

MEGHALAYAN RAINFORESTS SIMILAR TO EQUATORIAL ONES

Relevant for: Environment | Topic: Biodiversity, Ecology, and Wildlife Related Issues

Despite being the northernmost in the world, this rainforest is similar in structure and diversity to others found near the Equator.

The northeastern State of Meghalaya known for its wettest districts and living root bridges is also home to a lowland tropical rainforest north of the Tropic of Cancer. A new study discovers that this rainforest, the northernmost in the world, is similar in structure and diversity to the other rainforests found near the Equator.

Tropical rainforests are the terrestrial areas on the earth teemed with enormous diversity of trees and other life-forms which make the largest sink of carbon. Although these forests cover just about 6% of the Earth's land surface, about four-fifth of world's documented species can be found in tropical rainforests. Characteristically, tropical rainforests occur in "hot and wet" habitats where all months receive precipitation and there is no dry season.

Rainforests usually occur near the Equator and about five degrees North and South latitudes from the Equator are considered the real home of the lowland tropical rainforest. The extreme spread of tropical rainforests in northern limits in the world has been found in northeastern region of India where high rainfall-receiving habitats with hot and humid climate, especially in Meghalaya and Namdapha in Arunachal Pradesh are now known to boast species-rich rainforests.

Uma Shankar from the Department of Botany, North-eastern Hill University set out to study the Namdapha rainforests in Arunachal Pradesh in late 1990s and in Meghalaya a few years ago. "We wanted to note how far north these rainforests extend and how different they are from the ones found near the Equator," he adds. "Decoding what were the precursors for their stretched distribution in this region was also an interesting task."

The team found that the climatic conditions in the region — high rainfall and humidity, and perfect annual mean temperature — were conducive for the survival of the rainforests. Since rainforests have a complicated structure, the team looked at over two hectares of forest area, studying nearly 2,500 individuals including trees, shrubs and herbs. Over 180 different taxa were identified of the total, and it was noted that tropical Asian species made up 95% of the abundance. Although these rainforests had fewer species and individuals of liana or woody climbing plants, the levels of beta diversity were high. Also compared to Equatorial rainforests, they had a higher proportion of rare species and good representation of the members of families of *Fagaceae* and *Theaceae* in the Meghalayan rainforests.

The results published recently in *Plant Diversity* note that though the species diversity was similar to the other rainforests, the Meghalayan rainforest trees showed short stature. While the trees in the Equatorial region are known to grow from 45 to 60 m in height, the highest ones in Meghalaya could reach only up to about 30 m. Dr. Shankar adds that in order to survive at this higher latitude the trees would have to make some compromises.

The region had a high density of 467 trees per hectare. Though this is lower compared with equatorial rainforests, it fell in the intermediate category for rainforests around the Tropic of Cancer. Also, the richness of species per hectare was the highest among all lowland rainforests

near the Tropic of Cancer.

Though it has so many special aspects, the team writes that this region has been virtually ignored on the world maps of tropical rainforests.

Dr. Shankar explains that these rainforests depend on local community-based conservation practices. A paper published by the team in 2017 noted that “the local tribes have a rich culture of preserving forests as ‘sacred groves’...Inquiries with locals reveal that the rainforests have remained free from grazing, fire and commercial logging, and strong anecdotal religious beliefs and taboos continue to remain popular among the tribes.”But recent developmental and tourist activities have started to degrade patches of these rainforests, and Dr. Shankar adds that in order to preserve these rainforests, immediate rules need to put in place.

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