

Brazilian giant's comeback shows preservation and development of Amazon is possible

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Fishermen capture a large Pirarucu fish from the water at the Amana Sustainable Development Reserve, in Amazonas State, northern Brazil

Several meters long and weighing hundreds of kilograms, the Amazon's

pirarucu was almost fished to extinction. But the creation of sustainable development reserves in Brazil has ensured the giant fish—and its indigenous hunters—are flourishing again.

The resurgence of one of the world's largest freshwater fish is the result of Brazil's yearslong efforts to combine scientific and traditional know-how to preserve the country's rich biodiversity and ensure sustainable livelihoods for [indigenous communities](#) in the Amazon.

Spanning more than three million hectares (7.4 million acres), the Mamiraua and neighboring Amana Sustainable Development Reserves in the upper reaches of the Amazon river were created in the 1990s by the [state government](#).

They are among 39 such designated areas across Latin America's biggest country—home to more than half of the world's animal and [plant species](#)

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As the Amazon faces growing threats from illegal loggers, clandestine miners and aggressive farming businesses who have found their champion in recently elected far-right President Jair Bolsonaro, advocates say these reserves are proof that it is possible to exploit natural resources in a way that does not harm the environment.

"The rainforest allows us to use it without affecting, or affecting very little, the way it works," Emiliano Ramalho, science and technical director of the government-backed Mamiraua Sustainable Development Institute (MSDI) told AFP on a recent trip to the Amazon.

"We have to change the concept that the rainforest can only bring benefits if it is felled, if the conservation units are closed, and if we remove or don't create more indigenous land.



A house built on the bank of Solimoes River near Tefe, Amazonas State, northern Brazil

"This socio-biodiversity is what makes the Amazon. Without it, the system doesn't function."

'Great recovery'

Mamiraua is a 40-minute boat ride from the nearest municipality of Tefe.

Set deep inside the Amazon, pink dolphins glide through the water,

while birds of different colors produce a complex symphony as they soar over floating houses.

Hidden in the trees guariba monkeys create a racket screeching from dawn to dusk—when huge mosquitoes begin to attack visitors.

Around 15,000 people live in the Mamiraua and Amana reserves. The majority are caboclo—people of mixed Indian and European heritage—who mainly live in floating or stilt houses due to fluctuations in the water level, which can top 10 meters (33 feet) between December and July.

Inhabitants support themselves by raising livestock using sustainable techniques such as rotational grazing or extracting the pulp from native fruits for sale, which is more profitable than selling them whole.



A black caiman (*Melanosuchus niger*) swimming on the Jaraua River at the Mamiraua Reserve, Brazil's largest protected area, in Amazonas state

Responsible fishing and handicrafts supplement their income.

Locals—human and animal—are reaping the benefits of their symbiotic relationship.

Since 1999, for example, the pirarucu population has gone from around 2,500 to more than 190,500 in 2018 after fishermen began tracking numbers and respecting reproductive periods and fishing quotas.

Last year, more than 700 fishermen in the Mamiraua and Amana earned 1.57 million reais (about \$430,000), according to a report.

Taking a dip in the Mamiraua Lake is tempting in the oppressive heat, but the resurgence of alligator numbers is a strong deterrent.

The *melanosuchus niger* alligator—the largest of its species in the Americas—was threatened with extinction in the 1980s due to demand for its meat and skin.

"The recovery of the alligator population was due to the prohibition of hunting and the creation of reserves," says Barthira Resende, technical manager of the MSDI's alligator management plan.



Filomena Freitas cleans cupuacu tree fruits at the Boa Esperanca community in the Amana Sustainable Development Reserve, Amazonas State, northern Brazil

Now, the Mamiraua has the largest concentration of alligators in Brazil largely thanks to the efforts of the indigenous communities.

Inhabitants help by collecting data on the location of alligator sightings or their nests, which are used to set killing quotas to avoid overexploitation again.

"Bringing community members together in sustainable management is a conservation strategy," says Resende.

Afonso Carvalho, a leader of the Vila Alencar community on the shores

of the Mamiraua Lake, says it is working.

"The pirarucu was very difficult (to find), the alligator too," says Carvalho, 68.

"There is now a great recovery."



Emiliano Ramalho, science and technical director of the Mamiraua Sustainable Development Institute (MSDI), argues the rainforest can bring all kinds of benefits to Brazil—provided people don't simply take out raw materials

Benefits for all

Decisions about how to manage the reserves are made by the communities in consultation with the MSDI, which conducts research and provides training for economic activities in the region.

"Templates like the Mamiraua reserve show that we can use the rainforest to obtain all kinds of benefits, as much in terms of economic development as education, for the whole country," says Ramalho.

"It is possible so long as we don't just take out the raw materials."

Recently inhabitants have started to develop a community-based ecotourism industry that includes floating guesthouses highly sought after by foreign tourists.

It is proving to be a money-spinner. The Uakari lodge in the Mamiraua reserve has enjoyed an average annual turnover of 2.5 million reais in the past three years, says manager Pedro Nassar.

Some 40 percent of the earnings are invested in surveillance at the lodge and guides who take visitors out to watch birds, monkeys and jaguars. The remainder is split between the communities.



Fishermen with their haul pirarucu, a delicacy in Brazil—the species almost disappeared from the Amazon but with a program carried out by scientists, the fish returned to abundance

But Ramalho worries that recent deep cuts to [scientific research](#) and education budgets will weaken their ability to protect the rainforest.

"From the point of view of preservation, it is very serious," he says."

"The Amazon is of fundamental importance for the functioning of the whole planet."

Carvalho says the indigenous population is doing what it can to preserve the fauna of the reserves. Hunting, he says, must be purposeful,

controlled and limited.

"It is not predatory," Carvalho says.

"The indigenous community respects the environment."

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