available, allowing for the examination of climatic patterns. For instance, CHIRPS data (Climate Hazards Group InfraRed Precipitation with Station data) are widely used in scientific studies, as it provides long-term precipitation data (1987 to present) at 0.05° resolution. Rainfall data from CHIRPS is based on interpolation findings from rainfall gauges and satellite observations. However, it's worth mentioning that rainfall gauges in NEI are sparse, hence, it could miss the fine-scale information of precipitation data. Similarly, surface temperature data is available from the MODIS (Moderate Resolution Imaging Spectroradiometer) satellite

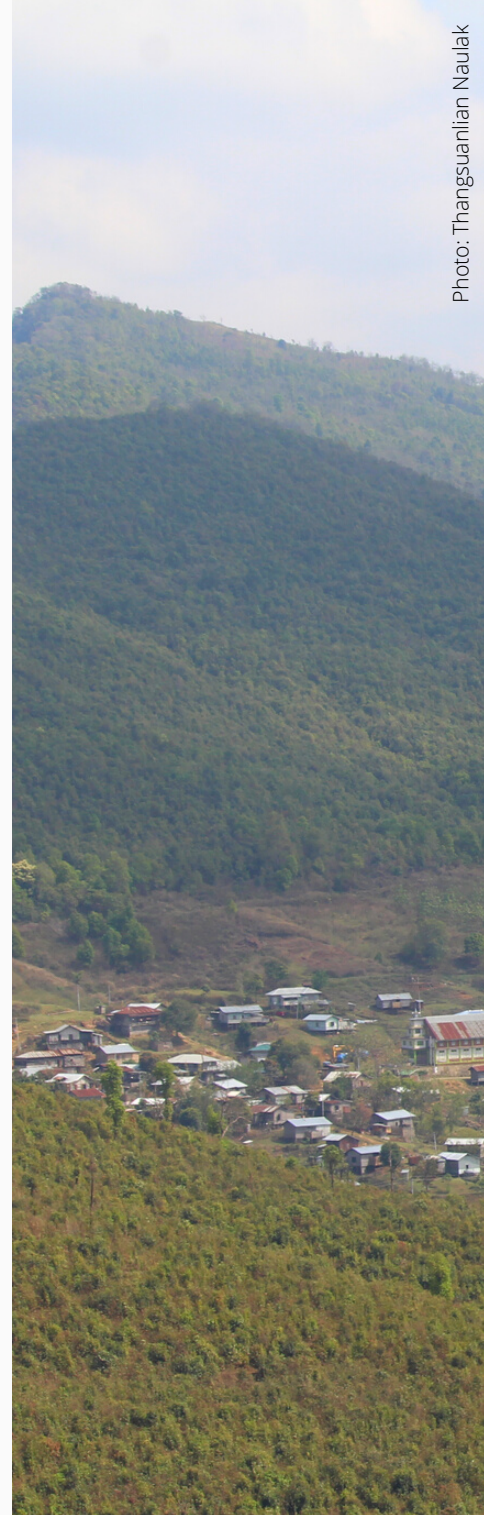


Photo: Thangsuanlian Naulak



but there is limited availability of data from the ground station to cross-verify, which impedes the quality of the results. Moreover, evaluating the climatic trend and creating models from meteorological ground station data is insufficient and tends to be erroneous due to the limited number of meteorological stations in the region, especially in high altitude states such as Arunachal Pradesh. Furthermore, the gaps (missing values) in the available station data make time series analysis and climate model construction more difficult or less reliable for the region. There is also a lack of ground-based soil nutrient (an important parameter for ecosystem study) database from NEI at fine-scale to verify with the available world soil database (e.g., Harmonized world soil database). Thus, all these limitations hinder the comprehensive and systematic study of ecological processes in the region. Keeping the above views in mind, the current article is focused on the need of the local scale climatic as well as other environmental data for robustness of the spatio-temporal modeling outcomes.

The stability of the ecosystem is driven by different climatic drivers such as rainfall, temperature, evapotranspiration, soil nutrient dynamics and microbiota. All these elements are interconnected and create a feedback loop system that balances a natural ecosystem. Thus, to understand such a system, fine-scale long term data is a prerequisite, which is not available for India in general and NEI region in particular. As mentioned earlier, the hilly terrain of the region increases the dependence on availability of environmental data in usable formats particularly to be used along with other remotely sensed data sets. Therefore, there is an urgent need for the establishment of an institutional structure (formal/informal) to initiate the process of collecting, generating and digitalizing the environmental data for future use. Though it is needless to mention that we cannot collect the geographic distribution of each and every species of importance; however, if we can institutionalize the generation of local scale environmental data, researchers can make a significant effort to find the suitable habitat of the target plant or animal species at ease. In this concern, some may also argue about the accuracy of those statistical models. But, using local-scale data, it would be more accurate than that of the global datasets available. Furthermore, the authors have the opinion that it is always recommended to model the ecosystem as a whole rather than modeling a single species. The justification we argue is that no SDM packages consider biotic components of the ecosystem in single or multi species models.

NEI comprises a mosaic of habitats ranging from the forest (tree-dominated), grassland (grass-dominated), and savanna (forest-grass complexes). This leads to difficulty in classifying the different forest patches in satellite-based automatic forest classification in the region due to the mixing of spectral values (forest-grassland complex), high cloud-cover throughout the year, shadow effect, and small habitat patch. And, at the same time, ground-truthing for every habitat type in this landscape is a tough challenge due to the hilly terrain. However, all the different habitat types including the smaller habitat patches in the hilly terrains cannot be ignored as they have a significant influence on habitat-specific fauna. It is essential to consider all the elements of the heterogeneous landscape to study ecosystem functioning. This gives a notion that we need to have an alternative method to enumerate the habitat types. We strongly recommend incorporating ecosystem types in land use mapping rather than relying on forest types. However, that again depends on the type of investigation and methodological approach a researcher would undertake.

To summarize, the key idea we want to convey through this article is to have a forum to discuss the issue of studying important landscapes of the Indian sub-continent using various advanced spatial tools available for the purpose of retaining the best quality, reliable and accurate findings. Researcher from different field have been generating ecological data for years in NEI, but still, we do not have access to all the information/data either in a proper format or in the desired resolution. Compiling all available ecological data, as well as local-scale meteorological, soil and biotic data from different educational, research and governmental institutions, into a single platform could help in the efficient spatio-temporal analysis and improved understanding of NEI's ecological processes.

Dr. Himolin Basumatary's thoughts and suggestions during the composition of this article are gratefully acknowledged by the authors.





Photo: Thangsuanlian Naulak

NEWS

Assam villagers oppose Sanctuary tag for golden langur habitat

"As primary stakeholders, the villagers demanded that the "conventional idea of wildlife sanctuary" be dropped and the reserve forest converted into a community forest resource "using Forest Rights Act, 2006, to ensure community co-managed system of participation for sustainable conservation"." [Read more here](#)

North Kamrup Forest Division to launch first ever leopard census

"In an effort to check the population of leopards in forest and non-forest areas the North Kamrup Forest Division will launch the first and exclusive leopard census in Assam. The population will be checked in the dense areas of Amingaon and its adjoining areas including Changsari, Sila etc. The process will be conducted through camera trapping method which will be done for a period of 24 weeks." [Read more here](#)

Drying Pobitora wetlands in Guwahati force migratory birds to change habitat

"The water in Tamoli Doba, the main wetland amongst all the wetlands in the Pobitora Wildlife Sanctuary flows away from the wetland by the end of December every year." [Read more here](#)

Manipur Coming Up As Hotspot of Amur Falcon Conservation in North-East

"From hunting hundreds of Amur Falcons to conserving the birds of prey, locals in Nagaland have come a long way. Now, Manipur is also following in their footsteps." [Read more here](#)

Mizoram's balancing act with palm oil's ecological impact and economic benefits

"In Mizoram, palm oil has been considered a crop of immense economic promise. The state has 78 percent of the total land under oil palm cultivation in northeast India. However, the threat to biodiversity and soil fertility due to palm oil, has environmentalists, economic planners and farmers divided regarding the expansion of this crop in the biodiversity-rich state." [Read more here](#)

Black-Necked Cranes, Development Clash in Arunachal as a Passive State Looks On

The people of the Monpa belt of Arunachal Pradesh revere the black-necked crane as a reincarnation of the Dalai Lama, and protect it and its habitats with religious fervour. However, the state government's policies to protect the bird have left many of the region's people, but especially the youth, in need of better social and economic protection. [Read more here](#)

Tripura: Deforestation, rubber plantations rise leads to primate habitat changes, conflicts with humans, says study

"75 per cent of the respondents involved in the study and living in villages located in the vicinity of reserve forest with dense rubber plantation opined that rapid rise in deforestation in the reserve forest was resulting in shrinkage of habitats of primates who are now forced to stray out." [Read more here](#)



Photo: Thangsuanlian Naulak



Photo: Shah Nawaz Jellil

VIEWS

Significance of small efforts and grants in conservation: A case of White Winged Duck in Assam

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The white winged duck *Asarcornis scutulata* is one of the largest duck species dependent on small wetlands amidst lowland areas of tropical moist forests in South-East Asia (Green, 1993). It was previously widely recorded from northeast India, Bangladesh and Myanmar, Thailand, Laos, Vietnam, Cambodia, peninsular Malaysia and Indonesia (Green, 1993). However, recent studies estimate just over 400 individuals to be present in India (Choudhury, 2002) and this represents more than a third of the global population (Sharma et al. 2015). The primary factor for the white winged duck decline has been assigned to the disturbance and destruction of the primary rainforest habitat all across its distribution range (Mackenzie and Kear, 1976). Hence, recent sightings have been scarce and largely opportunistic (Selvan et al. 2013; Sharma et al. 2015). The lack of information on its present status and ecological knowledge about the species and the habitats that they depend on endangers it greatly. Not only is the current status of the bird unknown, but methods and analytical framework to assess current trends and monitor the species remain unclear.

With the efforts of Environ (Guwahati based NGO) and generous grant from Akron Zoological Park, we aim to track the last remnant population of the white winged duck and also understand and map the habitat requirements of the species. Through field surveys, we have identified key wetlands of white winged duck presence within the Dehing Patkai Wildlife Sanctuary and adjoining areas. These wetlands are located amidst forests, usually surrounded by large trees. These large tree species are *Dillenia indica*, *Mesua ferrea*, *Shorea assamica*, *Vatica lanceaefolia* and *Dipterocarpus macrocarpus*. These wetlands are sometimes meshed with bamboo thickets. Fallen logs in these wetlands serve as perching stations for the duck. Single season occupancy models revealed that the species is extremely rare, with occupancy probability of 0.27 (\pm 0.21 SE; naïve occupancy = 0.16), and detection probability of the duck of 0.44 (\pm 0.30 SE).

We are refining our models as more data is collected. Since the species is quite rare and sighting in wild is very low, it is quite difficult to gather occurrence data. We have now received further grant to study the species by Akron Zoological Park and we shall now amplify our efforts and begin surveys very soon in Nameri Tiger Reserve, Assam. In this regard, the team lead, Ms. Murchana Parasar (Environ) and I acknowledge the Assam State Forest Department and Kim Cook and Laura Cancino (Akron) for all the support.

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Photo: Shah Nawaz Jellil



Photo: Thangsuanjian Naulak

Members' Page: Members in Action

Need for nuanced approach to conservation: A case from Manipur

THANGSUANLIAN NAULAK | WILDLIFE INSTITUTE OF INDIA

Manipur's wildlife is popularly known for its state animal, the charismatic Sangai *Rucervus eldii*. And rightly so, because it is endemic to the state and for its unique habitat, the floating meadows or phumdis. However, there is more to its faunal diversity. It is also a home to 607 species of birds, including five species of hornbills. I was fortunate to receive a Rufford Small Grants in 2017 to carry out research on birds in one of the nine Important Bird and Biodiversity Area (IBA), also a proposed Wildlife Sanctuary (WLS). The proposed Kailam WLS, covering approximately 187 sq. km., is situated in southern Manipur with picturesque villages nestled in a hilly terrain dominated by swathes of jhum cultivated areas and primary forests.

The study focuses on generating baseline data of three IBA trigger species and four hornbill species at Kailam WLS, threats and perception of local communities. Of the three IBA trigger species, Grey Sibia was found to be common in undisturbed forest, Mrs. Hume's Pheasant - rare and that the Rufous necked Hornbill might be locally extinct. Of the five species of hornbills found in the state, the study also confirms the presence of four species of hornbill, Austen's Brown Hornbill, Oriental Pied Hornbill, Wreathed Hornbill and Great Indian Hornbill. The latter two only seasonally. Additionally, a total of 145 bird species from 34 families were recorded from the study area.

The study found that hunting by hill tribes, logging for timber and lack of awareness are the major threats to conservation in the landscape. Customary practices such as hunting is particularly intense in the remote Indo-Burma hotspot of north-eastern India as compared to other parts of India (Velho et al., 2012). However, implementation of fortress conservation is not a viable solution as this will only antagonize the local communities who are dependent on the forest for their livelihood. In addition, this should also be seen in the context of hill-valley political divide within the state (Hanghal, 2018), exacerbated by negligible law and enforcement presence in the hill districts due to conflict and political instability. As such, declaration and implementation of protected area would be a very long drawn process negating the purpose of conservation.

Given that 60% of respondents from villages and 95% of school going children (Class IX and X) found it is necessary to protect wildlife, alternatives such as research-based and community-based conservation can be an effective conservation measure with emphasis on intrinsic value of the natural resources rather than focussing on economic benefit. Involvement of local communities have been successful in removing threat to poaching and ensures continued co-existence of humans and wildlife (Naniwadekar et al., 2014). A good starting point for conservation in the Northeast that is driven by conflict and instability will be to incentivise local researchers, institutional backing and building rapport with local communities to enable the development of an inclusive conservation strategy. This project was the first to carry out systematic research in the district to study faunal diversity. And projects like this come few and far between. Maybe it's time to look for another grant!!

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Velho, N., Karanth, K.K., and Laurance, W.F. (2012). Hunting: A serious and understudied threat in India, a globally significant. *Biocon* , 210-215.



Lian holds a Masters' degree in Forestry from the Forest Research Institute, Dehradun. He worked briefly in Manipur studying Hornbills with financial support from the Rufford Small Grants. Subsequently, he joined ATREE Regional Office-Eastern Himalayas to document mammal diversity in major farming system across Darjeeling-Sikkim Himalaya (DSH). He is currently pursuing his PhD on occupancy and resource use by mammals in the same landscape.



Photo: Thangsuanjian Naulak



Photo: Shah Nawaz Jelli

Updates from the IRALE Executive Committee

- **Membership Renewal**

Requesting members whose membership ended last year or before but was extended until 2021 to kindly visit the [page](#) to renew it at the earliest. Those who became member last year (2021) will have their membership until one year from the date of registration.

Members can now choose between annual and term membership based on their interest.

Membership type	Tenure	Membership Fee (INR)
Student	Annual	1000
	Term (3 Years)	2500
Regular	Annual	2000
	Term (3 Years)	5000
Institutional	Annual	10000
	Term (3 Years)	25000

- **Plan to initiate working group discussions/webinars**

It was decided to hold the general members meeting on 11 March 2022 and the same forum to plan the working group meetings, leadership for individual working groups, and decide on the topic and invited expert for the forthcoming webinar. IRALE Secretary will share the link in due course of time.

- **Project affiliation with IRALE/Bidding through IRALE**

Members are encouraged to affiliate with IRALE for research projects and use IRALE platform for bidding projects. Preparation of guidelines and standing operating procedure to guide members for affiliation with IRALE to be in place soon. Additionally, EC will find any funding opportunities and experts from the members could be identified and a mechanism to engage at least one individual who could work on developing the proposal.

- **IRALE 2022 Symposium**

IRALE 2022 Symposium is to be scheduled in October 2022 following the hybrid model, and may be combined with other organizations such as ATBC and SCB if a collaboration can be established.

IRALE could submit a proposal for hosting a session in the world congress. Communication/discussion in this direction to be initiated soon.

Opportunities

Deadline Extended

The 1st International Electronic Conference on Land | 17-19 May 2022

The deadline for abstract submissions has been extended to 28 February 2022.

More information on the [website](#).

New Dates

XV World Forestry Congress | 2-6 May 2022 | Coex, Seoul, Republic of Korea

Building a Green, Healthy and Resilient Future with Forests

Blog Competition

Show how your research helps forests and win a trip to attend the World Forestry Congress in May 2022.

Deadline: 11 March 2022.

More information on the [website](#)