

# Conservation policies could improve human health

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Measures taken to protect ecosystems and the environment could also deliver public health benefits, according to a study published today.

While research has shown that nearly one quarter of the global burden of disease can be attributed to poor environmental quality, very little scientific evidence supports the claim that the conservation of ecosystems benefits human health.

To address this knowledge gap, Subhrendu Pattanayak, a Duke professor of [global health](#), environment and public policy, and his colleagues analyzed an extensive set of data consisting of four years of observations on disease, climate, demographics, [public health services](#) and drivers of land use change in 700 municipalities within the Brazilian Amazon.

The Amazon was ideal because it has undergone rapid land-use change and significant conservation efforts, and there is extensive and precise public data.

Pattanayak and his team found that the incidences of malaria, [acute respiratory infections](#) and diarrhea were significantly lower near strictly [protected areas](#) such as parks and other reserves that preserve biodiversity and tightly restrict human use. By contrast, the incidence of malaria was higher in 'sustainable use' protected areas where people were allowed to enter and harvest forest products.

Results vary by disease and for other types of protected areas, road

development and mining.

"Our findings suggest that strictly protected areas may serve as a barrier to disease transmission," said Pattanayak. "Although these relationships are complex, we believe that by protecting and preserving biodiversity, we could also derive the double win of [public health](#) benefits."

In addition to Pattanayak, the team included researchers from Duke's Nicholas School of the Environment, the Inter-American Development Bank in Brazil, the South Asian Network of Development and Environmental Economics in Nepal, North Carolina State University and the Amazon Institute of People and the Environment in Brazil. The findings appear online the week of June 15 in the *Proceedings of the National Academy of Sciences (PNAS)*.

"Many of these factors have previously appeared separately in disease models, but not all together in one model," Pattanayak said.

"Certainly the causal chain of [environmental health](#) is neither short nor simple," said Pattanayak. "But my colleagues and I believe our methods and this study help add important links in this chain. As such, it strengthens the claims of a recent Lancet Commission on Planetary Health that calls for protecting nature to achieve health outcomes."

**More information:** 'Public health impacts of ecosystem change in the Brazilian Amazon,' Simone C. Bauch, Anna M. Birkenbach, Subhrendu K. Pattanayak, Erin O. Sills. *Proceedings of the National Academy of Sciences*, June 15, 2015. [DOI: 10.1073/pnas.1406495111](https://doi.org/10.1073/pnas.1406495111)

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