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Carbon Capture and Storage Nature's Way

Pioneering UNEP Atlas shows how investing in carbon rich ecosystems can give the double dividend of combating climate change and biodiversity loss

Poznan/Nairobi/Cambridge, 5 December 2008—Maps pinpointing overlaps of high carbon and high biodiversity areas were launched today by the UN Environment Programme (UNEP).

The research gives preliminary indications of where investments in reducing emissions from deforestation can not only assist in combating climate change, but can also help the conservation of biodiversity, from amphibians and birds to primates.

The atlas, believed to be the first of its kind, comes as nations meet in Poznan, Poland for the latest round of UN climate convention talks.

Close to 20 per cent of greenhouse gas emissions are a result of deforestation. Negotiators are looking to advance plans to fund Reducing Emissions from Deforestation and Forest Degradation (REDD) in a post-2012 climate deal.

The *Carbon and Biodiversity Demonstration Atlas* has been produced by UNEP's World Conservation Monitoring Centre (UNEP-WCMC) with support from the German government and initial seed funding from Humane Society International. Printed and electronic copies (on a CD and at www.unep-wcmc.org) are available.

Achim Steiner, UN Under-Secretary General and UNEP Executive Director, said: "At a time of scarce financial resources and economic concerns, every dollar, euro or rupee needs to deliver double, even triple dividends. Intelligent investment in forests is a key example where climate benefits and ecosystem benefits can be achieved in 'one transaction'."

He said paramount to a successful REDD initiative is ensuring safeguards for local and indigenous people so that they can benefit from any future REDD arrangements.

"However, by pin pointing where high densities of carbon overlap with high levels of biodiversity, the atlas spotlights where governments and investors can deal with two crises for the price of one. This does not include the other benefits from investing in forests ecosystem 'infrastructure', from stabilizing soils to conserving and boosting local and regional water supplies," he added.

The demonstration Atlas includes regional maps as well as national maps for six tropical countries (see below) showing where areas of high carbon storage coincide with areas of biodiversity importance. It also shows where existing protected areas are high in both carbon and biodiversity. The atlas includes a variety of statistics drawn from these maps demonstrating the different types of possible information that can be provided.

Carbon and Biodiversity—Regional and National Opportunities

The Earth's terrestrial ecosystems store an estimated 2,000 billion tonnes (Gigatonnes) of carbon (GtC) in the biomass above ground and in the soil, with a significant proportion of this carbon located within tropical ecosystems.

The maps in the atlas focus on tropical regions using data that provide a globally consistent picture of carbon storage.

The tropical Andes, for example, is the richest and most diverse biodiversity hotspot in the world while the Amazon rainforest, the world's largest continuous rainforest area, hosts an estimated quarter of the world's terrestrial species. High biodiversity areas within the tropical Andes and Amazon account for 11 percent of the total carbon stock in the Neotropics.

In tropical Africa over 60 per cent of the high biodiversity areas are in high carbon areas and they contain a total of 18 billion tonnes of carbon. Employing the same techniques used in this atlas would make it possible to identify where areas of high carbon density and high density of great apes overlap, in order to find where REDD investment could also benefit great ape conservation.

The national maps illustrate different ways of identifying areas of biodiversity importance and their overlaps with high carbon areas. In Tanzania, Key Biodiversity Areas contain 17 per cent of the country's carbon stock.

Vietnam's protected areas cover 32 per cent of the land area that has been identified as having high values for both carbon and biodiversity, demonstrating the potential value of the protected area system for meeting both carbon and biodiversity goals.

In Papua New Guinea the map illustrates how the centre of the country, which is high in biodiversity, also contains areas of large areas of high carbon stock. It also shows that existing protected areas overlap with only 14 per cent of the high carbon areas.

The development of the UNEP atlas is a response to last year's meeting of climate change negotiators in Bali, Indonesia, where governments agreed to consider REDD as part of the climate deal due to be agreed in Copenhagen, 2009.

"Nature has spent millions of years perfecting carbon capture and storage in forests, peatlands, soils and the oceans while evolving the biodiversity that is central to healthy and economically productive ecosystems. Technological methods for capturing and storing will have their role, but the biggest and widest returns may come from investing in and enhancing natural carbon capture and storage systems," said Mr Steiner.

"In doing so, countries will forge part of a Global Green New Deal in which the 'infrastructure' of economically-important ecosystems is renewed and renovated while sustaining livelihoods and hundreds of thousands of new Green jobs in forestry and conservation in developing countries," he added.

Barney Dickson, Head of the Climate Change and Biodiversity Programme at UNEP-WCMC, said that the new maps are just a first step towards demonstrating how combining different types of data, with relatively simple techniques, can help to identify areas where opportunities and benefits overlap for storing carbon and protecting biodiversity.

His team has used global datasets and biodiversity priorities for this demonstration atlas. These could be improved by using national level data and priorities: "Decisions to reduce emissions at the national level need to be made against national priorities and with the best national data on carbon stocks and biodiversity."

Such decisions will also need to account for specific pressures that can lead to environmentally destructive changes in land use, such as clearing forests for pasture or growing crops for biofuels, he added.

A new, detailed and web-based atlas is expected in 2009 in the run up to UN climate meeting in Copenhagen. The atlas will cover a larger number of countries with more accurate, national data on carbon and biodiversity where available, and examine options to include ecosystem services and impacts on local livelihoods.

Great Apes and Carbon

The Great Ape Survival Partnership (GRASP, an initiative coordinated by UNEP and the UN Educational Scientific and Cultural Organization (UNESCO) is set to launch pilot activities to test the potential of achieving these "multiple benefits" from REDD in Central Africa and Southeast Asia.

The experts are looking at how investments in conserving carbon in the forests on the Nigerian-Cameroon border may also assist in conserving the habitat of the highly endangered Cross River gorilla, of which only 250-300 individuals remain. And in Indonesia, national and local authorities, communities and the oil palm sector will be engaged to reduce emissions from the carbon-rich peat-swamp forest, home of many populations of orangutan.

News of the pilot came earlier this week during the launch of the Year of the Gorilla 2009 initiative coordinated by UNEP's Convention on Migratory Species. The GRASP initiative will complement and may form part of a wider United Nations REDD Programme, involving the UN Food and Agriculture Organization (FAO), the UN Development Programme (UNDP) and UNEP.

The UN REDD Programme is assisting nine pilot countries in Latin America, Africa and Asia and will also provide support to the development of a global REDD initiative, working in cooperation with the World Bank Forest Carbon Partnership Facility and others.

Notes to editors:

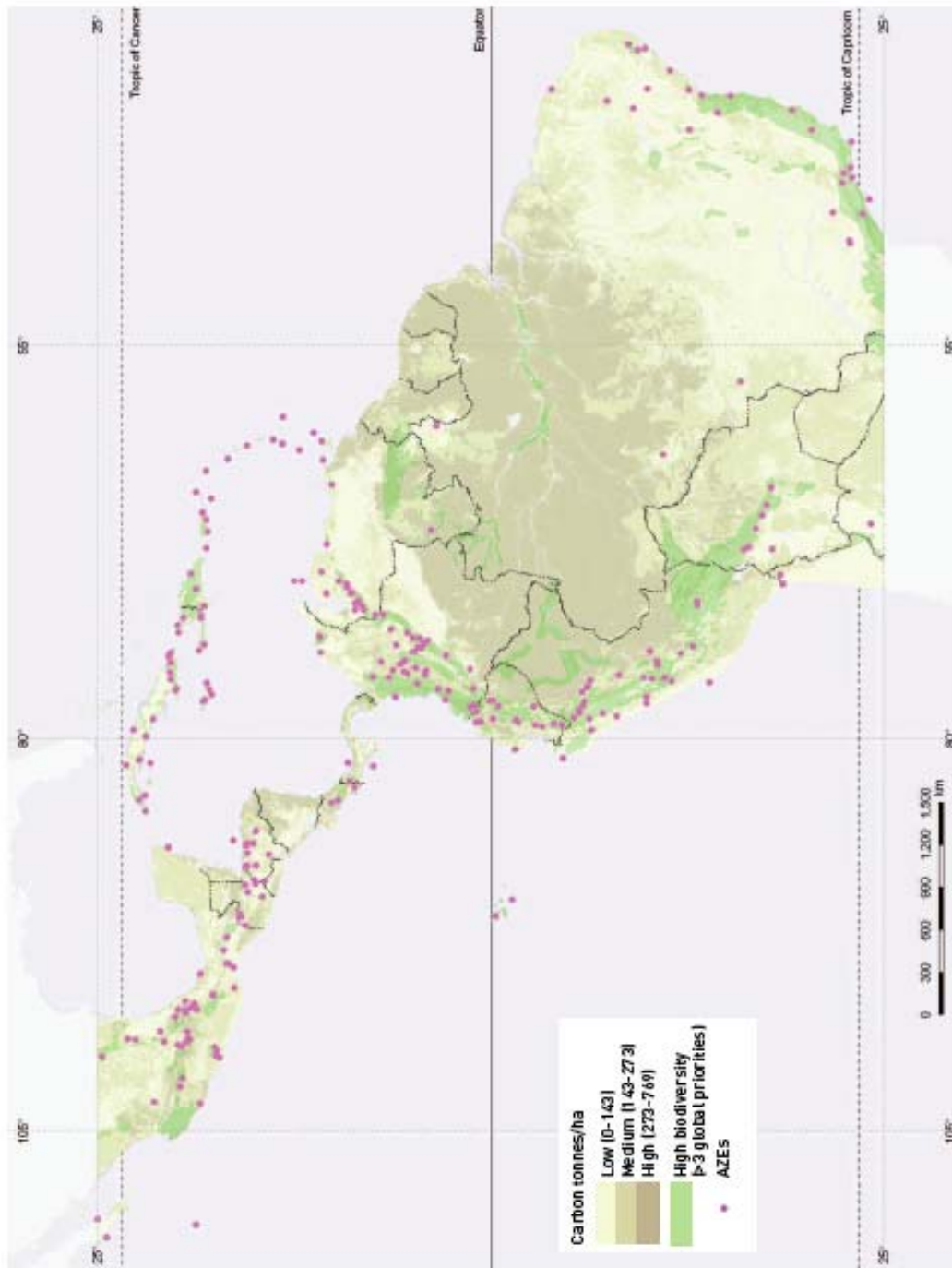
Electronic copies of the atlas will be available from 5th December 2008 at www.unep.org/pdf/carbonbio_diversity.pdf and at www.unep-wcmc.org

For More Information Please Contact Nick Nuttall, UNEP Spokesperson/Head of Media on Mobile: on Tel: +41 795 96 57 37, or E-mail: nick.nuttall@unep.org

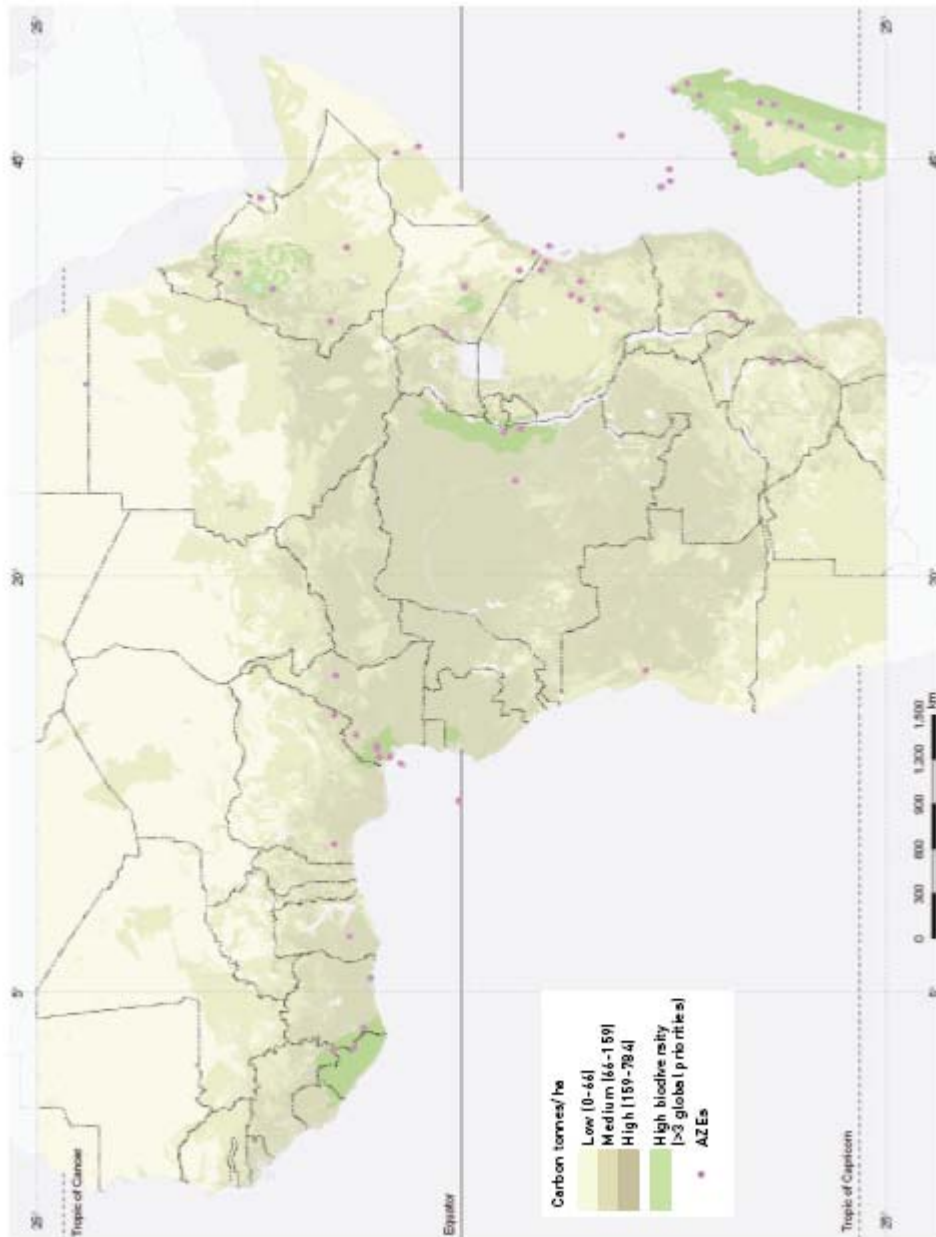
Or Barney Dickson +44 7590 655 975 (barney.dickson@unep-wcmc.org)

Further information can be found at www.unep.org/grasp

Additional Background



Map of Central America showing areas of high biodiversity value, where at least four global biodiversity priority schemes overlap. The Alliance for Zero Extinction (AZEs) shown on the map are the last refuges for endangered and critically endangered species.



Sample chart from the Carbon and Biodiversity Atlas showing overlaps of high carbon and high biodiversity areas in tropical Africa

Individual Country Profiles

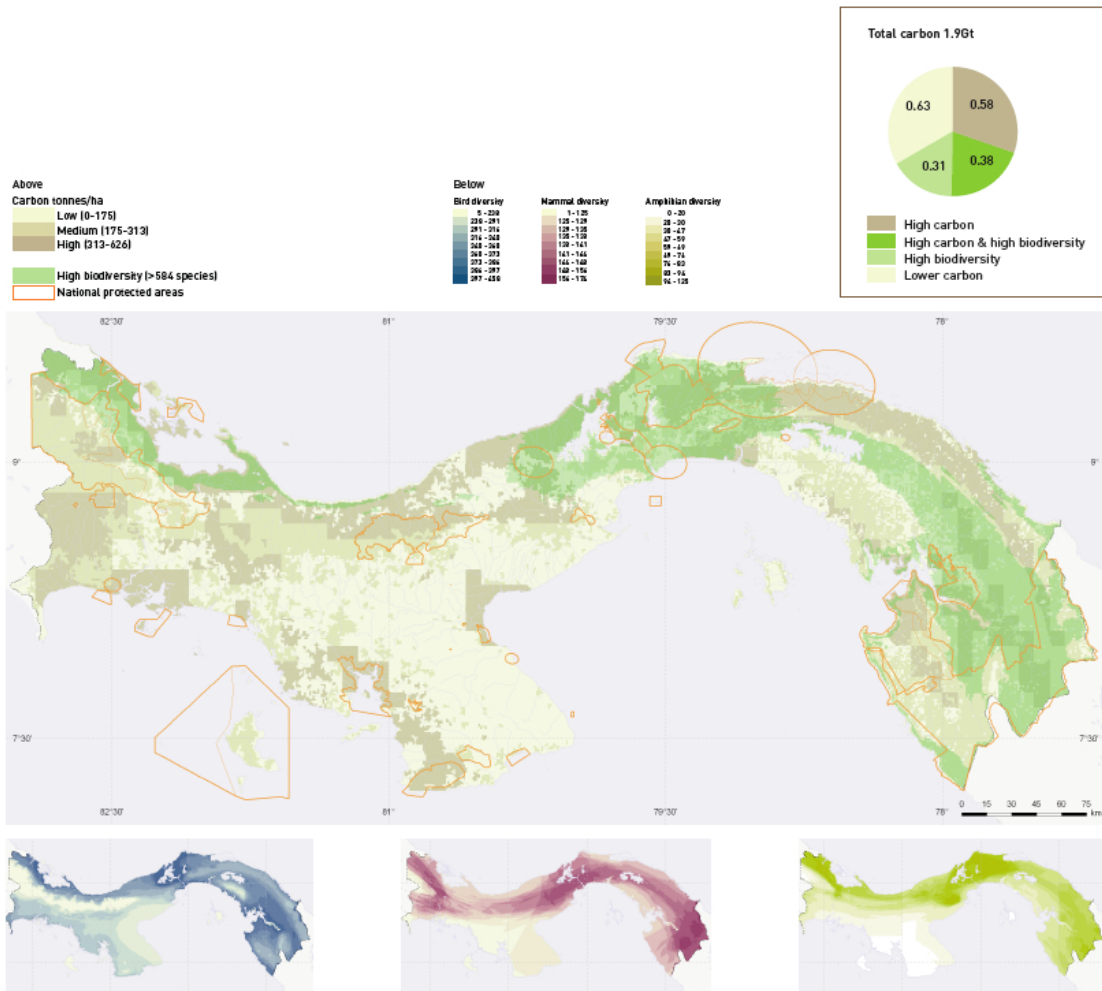
The Atlas contains six country profiles for Panama, Bolivia, Tanzania, Zambia, Vietnam and Papua New Guinea. Included here is a summary of Panama as an example:

Panama

With a land area of 75,500 km², Panama is home to more than 10,000 species of plants and 1,000 species of birds along with hundreds of mammal and amphibian species. The demonstration map for Panama combines global carbon storage data with detailed information on distributions of species richness of mammals a national level.

Panama stores 2 billion tones of carbon in its vegetation, with half in the ‘high carbon’ areas shown on the map below in darker brown. These are areas of high carbon soils in mountainous regions and coastal swamps and the high biomass lowland forests. Areas of high biodiversity value (green shading) cover 31 per cent of the land area of Panama and contain 36 per cent of the total carbon stock. Areas where high biodiversity values coincide with high carbon density areas cover 9,000 km² in total and contain 20 per cent or 380 million tonnes of the Panamanian carbon stock, or 40 per cent of the carbon stock in high carbon areas.

The map also shows that many, but not all of the areas with high carbon and high biodiversity values fall within protected areas.



Sample Map of Panama