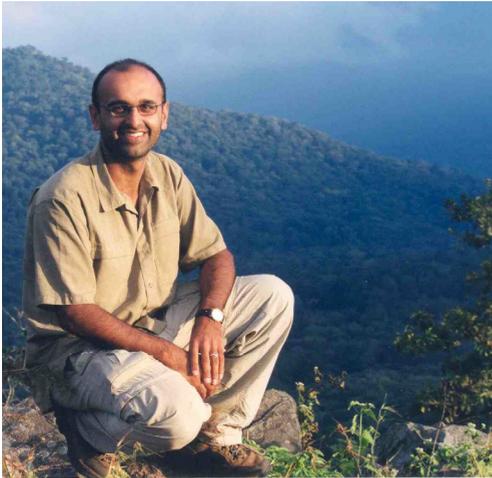


How global warming is changing tropical forests

Professor Yadvinder Malhi, is leading a team of scientists researching the impact of climate change on the forests of the Peruvian Andes. His report will influence national and international policymaking.



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Understanding the tropical forests of South America is critical to our understanding of climate change. The Amazonian forests play a significant role in global weather patterns and they account for 15% of the world's plant species. They absorb carbon, which contributes to global warming, but they also produce it. So a key question for scientists is: how is global warming affecting that process?

For the last eight years, Professor Malhi and a team of scientists have been measuring how temperature affects tropical forests along a mountainous stretch of southern Peru. The research has been intensive in its coverage of plant and tree life and widespread in its territorial reach, examining vegetation from the lowlands to the mountain tops. Their twofold aim was to research plant and tree growth and also decomposition.

What they discovered surprised them as it contradicted conventional wisdom. They found that climate warming does not enhance tree and plant growth, which means that as the forests warm further they will not be absorbing more CO₂. Only at 1,500 metres does tree growth slow down; growth in the cloud forests slows down hugely as clouds rise. However, the researchers did find that forest warming accelerates decomposition, which indicates that as the forests warm they will release more carbon.

To reach these conclusions the researchers studied root growth every month, the flowering of plants, leaf fall and microbial action on dead matter. "We've described the full carbon cycle of a forest," says Professor Malhi. This has never been done before.

The data from this research will feed into the global climate models used by the Intergovernmental Panel on Climate Change (IPCC) which influence government policies around the world.

'The elevation transect in the Andes is unique in the world in what it is trying to do. Its insights into how tropical ecosystems are responding to climate change have formed the bedrock of a wider range of research that is now being attracted to the site. So it has the potential to become a classic study over the coming decades.'

Dr Gregory Asner, Department of Global Ecology, Carnegie Institution for Science.

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