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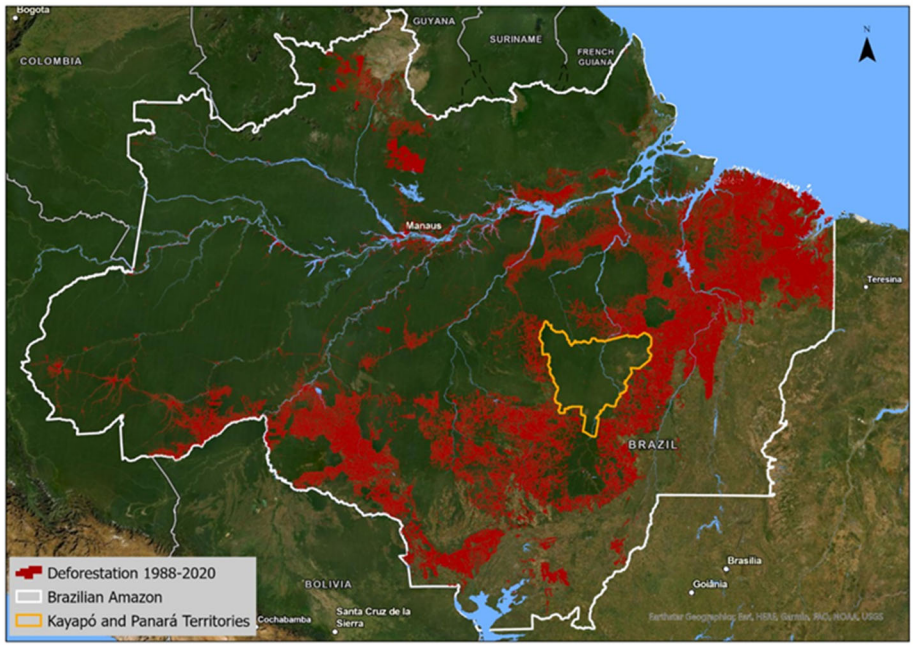
Climate benefits from the Kayapo Project in the Brazilian Amazon

For three decades an alliance of the Kayapo Indigenous people with international conservation organizations has resulted in one of the world's most significant forest conservation success stories. This project has meant the survival of intact forests, a wealth of biodiversity and stored carbon, and the traditional way of life of the Kayapo people. Here we outline the climate benefits achieved through philanthropic investment in the Kayapo Project.

Key points:

- The ratified territories of the Kayapo and their contiguous neighbours (the Panará) span 11 million hectares—the size of South Korea—in the highly threatened southeastern Amazon.
- The Kayapo would not have been able to defend their lands against widespread invasion without the help of international conservation organizations.
- The success of this alliance has prevented emissions on the order of **1.6 billion tonnes of CO_2** (during the period 2001-2022). This is more than twice Canada's annual carbon emissions.
- At a current annual land protection cost of $5 million (USD), this works out to **$0.07 per tonne of avoided CO_2 emissions** (compared with tens or hundreds of dollars per tonne with some technological solutions).
- Additional large climate benefits derive from cooling through evapotranspiration and cloud formation.
- Further philanthropic investment is needed for the three-year interval before a planned REDD+ project begins generating revenue for the Kayapo.



Map 1. Deforestation of the Brazilian Amazon to 2020 (red) and location of the Kayapo and Panará indigenous territories (outlined in yellow).

Background

The Kayapo Project

The Kayapo Project is an Indigenous-led NGO alliance supporting Mebêngôkre-Kayapo (Kayapo) cultural, economic, political, and territorial autonomy over more than nine million hectares of federally demarcated Indigenous lands located in the highly threatened southeastern Amazon.

The Kayapo Project is the flagship program of the International Conservation Fund of Canada (ICFC). ICFC partners with three Kayapo NGOs: Associação Floresta Protegida, Instituto Kabu and Instituto Raoni, representing communities of the northeast, northwest and southwest sectors of Kayapo territory.

Climate, the Amazon, and its tipping point

The Amazon rainforest makes up more than half of the primary forest remaining in the tropics. The Amazon stores more than 150 billion tonnes of carbon above and below ground, the equivalent of more than 10 years' of global fossil fuel emissions. Deforestation often involves clearing an area by setting fires, which rapidly releases stored carbon into the atmosphere. Trees left unburned but cut decompose, also releasing their carbon.

Over the past 40-50 years, an estimated 17% of Amazonian forest has been lost, mostly to conversion to cattle pasture. Scientists estimate that loss of the Amazon's forest cover somewhere beyond 20% could push it past a tipping point, triggering a large-scale dieback that would release more than 90 billion tonnes of CO_2 into the atmosphere, transform the forest into a savannah and disrupt rainfall across South America.

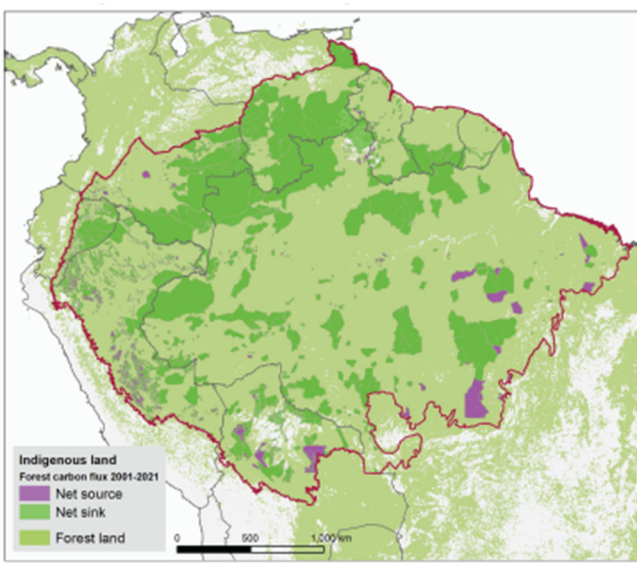
Tropical forests recycle vast amounts of water from the ground into the atmosphere, causing a cooling effect from evapotranspiration. Loss of such biophysical processes increases the climate warming effects of deforestation by about 50% above that caused by CO_2 emissions. These cooling processes also promote climate stability and reduce extreme temperatures.

Indigenous people in the Amazon

About 1.5 million Indigenous people from 385 different ethnic groups live in the Amazon bioregion and hold about 29% of its land. For Indigenous people and other communities, their land is a primary source of food, medicine, fuelwood and construction materials, livelihoods, security, culture and spirituality. They are thus natural allies for forest conservation.

A study of protected areas in Brazil found that for any given level of deforestation pressure, strictly protected areas consistently avoided more deforestation than sustainable use areas and that Indigenous lands were particularly effective at avoiding deforestation in locations with high deforestation pressure.

A World Resources Institute study found that Indigenous forests in all nine Amazonian countries were net carbon sinks between 2001 and 2021, collectively emitting an average of 120 million tonnes of CO_2e per year and removing 460 million tonnes CO_2/year, making them a net sink of 340 million tonnes of CO_2e/year (Map 2).



Map 2. Most Indigenous lands in the Amazon are carbon sinks (shown in bright green). Indigenous lands that are a net source of carbon emissions are shown in purple. Forested non-Indigenous land, shown in pale green, is a net source overall. Kayapo lands are bright green. Source: World Resources Institute

Biodiversity

The Amazon is home to about 16,000 plant species, of which 7,000 are tree species, and an uncountable number of animal species. Kayapo Indigenous territories are large enough to protect viable populations of threatened species[1] including tree species that require large landscapes to persist. Surveys have shown that much of the huge block of Kayapo land remains relatively undisturbed as judged by population densities of the more sensitive vertebrate species. Large-bodied mammal and bird species, which are preferred game species of local peoples throughout the Amazon, are abundant in Kayapo territory.

Why has the Kayapo Project succeeded?

The Kayapo-NGO Alliance

The Kayapo's success in protecting this large landscape for over two decades in the highly threatened and lawless southeastern Amazon is unparalleled. Key to Kayapo success has been their alliance with conservation NGOs that invest in the following pillars of empowerment:

- building of Kayapo NGOs that enable the Kayapo to deal with outside society and coordinate their efforts
- adequate capacity for territorial surveillance and control
- legal assistance and support for political mobilization
- development of economic autonomy based on sustainable nontimber forest product enterprises
- strengthening traditional indigenous culture and wellbeing

Agile and more hands-on than many granting systems, philanthropy has proven up to the challenge of protecting large areas of the Amazon.

[1] Threatened and near-threatened species include: eastern Amazonian bearded saki monkey, white-cheeked spider monkey, giant otter, red-handed howler monkey, lowland tapir, white-lipped peccary, giant armadillo, hyacinth macaw, bare-faced curassow, jaguar, bush dog, neotropical otter, blue-winged macaw, chestnut-throated spinetail.

Deforestation and carbon loss

An analysis of tree cover loss using Global Forest Watch data compared Kayapo lands with an equal area of land of uniform width immediately surrounding Kayapo lands. Estimates of the density of above-ground and below-ground biomass carbon were used for calculations of avoided carbon emissions. This analysis will be refined when we have better estimates for carbon density. During the period 2001-2022:

- Tree cover loss and associated loss of carbon was 11 times higher on land surrounding Kayapo lands than within the Kayapo boundary—3,121,880 ha versus 282,474 ha.
- Gross emissions of CO_2e are estimated at 1,757 Mt for surrounding land and 154 Mt for Kayapo lands.

Carbon loss estimates do not take into account illegal selective logging of large trees such as mahogany, which result in carbon loss not detected with tree cover data or accounted for in carbon density estimates. The Kayapo Project has had an important benefit in preserving large, high-value timber on Kayapo lands.

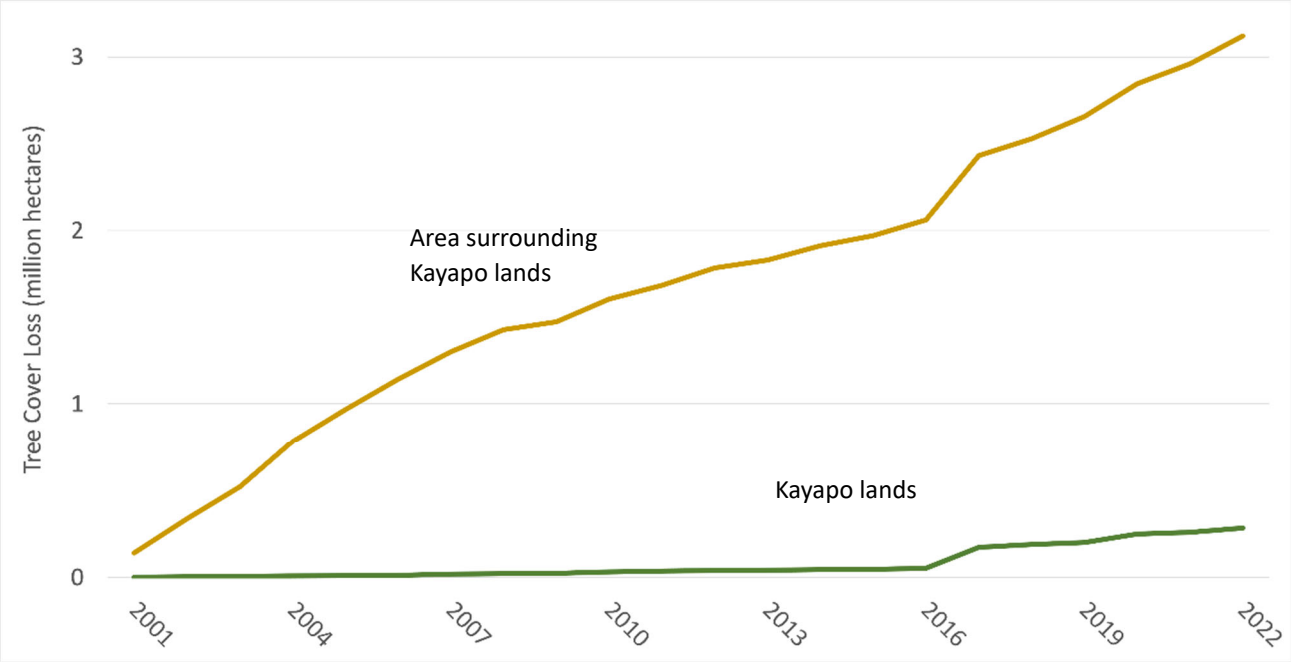
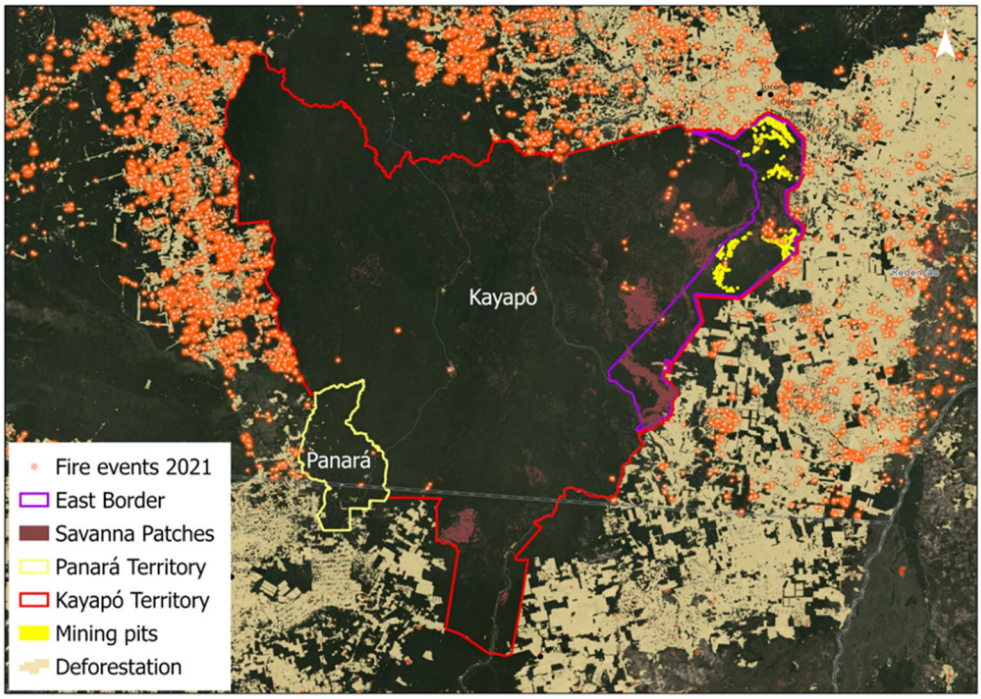


Figure 1. Comparison of cumulative tree cover loss (million hectares) for forested land within and surrounding Kayapo territory from 2001 to 2022. Tree cover loss was ongoing to prior to 2001.

Further evidence of the critical role of the Kayapo Project

We can further assess the effectiveness of the project by comparing:

- the ten percent of Kayapo lands controlled by Kayapo communities who are not part of the Kayapo Project alliance (outlined in yellow to right); these have undergone invasions by illegal goldminers and loggers
- the 90 percent of lands controlled by communities that are engaged with the Kayapo Project; forests on these lands have remained almost completely intact (Map 3, next page).
- During the period 2001-2022, tree cover loss was seven times higher on non-allied territories than allied territories (11% vs. 1.5%).



Map 3. Further evidence of success: 10 million hectares of forest of the Kayapo/Panará-NGO alliance (outlined in red and yellow) that receives philanthropic investment remains intact, while ~1 million hectares of Kayapo territory that does not form part of the alliance (outlined in purple) is heavily invaded by goldmining and logging.

Climate and biodiversity investment opportunity

Support is needed for surveillance and protection for the period before a REDD+ project for Kayapo lands begins generating revenue for the Kayapo. This includes funding for existing guard posts and three new ones. These have proven a highly effective means for the Kayapo to defend their lands.

Additional funding opportunities are for:

- investment in sustainable culturally compatible commercial enterprises
- an endowment fund for long-term finance for Kayapo NGOs.

Please contact us for further information.

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