

# Earth has three trillion trees, reveals Yale-led study - Livemint

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**New Delhi:** A study led by researchers at Yale University in the US has revealed that there are more than three trillion trees on Earth which is seven and a half times more than was estimated earlier.

At the same time, the study showed the number of trees has decreased by nearly 46% since human civilization began.

The study published in the Nature journal which traces tree population worldwide at the square-kilometer level was conducted by researchers from 15 countries using satellite imagery, forest inventories and supercomputers.

Two years ago when the lead author was approached for an estimate of tree population on earth, the existing global estimate was just over 400 billion trees worldwide, or about 61 trees for every person on Earth. The new study with a new set of approaches to reveal that there are 3.04 trillion trees, which comes down to 422 trees per person.

According to researchers, the new insights can improve the modelling of many large-scale systems, from carbon cycling and climate change models to the distribution of animal and plant species.

“Trees are among the most prominent and critical organisms on Earth, yet we are only recently beginning to comprehend their global extent and distribution,” said Thomas Crowther, a post-doctoral fellow at the Yale School of Forestry & Environmental Studies (F&ES) and lead author of the study. “You ask people to estimate, within an order of magnitude, how many trees there are and they don’t know where to begin. I don’t know what I would have guessed, but I was certainly surprised to find that we were talking about trillions,” Crowther said in a statement.

For the purpose of the study, the researchers collected tree density information from more than 400,000 forest plots around the world, which included national forest inventories and peer-reviewed studies of tree counts verified at the ground level.

“Most global environmental data is thematically coarse,” said Matthew Hansen, a global forestry expert from the University of Maryland, who was not involved in the study. “The study of Crowther et al. moves us towards a needed direct quantification of tree distributions, information ready to be used by a host of downstream science investigations.”

The highest densities of trees were found in the boreal forests in the sub-arctic regions of Russia, Scandinavia and North America. But the largest forest areas, by far, are in the tropics, which are home to about 43% of the world’s trees. Only 24% are in the dense boreal regions, while another 22% exist in temperate zones.

With the help of satellite images, they were then able to assess how the number of trees in each of those plots is related to local characteristics such as climate, topography, vegetation, soil condition, and human impacts.

The study showed human activity is the largest driver of tree numbers worldwide. The study provides a new measure of human impact highlighting how historical land use decisions have shaped natural ecosystems on a global scale and showed deforestation, land-use change, and forest management are responsible for a gross loss of over 15 billion trees each year.

