

# Tropical countries' growing wealth may aid conservation

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Tropical forest in Martinique near the city of Fond St-Denis. Credit: Wikipedia

While inadequate funding has hampered international efforts to conserve biodiversity in tropical forests, a new Duke University-led study finds that people in a growing number of tropical countries may be willing to shoulder more of the costs on their own.

"In wealthier developing countries, there has been a significant increase in public demand for conservation, which has not yet been matched by an equivalent increase in protective actions by the governments of those countries," said Jeffrey R. Vincent, a Duke environmental economist who led the study, which appears this week in the *Proceedings of the National Academy of Sciences*.

Nearly half of the world's threatened endemic tropical mammal, bird and plant species are found in 27 developing countries that the World Bank now classifies as having reached upper middle income (UMI) status.

UMI countries, which include Brazil, Costa Rica, Mexico, Gabon, Malaysia, Peru and Thailand, also contain nearly 80 percent of the world's primary tropical forests, which play a major role in [carbon storage](#).

"Our research suggests that as incomes rise in these countries, it creates a new opportunity for domestic funding to play a larger role in supporting efforts to protect forests and forest species from logging, poaching and other threats," Vincent said. "This could make a big difference in protecting tropical biodiversity and reducing greenhouse gas emissions from deforestation and forest degradation."

To measure how these countries' rising household incomes have affected public demand for [biodiversity conservation](#) and their governments' expenditures on it, Vincent and a team of international scientists analyzed economic indicators from high income, upper- and lower-middle-income, and low-income tropical countries.

Among other indicators, they tracked per capita donations to nongovernmental conservation groups; percentage of land set aside in protected areas; percentage of conservation projects receiving international funding; and results from public opinion surveys about the

priority governments should place on environmental protection in relation to potentially opposing concerns such as job creation.

"We found strong evidence that as countries reach upper-middle-income status, support for conservation and willingness to pay for it grows across every indicator we examined, while protective government policies and expenditures lag behind," Vincent said.

To test these findings, the researchers conducted a case study on [forest conservation](#) in the remote Belum-Temengor forest of Malaysia's northernmost state, Perak.

As early as 1968, the Malaysian federal government recommended establishing a wildlife reserve in Belum-Temengor to protect its populations of Asian elephants, Malaysian tigers, Sumatran rhinoceroses and other large mammals against poaching and logging. But the Perak state government, which has jurisdiction over the forest, has protected only a third of it. The rest of the forest remains open to logging and, under state law, even the area currently protected could be re-opened for logging, a major revenue source in Perak.

To gauge public demand for expanded protection, Vincent and his team surveyed households in Kuala Lumpur, Malaysia's capital, and the neighboring state of Selangor, and asked how much they would be willing to pay to create a new reserve that would protect all of Belum-Temengor against logging and poaching. The survey defined the benefits of the reserve as reduced extinctions and reduced local flooding, neither of which would directly benefit people living outside Perak. It also detailed the costs associated with creating the reserve, including management costs and the loss of logging jobs.

"Despite receiving no direct benefits, people were willing to pay \$6 per month to provide full protection to Belum-Temengor," Vincent said.

That works out, cumulatively, to about \$437 a year per hectare of land—a much larger sum than the estimated costs of protecting Belum-Temengor."

"The challenge now," Vincent said, "is translating this growing support into increased government action. One possible solution might be to retool how international funding is allocated. Our findings provide a strong economic rationale for coupling international payments for carbon storage made to UMI [tropical countries](#) with biodiversity payments funded by those countries themselves."

Vincent is the Clarence F. Korstian Professor of Forest Economics and Management at Duke's Nicholas School of the Environment and Sanford School of Public Policy.

He conducted the new study with researchers from the University of California (UC) San Diego, UCLA, UC Riverside, UC Berkeley, the University of South Australia, the Forest Research Institute Malaysia, and PE Research. Primary funding came from the Global Environmental Facility through the UN Development Programme, with additional support from Malaysia's Ministry of Natural Resources and Environment and the Forest Research Institute Malaysia.

**More information:** "Tropical countries may be willing to pay more to protect their forests," Jeffrey R. Vincent, Richard T. Carson, J.R. DeShazo, Kurt A. Schwabe, Ismariah Ahmad, Siew Kook Chong, Yii Tan Chang, Matthew D. Potts; *Proceedings of the National Academy of Sciences* Early Edition, June 30-July 4, 2014. [DOI: 10.1073/pnas.1312246111](#)

Provided by Duke University

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