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New research finds mangroves key to climate change

BOGOR, Indonesia (April 5, 2011) _ New research shows that mangroves store exceptionally more carbon than most tropical forests, but they are being destroyed from coastlines at a rapid rate causing significant emissions of greenhouse gases.

The findings from the study, which was carried out by scientists from the [Center for International Forestry Research](#) (CIFOR) and the [USDA Forest Service](#), underscore a call by scientists for mangroves to be protected as part of global efforts to combat climate change.

"Mangroves are being destroyed at an alarming rate. This needs to stop. Our research shows that mangroves play a key role in climate change mitigation strategies," said Daniel Murdiyarto, Senior Scientist at CIFOR, a co-author of the paper, entitled *Mangroves among the most carbon-rich forests in the tropics*.

In the study, which was published on April 3 in [Nature GeoScience](#), scientists quantified carbon storage in mangroves across a large tract of the Indo-pacific region. No studies to date have integrated the necessary measurements for total mangrove carbon storage across broad geographic domains.

From the results, the scientists estimated that the destruction and degradation of mangrove forests may be generating as much as 10% of all the global deforestation emissions despite accounting for just 0.7% of tropical forest area. Much of that carbon is stored in the ground below the mangroves forests that can be seen above the ground and water.

Deforestation and land-use change currently account for 8% to 20% of all global carbon emissions, second only to the use of fossil fuels. An international initiative known as REDD+ (reduced emissions from deforestation and forest degradation) is considered one of the most cost-effective ways to slow the rate of climate change.

Mangroves occur along the coasts of most major oceans in some 118 countries. A 30% to 50% decline in mangroves over the past half-century has raised fears that they may disappear altogether in as little as 100 years.

Rapid 21st century sea level rise has also been cited as a primary threat to mangroves, which have responded to past more gradual sea-level changes by migrating landward or upward. Under current climate trends, sea level is projected to rise 18-79 centimeters this century - and even higher if ice-sheet melting continues accelerating.

Mangroves are also being threatened by increasing pressures from urban and industrial developments, as well as fish farms.

"There is a lack of awareness of the full implications of mangrove loss for humankind," Murdiyarso said. "There is an urgent need for governments to acknowledge their importance and develop better policies to ensure their protection."

Mangroves are not only key to climate change mitigation efforts, they also play important roles in adapting to the changing climate. They protect coastlines from storm surges and fluctuations in sea levels, including from tsunamis.

For more information: [Nature News: Carbon-rich mangroves ripe for conservation](#)

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The Center for International Forestry Research (CIFOR) advances human wellbeing, environmental conservation and equity by conducting research to inform policies and practices that affect forests in developing countries. CIFOR helps ensure that decision-making that affects forests is based on solid science and principles of good governance, and reflects the perspectives of developing countries and forest-dependent people. CIFOR is one of 15 centres within the Consultative Group on International Agricultural Research.

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