

Decreasing 'greenness' in India's forests

A rich and thick forest in Chhattisgarh. | Photo Credit: [Akhilesh Kumar](#)

Most forests are green. But a recent study finds that this 'greenness' is consistently decreasing across more than 46 lakh hectares of various types of forest in India, particularly in core protected areas. This indicates that our forests are vulnerable, write scientists.

India's diverse forests face several threats including forest degradation, as the loss of greenness signifies. Scientists at Hyderabad's National Remote Sensing Centre analysed NASA's MODIS satellite images of India's forests at eight-day intervals for 15 years (2001 to 2014) and assessed the persistent decreases in greenness. Using an index that determines the amount forest "vigour," they assessed the seasonal greenness of 14 different forest types: the negative the trend of greenness over years, the more degraded and vulnerable the forest.

They found that the highest degradation is in moist deciduous forests (more than 20 lakh hectares), especially in the states of Chhattisgarh, Odisha, Maharashtra and Madhya Pradesh. Wet evergreen forests – including those in the Western Ghats and Eastern Himalayas – are also affected, with the major changes observed in Karnataka and Arunachal Pradesh, followed by Kerala and Meghalaya. More than 15% of India's total mangrove forests also showed a decrease in greenness. Nearly 80% of these changes occurred in 'core' forests like protected areas.

Using statistical analyses, the team determined the 'spots' or areas where the decrease in seasonal greenness were high and spatially contiguous. West Bengal was a major hotspot of mangrove degradation. Arunachal Pradesh, Kerala, Karnataka and Meghalaya were hotspots of decreasing greenness of wet evergreen forests while Manipur, Tamil Nadu, Mizoram, Sikkim and Arunachal Pradesh showed degraded montane (high-elevation) wet forests.

According to the authors, the result of this study could provide first hand information to prioritise and plan conservation of these areas or restore them to their original glory. However, while the study identifies the hotspots where decreasing greenness is a worry, it does not identify what caused this problem.

"This decreasing greenness could be due to natural or anthropogenic factors that we have not identified in the study," said Abhishek Chakraborty, lead author of the study published in *Ecological Indicators*. "It could be due to changing climates, shifts in monsoon patterns, decreasing soil fertility or the impact of human activities."

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