

Tropical eden revealed: In Southeast Suriname, scientists document new biodiversity and pristine ecosystems

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An international team of field biologists studying the never-before assessed mountainous region of Southeastern Suriname—a wilderness area virtually without any human influence and among the most remote and unexplored tracts of rainforest left on Earth—has discovered a wealth of ecosystem services whose protection will be essential for the country's climate resilience, freshwater security, and green development strategy. The scientific expedition also documented an amazing richness of biodiversity, including 60 species that are likely new to science and unique species that may exist nowhere else on Earth.

Following the three-week 2012 expedition and subsequent data analysis, the group of 16 scientists led by Conservation International's Rapid Assessment Program have just published their results. Among the key findings is the importance of [fresh water](#) in the region. The area's mountain ranges contain the headwaters of some of the largest rivers in Suriname, providing vital water for transportation, food (especially fish), drinking and sanitation for approximately 50,000 people in the surrounding areas as well as along the river and as far as Paramaribo, the country's capital near the Atlantic coast.

These headwaters also support downstream energy production, agriculture and other economic activities. CI scientists found that while other parts of Suriname are likely to become drier, Southeast Suriname will be most resilient to climate change, and is therefore disproportionately important for ensuring sustainable flows of water in the future. Ensuring these forested headwaters remain intact is vital for the country's people and economy, and a future resource for the region and the world.

John Goedschalk, Executive Director of Conservation International Suriname, said:

"Suriname's dense forests, low deforestation and spectacular rivers place us in a truly unique position to become a global model of sustainable development. We can be water exporters in a world increasingly suffering from droughts and water scarcity, but if we deplete and pollute these biological treasures, our country and the rest of the world will have one less major water resource. In a planet on track to surpass nine billion people by mid-century, we are going to need every drop of fresh water we can get."

Suriname is located in the Guiana Shield, a vast wilderness area in South America, which contains more than 25% of the world's rainforest. The country has a relatively low population and still maintains 95% of its forest cover, but faces pressure from mining, road and dam projects. For more than 20 years, Conservation International has been working with Suriname's government and local communities to scientifically assess and protect its natural capital to serve as an engine for the country's and region's sustainable development.

CI was instrumental in the creation of the 1.6 million hectare Central Suriname Nature Reserve, the largest conserved tract of tropical rainforest at the time of its creation. The intact forests of SE Suriname provide a biological corridor linking this reserve with adjacent protected areas and indigenous lands in neighboring countries, enabling the movement of plants and animals that is essential for their long-term persistence. Its forests and rivers also provide an essential source of food, building materials, and medicines for the local Trio and Wayana Amerindian tribes.

"Suriname is one of the last places where an opportunity still exists to conserve massive tracts of untouched forest and pristine rivers where

biodiversity is thriving. Ensuring the preservation of these ecosystems is not only vital for the

Surinamese people, but may help the world to meet

its growing demand for food and water as well as reducing the impacts of climate change," said Dr.

Trond Larsen, a tropical ecologist and Director of the Rapid Assessment Program at Conservation International, which has sometimes been described as working like a "SWAT" team for science.

The team surveyed four sites in the upper Palumeu River watershed, going from low floodplains to isolated mountain peaks. They received invaluable support from 30 indigenous men from nearby communities, who went ahead in boats through dangerous rapids to help bring 2,000 kilos of food and equipment, set up camp sites, cook meals and guide the team through the forests. From Paramaribo, the scientists chartered a plane to a village in Southeast Suriname and from there reached their first camp site by helicopter.

The scientists collected data on water quality and an astonishing total of 1,378 species, including plants, ants, beetles, katydids, fishes, amphibians, birds and mammals. The results show high quality water conditions overall, although some samples contained mercury above safe levels for human consumption, despite the fact that there is no upstream mining. "The mercury is probably blowing in from mining and industrial activities in neighboring countries. This demonstrates that even remote places are interconnected and susceptible to activities in other countries," explained Dr. Larsen.

Upon her return from this intense three-week survey, which included a flooded base camp after a night of heavy rainfall and a helicopter with mechanical difficulties, Dr. LeeAnne Alonso, expedition leader, ant expert, and former CI scientist who is now with Global Wildlife Conservation, said: "I have conducted expeditions all over the world, but never have I seen such beautiful, pristine forests so untouched by humans. Southern Suriname is one of the last places on earth where there is a large expanse of pristine tropical forest. The high number of new species discovered is evidence of the amazing biodiversity of these forests that we have only just begun to

uncover."

Among the 60 species identified as potentially new to science, there were six frogs, one snake, 11 fishes and many insects, including:

- the diminutive "lilliputian beetle" (*Canthidium* cf. *minimum*), a teeny-tiny ruby red beetle measuring mere 2.3 mm, likely making it the smallest dung beetle in the Guiana Shield and maybe the second smallest in South America. Its antler-like antennae provide it with an acute sense of smell. "Dung beetles play critical ecological roles that help support healthy ecosystems. By burying dung, they regulate parasites and disease, disperse seeds, and recycle nutrients to promote plant growth," said Dr. Larsen.
- the "cocoa frog" (*Hypsiboas* sp.), a sleek chocolate-colored frog that lives on trees and uses the round discs found on its fingers and toes to adeptly climb into the treetops. "Like other amphibians, its semi-permeable skin makes it highly sensitive to changes in the environment, especially freshwater. With over 100 species of frogs likely gone extinct over just the last three decades, the discovery of this new species is especially heartening," said Dr. Larsen.
- a new type of head-and-tail-light tetra (*Hemigrammus* aff. *ocellifer*), closely related to a fish much appreciated by aquarium enthusiasts. Fish were diverse and plentiful at the study sites, including many large fishes that are an important source of food for local people. The upper watersheds of SE Suriname may also provide important spawning grounds for migratory fishes people throughout Suriname depend upon.

More information: View the report with the results of the expedition:

sp10.conservation.org/Document...iname_March-2012.pdf

Provided by Conservation International

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