

Rainforest metropolis casts 1,000 km shadow on wildlife

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Boating down the River Purus as part of fieldwork. Credit: Dr. Daniel Tregidgo
Lancaster University

Urban food demand in the Amazon could be hitting wildlife up to 1,000 km away from the city, according to new research.

Rapid urbanization in the Brazilian Amazon means over 18 million people are now living in rainforest towns and cities but the impact of this demographic change on wildlife harvested for food, is largely unknown.

In an attempt to find out more, researchers from Lancaster University went into rural communities in remote tropical wildernesses along the Purus River, a major Amazonian tributary, over a period of a year to gather evidence.

Using tambaqui, a [fish](#) species highly prized by Amazonian consumers, as an example, they interviewed hundreds of rural Amazonians about their fishing activity along a heavily fished but otherwise relatively pristine river which flows towards Manaus - a [city](#) of over 2 million residents. All fishers were asked in detail about the catch, effort and catch methods of every fishing trip that they had undertaken in the three days prior to the interview.

The data, published in the journal *PNAS*, revealed that the tambaqui fish became much smaller and harder to catch nearer to the rainforest metropolis. Amazonian fishers reported a 50% reduction in body size and catch rate as the river approached the city.

Surprisingly, the research team found this trend extended as far as 1000 km from the city, where larger fish were more common and easier to catch.

Researchers found these declines were linked to city-based boats that provide rural fishers with reliable access to fish-buyers and ice, fuelling overfishing.

The findings have important implications for wider forest diversity and human livelihoods, which may suffer as a result of urban-related species depletion or 'defaunation'.

Lead author of the paper 'Rainforest metropolis casts 1000 km defaunation shadow' Dr Daniel Tregidgo said: "Our research shows the impact of urban demand for a high-value species of river fish is felt much further away from cities than we imagined. This is significant because the tropics harbour two-thirds of the Earth's biodiversity and are experiencing rapid human population increase, urbanization and economic change resulting in higher urban food demand.

"Much of this demand is being met by the expansion of farmed meat production but wild meat such as fish and forest wildlife is also an important food for hundreds of millions of tropical consumers, from the poorest and most vulnerable to wealthier urban residents. This research has revealed for the first time exactly how far the defaunation shadow of a metropolis extends into the 'forested wilderness'."

More information: Daniel J. Tregidgo et al., "Rainforest metropolis casts 1,000-km defaunation shadow," *PNAS* (2017).

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Provided by Lancaster University

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