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ROLEX AND NATIONAL GEOGRAPHIC PERPETUAL PLANET AMAZON EXPEDITION: TO THE RIVER MOUTH

NATIONAL GEOGRAPHIC EXPLORERS
ANGELO BERNARDINO AND MARGARET OWUOR:
DISCOVERING A NEW TYPE OF MANGROVE

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National Geographic Explorer Angelo Bernardino in the mangrove forest of Curuçá, at the mouth of the Amazon River. Bernardino and his research partner National Geographic Explorer Margaret Owuor are working with local communities to map the mangrove ecosystem and raise awareness of the area's importance.



A forest of red and black mangroves in Curuçá, northern Brazil. The trees thrive in water, having adapted to intertidal areas. These mangroves serve as a carbon sink and are of critical importance to the removal of pollutants from the Amazon River basin.



Sunrise over the Muriá River in Curuçá. Here National Geographic Explorers Angelo Bernardino and Margaret Owuor are working with local communities to study the mangrove forests and understand the importance of this unique ecosystem.

National Geographic and Rolex are supporting seven teams of scientists and conservationists on a series of studies to investigate the Amazon River Basin and exhibit its profound connection to people and wildlife. National Geographic Explorers Angelo Bernardino and Margaret Owuor travelled to some of the most remote coastal mangroves of northern Brazil, at the mouth of the Amazon River, to undertake a comprehensive scientific survey of the mangrove forests and detailed interviews with the local communities that live along the coastal waters.

Before even having begun their surveys, the team of explorers made a startling discovery. As Bernardino began mapping the mangrove forests using 3-D laser scanning and drones with fellow National Geographic Explorer Thiago Silva, they found a unique forest of mangroves growing in freshwater that had not been revealed by previous satellite surveys. This was a surprise for Bernardino and Silva as these trees are usually well-adapted to salt water, and they estimate that their discovery could add over 180 square kilometres of mangrove forest within the Amazon Delta, which amounts to a 20 per cent increase. "We never expected to find that because we are in an environment dominated by freshwater. The mangrove trees are coexisting with palm trees, and with all the várzea trees that are usually found upriver," explains Bernardino. "That was a really interesting discovery."



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These mangrove forests, with tangled webs of roots rising out of the water and thick, arching branches above, line the Amazon Delta, but they are often overlooked. As part of the Rolex and National Geographic Perpetual Planet Amazon Expedition, Bernardino and Owuor are on a mission to discover more about these ethereal ecosystems and contribute to increasing the protective measures on the forests. By placing a scientific lens on the Amazon's coast, they are showing how crucial the mangroves are not only to local communities, but in the global fight against climate change: mangroves can store up to five times as much carbon as the equivalent area in tropical forests.

The rugged trees that trace coastal intertidal zones perform several critical ecosystem services. Tides bring fish into the mangroves' intricate root system, where they can feed and juvenile fish can grow in the relative shelter. This not only provides work and food for local fishermen, but helps to sustain far-flung fisheries when the adult fish make their thousand-kilometre migrations back up the Amazon River.

Mangroves also remove aquatic pollutants and act as sea walls, defending the coastlines from storms, rising sea levels and erosion, a function that is only becoming more vital in the wake of climate change. "With time, I think we're going to appreciate even more how important they are to our lives," says Bernardino. "These mangroves are also really good at capturing excess CO₂, taking it out of the atmosphere and burying it for centuries in the soils." Studies suggest they can sequester four times more carbon than rainforests. Despite all this, many people remain unaware of the importance of mangroves, and they are now some of the most impacted ecosystems along the Brazilian coast, something Bernardino and Owuor are keen to change and shed light on to a wider audience with the help of the Rolex Perpetual Planet Initiative.

Bernardino and Owuor have also spent time speaking with the local communities to understand the social and economic values derived from the mangroves. There are those who wish for the mangroves to be felled in favour of urban development and modernised infrastructure, but Bernardino and Owuor's surveys have left them hopeful. Many locals have a profound appreciation for the mangroves and don't want to lose the ecosystem services that have been sustaining their communities for generations. By giving a voice to these communities, the team are adding to the case for the preservation of the coastal ecosystems in the face of urban sprawl.

The team have also been keen to share their own knowledge, providing crucial positive messages about how incredible these ecosystems are and how they can be better protected. With so many people around the world dependent on the health of mangrove forests, Bernardino and Owuor hope that, with the support of the Rolex Perpetual Planet Initiative, they can have a real positive impact on the forests' uncertain future.



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ABOUT THE PERPETUAL PLANET INITIATIVE

For nearly a century, Rolex has supported pioneering explorers pushing back the boundaries of human endeavour. The company has moved from championing exploration for the sake of discovery to protecting the planet, committing for the long term to support individuals and organizations using science to understand and devise solutions to today's environmental challenges.

This engagement was reinforced with the launch of the Perpetual Planet Initiative in 2019, which initially focused on the Rolex Awards for Enterprise, as well as long-standing partnerships with Mission Blue and National Geographic Society.

The initiative now has more than 30 other partnerships in an expanding portfolio. They include, for example, Cristina Mittermeier and Paul Nicklen, Rewilding Argentina and Rewilding Chile, offspring organizations of Tompkins Conservation, the Under The Pole expeditions, the Monaco Blue Initiative, and Coral Gardeners.

Rolex also supports organizations and initiatives fostering the next generations of explorers, scientists and conservationists through scholarships and grants, such as Our World-Underwater Scholarship Society and The Rolex Explorers Club Grants.

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