

New world map for overcoming climate change

September 16 2013



Protecting large, intact, climate stable forests is arguably the greatest conservation priority. Credit: Liana Joseph

Using data from the world's ecosystems and predictions of how climate change will impact them, scientists from the Wildlife Conservation Society, the University of Queensland, and Stanford University have produced a roadmap that identifies the world's most vulnerable and least vulnerable areas in the Age of Climate Change.

The authors say the vulnerability map will help governments, environmental agencies, and donors identify areas where to best invest in protected area establishment, [restoration efforts](#), and other [conservation activities](#) so as to have the biggest return on investment in saving [ecosystems](#) and the services they provide to wildlife and people alike.

The study appears in an online version of the journal *Nature Climate Change*. The authors include: Dr James Watson of the Wildlife Conservation Society and the University of Queensland; Dr Takuya Iwamura of Stanford University; and Nathalie Butt of the University of Queensland.

"We need to realize that climate change is going to impact ecosystems both directly and indirectly in a variety of ways and we can't keep on assuming that all adaptation actions are suitable everywhere. The fact is there is only limited funds out there and we need to start to be clever in our investments in adaptation strategies around the world,," said Dr. James Watson, Director of WCS's Climate Change Program and lead author of the *Nature* study. "The analysis and map in this study is a means of bringing clarity to complicated decisions on where [limited resources](#) will do the most good."

The researchers argue that almost all climate change assessments to date are incomplete in that they assess how future climate change is going to impact landscapes and seascapes, without considering the fact that most of these landscapes have modified by human activities in different ways, making them more or less susceptible to climate change.

A vulnerability map produced in the study examines the relationship of two metrics: how intact an ecosystem is, and how stable the ecosystem is going to be under predictions of future climate change. The analysis creates a rating system with four general categories for the world's terrestrial regions, with management recommendations determined by

the combination of factors.

Ecosystems with highly intact vegetation and high relative climate stability, for instance, are the best locations for future protected areas, as these have the best chance of retaining species. In contrast, ecosystems with low levels of vegetation and high relative climate stability could merit efforts at habitat restoration. Ecosystems with low levels of vegetation intactness and low climate stability would be most at risk and would require significant levels of investment to achieve conservation outcomes.

The new map, the authors say, identifies southern and southeastern Asia, western and central Europe, eastern South America, and southern Australia as some of the most vulnerable regions. The analysis differs from previous climate change exposure assessments based on only climate change exposure which shows the most vulnerable regions as central Africa, northern South America, and northern Australia.

"Effective conservation strategies must anticipate not only how species and habitats will cope with future [climate change](#), but how humans will respond to these challenges," added Dr. John Robinson, Executive Vice President for Conservation and Science. "To that end, maintaining the integrity of the world's ecosystems will be the most important means of safeguarding the natural world and our own future."

More information: [dx.doi.org/10.1038/nclimate2007](https://doi.org/10.1038/nclimate2007)

Provided by Wildlife Conservation Society

Citation: New world map for overcoming climate change (2013, September 16) retrieved 4 April 2024 from <https://phys.org/news/2013-09-world-climate.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.