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Ozone pollution slows tropical forest growth by halting carbon absorption

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A new study has revealed that ozone pollution is significantly hindering the growth of tropical forests, leading to a loss of nearly 300 million tonnes of carbon each year. The research, published in the journal *Nature Geoscience*, highlighted the detrimental impact of air pollution on these vital ecosystems.

Tropical forests play a crucial role in mitigating climate change by absorbing carbon dioxide from the atmosphere. However, ground-level ozone, formed by the combination of pollutants from human activities and sunlight, interferes with plants' ability to absorb carbon.

The study found that ozone pollution reduces the new yearly growth in tropical forests by an average of 5.1 per cent, with some regions experiencing even more significant impacts.

“Our study shows that air pollution can jeopardise this critical ecosystem service,” said co-lead author Alexander Cheesman of James Cook University and the University of Exeter. “We estimate that ozone has prevented the capture of 290 million tonnes of carbon per year since 2000.”

Professor Stephen Sitch, from the University of Exeter, added: “Embracing a future with greater environmental protection would lead to reduced ground-level ozone, thus improved air quality and the additional benefit of enhanced carbon uptake in tropical forests.”

The researchers conducted experiments to measure the ozone susceptibility of various tropical tree species and then incorporated the results into a computer model of global vegetation. Their findings indicate that urbanisation, industrialisation, fossil fuel burning and fires have led to an increase in precursor molecules that form ozone.

As ozone concentrations continue to rise due to increased emissions and altered atmospheric chemistry, the impact on tropical forests is expected to worsen.

“Areas of current and future forest restoration, which are critical for climate change mitigation, are disproportionately affected by this elevated ozone,” said co-lead author Flossie Brown, a recent graduate of the University of Exeter. “It is clear that air quality will continue to play an important but often overlooked part in the way forests absorb and store carbon.”

The study emphasised the need for greater environmental protection to reduce ground-level ozone and improve air quality. By addressing air pollution, we can not only enhance the health of tropical forests but also contribute to the fight against climate change.

Source: https://www.downtoearth.org.in/pollution/ozone-pollution-slows-tropical-forest-growth-by-halting-carbon-absorption