

No State showed net increase in forest cover between 2015 and 2019, study reveals

Across India, forest cover decreased from 24.13% in 2015 to 24.10% in 2019

Updated - July 31, 2025 01:47 pm IST - CHENNAI

R. PRASAD



Image used for representative purpose only. | Photo Credit: K.K. Mustafah

A first comprehensive analysis of forest connectivity between 2015 and 2019 across Indian States has found that India has lost 18 sq. km of forest for every one sq. km gained during this time. While two States alone accounted for half of the gross forest loss of 1,033

sq. km, four States had half of the gross forest gain of about 56 sq. km. Even as some States lost forest cover, they also recorded some increase. However, across India, the net forest cover gained was less than the net forest cover lost such that not a single State reported a net increase in forest cover.

What is more concerning is that while the loss was in the forest core and bridge areas (corridors connecting different core areas), the increase in forest area was mostly restricted to islets — patches of forest containing no core and representing isolated habitats. Nearly half of newly added forests were islets while a negligible 6% increase in forest cover was in the core, according to a study by researchers from SASTRA University and IIT Bombay. The results were published in the journal *Environmental Monitoring and Assessment*.

Structural connectivity plays a crucial role in habitat permeability, species dispersal, gene flow and biodiversity within a forest landscape. In this, the islets, which are isolated patches, play the least role in habitat permeability and species dispersal. “Islets have the least ecological value as they are isolated habitats. What that means is that species found in islets cannot migrate to any other habitat as islets do not have any bridge or loop or any other facility to facilitate migration,” says Dr. V. Sathyakumar from the School of Civil Engineering, SASTRA University, and the first and one of the corresponding authors of the study. So any increase in forest cover of the islets without attempting to link them to the main forest does not help increase biodiversity.

“The novelty in our study is that we assessed the forest connectivity, which currently is not available in any Forest Survey of India report. We also looked into gross forest gain and gross forest loss, while FSI reports mainly focus on net change,” says Dr. Sathyakumar.

“There are studies on total forest gain or loss but structural connectivity has not been studied so far. Knowing structural connectivity will help in understanding ecological health, and carry out biodiversity conservation,” says Dr. R. Ramsankaran, Professor at the Department of Civil Engineering, IIT Bombay and a corresponding author of the study. Forests have been divided into seven distinct connectivity classes, with core at one end of the spectrum while islets are at the other end of the spectrum.

According to Dr. Ramsankaran, islets are more prone to deforestation compared with the cores. And across India, net additions to forest cover have been largely restricted to islets and not the forest cores.

Compared with 2015, forest core area that has been converted into non-forest in 2019 is nearly 204 sq.km. In the case of islets, the conversion into non-forest has been even higher at nearly 230 sq. km. What makes the conversion into non-forest in the case of islets stand out is that the net loss of about 230 sq. km is from a far smaller area of about 32,000 sq.km compared with net loss of about 204 sq. km of forest core from about 5.87 lakh sq. km, points out Dr. Sathyakumar.

“Forest core has more resilience. As a result, even when some portion of the forest core is converted into non-forest, the core has better chances of survival, which is not the case with other structural entities of the forest, particularly the islets,” says Dr. Sathyakumar. “In the case of the core, we found only 0.035% has become non-forest, while 0.72% of islet has become non-forest. The conversion rate of islets to non-forest has been almost 20 times higher between 2015 and 2019.”

The higher rate of islet loss would mean that even when attempts to afforest the islets are made, the chances of sustenance of afforestation will be very less, says Dr. Sathyakumar. Based on the study, he says forest cores have higher resilience while islets have the least and so any attempt at afforestation should be in the forest core with the least preference given to islets. “As far as possible, if afforestation of islets is undertaken, it should be done to convert them to a higher-ranking class such that islets become a branch so they have better resilience,” he says.

Across India, forest cover decreased from 24.13% in 2015 to 24.10% in 2019. While there was about 56 sq. km of forest gain, forest loss was 1,033 sq. km, resulting in a net loss of about 977 sq. km. This equates to a loss of approximately 18 sq. km for every 1 sq.km. gained.

Mizoram had the highest forest cover (about 99%) and Ladakh the lowest (0.91%) in both years. The largest net reductions were observed in West Bengal (0.28% points), Tamil Nadu (0.20% points), Kerala (0.14% points) and Goa (0.12% points). More importantly, forest core area loss was highest and exceeded the national rate in six States — Tamil

Nadu, Puducherry, West Bengal, Andhra Pradesh, Gujarat, and Telangana. In particular, Tamil Nadu's rate was sixteen times higher than the national-level rate. "These six states specifically require targeted interventions to address the rapid loss of forest cores," they write.

Published – July 31, 2025 12:56 pm IST