

A better way to evaluate conservation policies found

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Protected forested areas in Brazil, Costa Rica, Indonesia and Thailand have prevented the release of more than 1,000 million additional tons of carbon dioxide into the atmosphere, an economic service provided by nature worth at least \$5 billion, according to new research by Georgia State University economist Paul Ferraro with alumnus Merlin M. Hanauer and colleagues.

In an article published this week by the *Proceedings of the National Academy of Sciences*, the authors use this finding to show how [conservation](#) research methodology is improved by joining its two distinct and largely independent branches: research that models and maps ecosystem services and research that empirically measures how human behaviors are affected by actual conservation programs.

Their goal is to improve conservation planning by studying the impacts of public policies on the supply of other valuable ecosystem services that benefit humans - like pollination, water quality and quantity, and biodiversity. Hard evidence about [policy](#) impacts helps aid conservation planners in obtaining the greatest return on scarce public funds.

"Nature provides all these free [ecosystem services](#), but we don't have a good picture of how useful our policies are at protecting the supply of these services," said Ferraro, a professor in Georgia State's Andrew Young School of Policy Studies. "Scientists need to move beyond hypothetical scenarios and conduct impact evaluations of real-world policies aimed at delivering these services. So we brought together the

scientific modelers with social scientists who empirically evaluate policies in place now."

When a law's potential impacts are modeled only on a computer, the [human behavior](#) in these models is simplistic, he explained.

"Without an evidence base for the impacts of real policies," he said, "the insights from modeling and valuation are not as useful to [decision makers](#) as they could be. But when we measure how such policies change human behavior, we have a better idea of their impact on environmental services. It is why, for example, we have human drug trials; a computer model can't do it.

"In our field, we don't have computer models of humans and nature that are good enough to predict what would happen with a proposed conservation policy or program. By estimating the impacts of the policies and programs in effect now we can more realistically measure the future impact of new policies and programs."

Decision makers and ecosystem scientists want a strong evidence base from which to guide their conservation actions, the authors noted.

"With stronger evidence and theories about how [conservation programs](#) affect natural and human systems, scientists, policymakers and practitioners can determine how to best design policies for enhancing human welfare, while conserving species and habitats," Ferraro said.

More information: Estimating the impacts of conservation on ecosystem services and poverty by integrating modeling and evaluation, www.pnas.org/cgi/doi/10.1073/pnas.1406487112

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