



Threats to Rivers and Indigenous Heritage in the Amazon: A View from the Upper Xingu

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This article presents an overview of some of the main threats to Amazonian rivers and how they impact the traditional ways of life of the indigenous peoples living in the planet's largest rainforest. Based on ethnographic research with the Kalapalo of the Upper Xingu, in the Southern Amazon, the article discusses how this community has been dealing with transformations in their relationship with rivers and lakes caused by environmental changes. Based on a dialogue between the Kalapalo ways of engaging with the aquatic world and the critical ideas of Amerindian thinkers about what the West has conventionally called 'nature', it suggests the need to re-subjectivize the natural world as a condition for facing the challenges of climate change in an alternative way to the naturalistic worldview consolidated in colonial modernity.

Keywords: Amazon; rivers; indigenous heritage; Upper Xingu

This paper is based on a lecture given during the 11th Highland Gathering, in Kohima/Nagaland, as part of the Winter School organized by the *Ekologos – Global Environmental Humanities* project. This version tries to keep the original 'spirit' of the lecture, which was not initially conceived as a theoretical talk but as an attempt to build bridges between places that have a lot in common but do not always have the opportunity to dialogue, such as the Brazilian Amazon and Nagaland. The paper is based on very concrete problems, and I hope it can be the start of a long-lasting conversation between the thought traditions of these areas of the world. The original presentation was supported by a series of images, some of which were organized into the short photo essay that follows this article.

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Introduction

In a context in which the climate emergency is advancing at a frightening speed, tropical rainforests occupy a central place in scientific and political debates. These areas are fundamental to climate regulation on a local, regional, and global scale, and they are responsible for the lives of millions of people who depend on rainforests for food, shelter, water, and natural medicines (Artaxo et al. 2022). Within this type of biome, the Amazon occupies a central place as the largest tropical rainforest in the world, with an area of around 6,700,000 km², which stretches across eight South American countries: Brazil, where most of it is located, Bolivia, Colombia, Ecuador, Guyana, Peru, Venezuela, and Suriname, and the territory of French Guiana.

The Amazon as a whole is home to around 38 million people. In Brazil, the forest is home to immense social and biological diversity. According to data from 2022, there are around 1.7 million indigenous people living in Brazil, belonging to more than 300 different ethnic groups and speaking around 270 different languages. More than half of this population (51.25 per cent) lives in the so-called ‘Legal Amazon’, which comprises 59 per cent of the entire Brazilian territory (IBGE, 2023).

When the eyes of the public turn to the Amazon, they often dwell on two important signs that the forest is approaching a ‘tipping point’, or ‘no return point’: the increase of droughts in frequency, duration, and intensity; and the increase in wildfires (Drüke et al., 2023). The main causes of these two phenomena are illegal deforestation for farming, logging, and mining, and the forest is disappearing in front of our eyes.

What happens to rivers, however, is not always as visible. Firstly, because rivers rarely ‘disappear’ like the forest cover, and secondly, because the impacts on water bodies and the life they harbour do not always reach a national scale, even though they produce devastating effects on the populations that depend on Amazonian waters. Nevertheless, the Amazon’s water bodies are seriously threatened by pesticide contamination, increased siltation, contamination by heavy metals and other waste from legal and illegal mining activities, droughts, abnormal increases in water temperature, illegal fishing, and the construction of dams for hydroelectric power generation, among other problems.

These issues will be the focus of this paper. Firstly, I am going to present an overview of some threats to rivers in Brazil, especially in the Amazon, and how they impact indigenous peoples. Secondly, I will talk about how the Kalapalo, one of the peoples of the Xingu river basin, with whom I have been working for the last 18 years, relate to their rivers, lakes, and streams, and how they face contemporary threats that jeopardize their way of life.

Rivers under attack

Brazil has 12 per cent of the world’s available fresh water. Much of this is in underground aquifers, but the actual amount is uncertain. The fresh water available on the surface is distributed among 12 large river basins. Of these, the largest is the basin of the Amazon River (Fig. 1), which is the world’s second-longest river and the largest in terms of water flow. It has more than a thousand tributaries, three of which are among the 10 largest rivers in the world. To equal its water flow, one would have to add up the waters of the Congo, Ganges, Madeira, Yangtze, Negro, de la Plata, and Yenisei rivers.

The importance of this basin to human history in the lowlands of South America cannot be overstated. Its ability to distribute the mineral sediments, originating from the Andes, that fertilize and de-acidify the soil in its floodplain areas was fundamental to the development of agriculture in the region and the sustenance of the large populations that inhabited the Amazon before the European invasion (Roosevelt 1992).

There are three main governmental and private interests in the Brazilian hydrographic network: 1) the transport of commodities; 2) electricity generation; and 3) mining. Each of these uses comes with its own set of risks, and I will discuss them in relation to actual situations that have occurred in the recent past. The first, and perhaps most emblematic, was the construction of the Belo Monte Hydropower Plant on

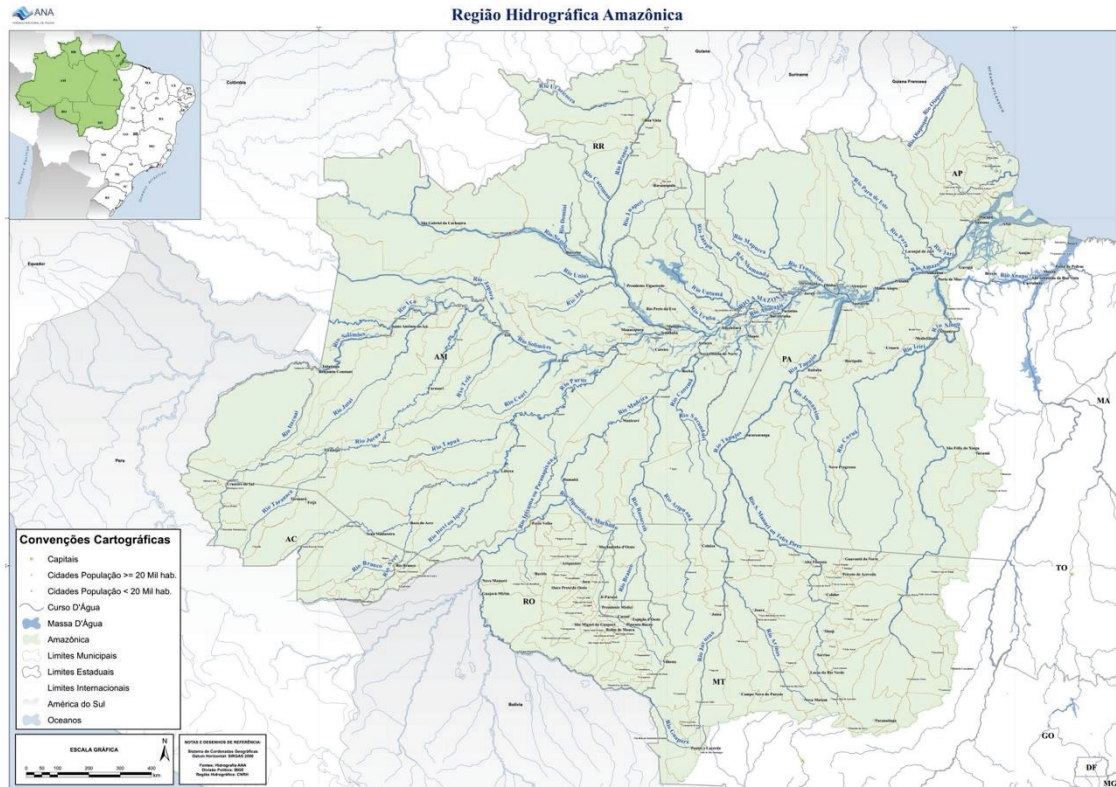


Figure 1: The Amazon Basin. Source: National Agency for Water and Sanitation (ANA)

the Xingu River, one of the main rivers in the Amazon system, which has been a kind of microcosm of the threats to rivers and riverside populations in Brazil.

Studies on the river's hydroelectric potential began in the 1970s and continued during the civil-military dictatorship (1964-1985). The first hydropower project, then called Kararaô, was presented at the end of the 1980s. It was strongly opposed by the indigenous peoples, who would have their lands severely impacted (one indigenous land would be completely flooded). The name was changed, and the project was postponed and reformulated. Finally, in 2011, a preliminary license was granted to build the plant. Indigenous peoples were not consulted, which goes against international conventions signed by Brazil, and a convincing socio-environmental impact assessment report was not provided. A series of impact mitigation measures were defined, but these were largely ignored by the building company, and the Brazilian government at the time was interested in making the construction of the plant viable at any cost (Silva 2016).

The plant has one of the largest installed capacities in the world (11233MW/month), but due to the characteristics of the Xingu River and deficiencies in the project, it generates only a fraction of this capacity, which can be as low as 5 per cent of the installed capacity during the dry season. Much of the energy generated is sent via transmission lines to the southeast, Brazil's richest and most industrialized region. Of the energy that is distributed in the northern region, a large part supplies the aluminium industry and is also expected to supply the large-scale gold-mining activities planned for the region. Almost none of it caters to the interests and needs of the local population (Fearnside 2021).

The impacts of Belo Monte are enormous. During the construction of the dam, the city of Altamira received almost 100,000 workers in a very short period and was affected by everything that goes with such an influx, such as an increase in violence, prostitution, alcoholism, and a huge hike in food and housing prices. The course of the Xingu River has been permanently altered with the drying up of 80 per cent of the so-called *Volta Grande do Xingu* and the flooding of its reservoir area. With the *Volta Grande* dried up, the people of the region lost their most important source of fish, their main means of travelling between villages, and their primary means of access between the indigenous areas and the city of

Altamira, where they must go for healthcare and other public services (Freire, Lima, and Silva 2018). In the flooded area, the rotting organic material from millions of trees is altering the characteristics of the water, releasing carbon dioxide, while fish species have lost part of their food source and are dying. The pulse of the river has been altered to an artificial rhythm, which meets the demands of power generation but has a severe impact on aquatic life, causing a massive die-off of fish and other animals and increasing the food insecurity of indigenous and riverine people (Lima et al. 2023; Rosa 2023).

Belo Monte is, unfortunately, not an isolated case, but part of a much larger project to build hydropower dams in the Amazon. The energy generated this way is sold as 'clean energy', since hydropower is held to be more environmentally friendly than thermoelectric sources, a clearly erroneous label when you consider the release of carbon into the atmosphere by the flooded areas, the decrease in carbon retention capacity by the forest, and all the impacts on human and non-human life. Another problematic project is the Tapajós hydroelectric complex, situated on one of the great tributaries of the Amazon. The complex comprised a project for five hydroelectric dams on a single river, the São Luís do Tapajós dam being the largest. The Tapajós basin is the traditional territory of the Munduruku, a community of more than 15,000 people, distributed in more than a hundred villages. The main power station originally projected for that complex would flood an area of almost 800 km², including Munduruku sacred places and part of an Environmental Protection Area. The Brazilian government has even reduced the boundaries of some protected areas in an attempt to get around this problem. The bidding process for the plant had been suspended several times because the indigenous peoples affected had not been consulted, preventing the granting of a prior license for installation. In 2016, the National Foundation of Indigenous Peoples (FUNAI) finally managed to have the project archived by the Brazilian Institute of Environment and Natural Resources (IBAMA) on the grounds that carrying out the works would require the forced displacement of the Munduruku (IBAMA 2016), which is not permitted under Brazilian law and would qualify under international law as genocide.

Even so, the Munduruku and their river are not free from threats, and there are plans to build more than 40 hydropower plants in the Tapajós basin. In 2020, a study on mercury impacts in the region showed that 100% of the Munduruku of the Tapajós that participated in the research were contaminated by this heavy metal (Basta and Hacon 2020). Paulo Basta, the research coordinator, went so far as to say that the Amazon was on its way to becoming a new Minamata (Aragão 2020), the Japanese city that suffered mass mercury contamination in the 1950s, causing the deaths of thousands of people. The level of contamination among the Munduruku is the result of continuous exposure to mercury for at least 70 years. The mercury levels in the bodies of 60 per cent of the participants were high enough to be considered dangerous by the World Health Organization. In new research on mercury contamination in the Santarém region, carried out in 2022, the figure rose to 75.6 per cent (Meneses et al. 2022). The cause of the contamination is illegal mining, which uses mercury to separate gold from mud, and the heavy metal affects the Munduruku through the consumption of fish, their main source of protein. Between 2019 and 2021 alone, the areas devastated by illegal mining in the Tapajós grew by 363 per cent (Modelli 2022). Mercury settles at the bottom of rivers, interacts with organic materials, and enters the food chain of fish, turtles, shrimp, and other animals. Mercury also contaminates breast milk, putting Munduruku mothers in the sad position of knowing that while their children are being nurtured, they are also being poisoned. Recent years have seen an increase in miscarriages and neurological diseases, both of which are associated with mercury contamination (Oliveira et al. 2021).

Situations like these are not exclusive to the Amazon, and in 2015, the southeastern state of Minas Gerais experienced the effects of one of the biggest environmental crimes in Brazilian history: the collapse of a dam belonging to the Vale, Samarco, and BHP companies in Mariana. The dam that collapsed was an iron-mining tailings dam. Documents found during the investigation have shown that the companies were aware that the dam had been built on unsuitable soil, that the materials used in its construction were inadequate, and that there were cracks in its structure (Santos 2018). As a result of the collapse, 643 km of rivers and streams were covered in mud mixed with iron oxide; 1,469 hectares of vegetation were devastated; 600 families were left homeless; and more than 250 buildings were destroyed. All the soil covered by the mud became completely infertile because of the iron oxide. The soil has become unsuitable

for building, as the thick layer of mud can take years to settle completely. At least 11 tons of fish died, the course of the Doce River basin was altered, springs were buried, and the food chain was completely destroyed in some places. The Doce River flows into the Atlantic Ocean, and the toxic mud has travelled along part of Brazil's extensive coastline, directly affecting corals, microorganisms, and the food chain in these marine areas.

The Doce River runs through the traditional territory of the Krenak, one of the indigenous peoples of south-eastern Brazil. According to indigenous thinker, writer, and activist Ailton Krenak, the river is called *Watu* in the Krenak language, and young children, in their first month of life, must be immersed in its waters to strengthen their bodies. Since 2015, no child has been able to undergo this ritual. The Public Prosecutor's Office ordered the mining company to install a fence, preventing access to the river. The Krenak can no longer fish, and their entire water supply depends on water trucks paid for by the companies responsible for the crime. According to Ailton Krenak, *Watu* is considered to be the grandfather of all Krenak. As he tells us, many Krenak died, not from the mud but from the melancholy caused by the destruction of what he calls a 'sense of place'. However, contrary to the idea that the river has died, the Krenak say that the river 'is in a coma'. There are reports that *Watu* has appeared in Krenak people's dreams to talk about his health condition, and, in these dreams, he claims to be healing. Sometimes he takes someone by the hand and leads them to the underground world, where he shows them an immense reservoir of clean water – the aquifer from which he was born or from which, in the future, he will be reborn (Canofre and Krenak 2020).

The Kalapalo and the Upper Xingu

Now I would like to leave this macroscopic overview of the Brazilian context and focus on some local ideas and practices of the Kalapalo, one of the Upper Xingu's Carib-speaking communities. The Upper Xingu is located at the Xingu river's tributaries' basin, on the south of the Xingu Indigenous Land, in the state of Mato Grosso (Fig. 2). The region comprises a multilingual and multiethnic dense social network made up of 11 peoples who speak languages from three of the major linguistic groups of Lowland South

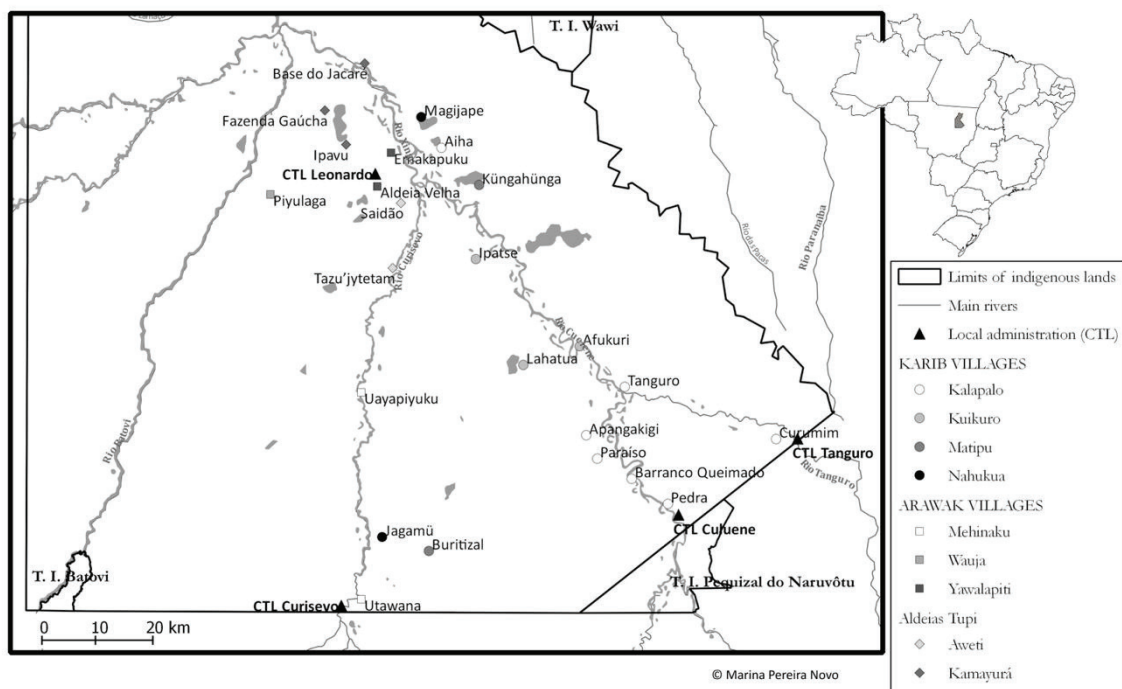


Figure 2: Map of the Upper Xingu. Source: Marina Pereira Novo

America, as well as a language isolate. They are the Carib-speaking Kalapalo, Kuikuro, Matipu, Nahukua, and Angaguhütü; the Arawak-speaking Wauja, Mehinaku, and Yawalapíti; the Tupi-speaking Aweti and Kamayurá; and, occupying a relatively marginal position, the Trumai (the isolate). The Kalapalo have a population of around 1,000 people, spread over 13 villages. Most of them are close to the Culuene River, which is the main tributary of the Xingu River.

The Upper Xingu area was first occupied circa 800 A.D. by Arawak-speakers. They were followed by Carib and Tupi-speaking groups between the 16th and 18th centuries (Heckenberger 2005). Over their long-term occupation of the region, these peoples developed a pacifist ethos and a sense of mutual belonging and interdependence, grounding most of their interethnic relations in marriage, trade, and great inter-village musical and sportive festivals. This has influenced the definitions of the area as a ‘regional society’, a ‘moral community’ or a ‘multilingual society’ (Becker 1969; Franchetto 2011; Heckenberger 2005). I prefer to call it a civilization, since what marks it seems to be a shared body of knowledge and modes of public behaviour, all based on self-restraint in favour of a good, peaceful, and joyful social life. Because of that, the Xinguano peoples mutually recognize each other as ‘true people’ (*kuge*, in Kalapalo), in contrast to other indigenous groups (*ngikogo*, considered fierce and violent by the Xinguano standards) and the whites (*kagaiha*).

In the pre-Columbian past, the Upper Xingu was home to large circular villages surrounded by ditches and palisades up to 4 km long, and connected by roads up to 50 m wide. Between the 12th and 14th centuries, when the population was at its peak, the largest villages were around 10 times larger than those of today, housing between 3,000 and 4,000 people. The territory was organized in clusters, each comprising a central village and satellite villages arranged according to the east-west and north-south axes. These clusters also seemed to be organized into macro-clusters connected by roads. This mode of social organization began to decline before the European invasion. It was still evident in the 15th century, but by the 16th century, it had completely disappeared (Heckenberger 2005). The first written records of the Xinguano were made in 1884 by the German ethnologist and explorer Karl Von den Steinen (Von den Steinen 1940, 1942), and they were only officially contacted by the Brazilian government in 1946.

Today’s socio-political and territorial organization maintains remarkable continuities with the pre-Columbian past. The morphology of the villages remains the same, and although the cluster arrangement has disappeared, there are relationships of ritual asymmetry between central villages and their satellite villages. Pre-Columbian ceramics strongly resemble contemporary ceramics, and it appears that land cultivation techniques have remained quite stable over time.

The Kalapalo usually avoid building their villages near rivers to prevent exposure to water-borne invaders, opting instead for sites near lakes or streams. In the Kalapalo way of life, rivers and fish occupy a central place. The Kalapalo diet is based on manioc agriculture and fishing, and, for cosmological reasons, the Kalapalo and other Xinguano groups refuse to eat meat from land animals and most birds. Hunting, they say, is a violent activity incompatible with their pacifist ethos. People who eat bush meat would become angry and aggressive as a result of hunting and ingesting the blood of slaughtered animals. Furthermore, for them, and this is very important, all worldly beings are people with roughly the same values, habits, and ideas who differ in their bodily qualities and capacities. As such, all beings see themselves as persons but perceive the material world in a different way, compatible with their bodily capacities. This approximates to what Eduardo Viveiros de Castro has called Amerindian perspectivism or multinaturalism. In contrast with the Western idea of multiculturalism, instead of having multiple cultural, human-only views on a single natural world, there are multiple natural worlds, each embodying a similar cultural background. Different natures would be the product of different bodily dispositions, or embodied perspectives (Viveiros de Castro 2002, 2012).

The Kalapalo say that the relatives of attacked animals could take revenge by kidnapping the souls of the living and making them sick. Thus, for them, fishing is more than a subsistence activity; it is a defining element of humanity. More than an ecological choice, it is a philosophical and ethical choice, and it contrasts markedly with most of the Amazon, where hunting occupies a central ecological, economic, and philosophical place.

But how does this ethical and cosmological choice translate into practices of engagement with the environment? Before addressing this point, it is necessary to understand how the Kalapalo conceive of their territory and the rivers and lakes that are part of it. The land is not something that simply exists as what the West calls ‘nature’, but neither was it created by any deity. Instead, the world is the result of transformations of the bodies of characters from the past, when humans and spirits were still related to each other.

One of the most important places for the Xinguano is Mügena, where tributary rivers meet to form the Xingu River. Mügena was where the twins Sun and Moon lived after waging war against their father and creating humanity. Here, they embarked on several adventures through which they obtained everything necessary for a good life for humans, such as water, fire, and crops. Many of these events, such as those described in the tale of the origin of rivers recounted below, have shaped the materiality of the world and remain preserved in Kalapalo stories.

In the distant past, there was no water on earth, and people bathed and satisfied their thirst with the resin of a tree. Water, which only existed in the sky, was kept inside an immense ceramic pot inhabited by many aquatic spirits at the village of the Star-People. The Sun decided to steal the pot, and after a combat that caused the death of the spirit who owned the water, the Sun broke the pot. The water fell on the earth, forming the rivers, and the spirits who once inhabited the celestial vessel dispersed across the new water bodies. Water became available to humans, but is owned by the aquatic spirits, who live in villages at the bottom of rivers and lakes. These villages are inhabited by aquatic animals who see themselves as humans, and might represent some danger to the Kalapalo.

East of the Culuene River are four lakes with a special history. It is said that all their water was once contained inside the trunk of a large tree that stood where Tahununu Lake is today. This very large lake is where the forebears of the Carib-speaking peoples of the Upper Xingu settled when they first arrived in the region. A man discovered that he could catch many fish from a hole in the tree with his bare hands and always returned home with large amounts of food. His brother-in-law became jealous of his abilities, followed him, and found out his secret. One day, the brother-in-law went to the tree by himself, but instead of collecting the fish with his bare hands, he shot an arrow into the tree hole. The arrow hit the back of the Hyper Pike-Characin, the spirit who owned the tree and its water. The spirit was furious and broke the tree. All the water that was inside came out, creating the Tahununu Lake and killing the envious brother-in-law. From Tahununu Lake, the Hyper Pike-Characin jumped in a northward direction and, on landing, formed the lake at Ngahünga (currently occupied by the Matipu). The spirit then jumped again, forming a lake near Aiha (the main Kalapalo village) (Fig. 3). On its final jump, it created the lake near Magijape (occupied by the Nahukua). The spirit still inhabits this lake, and people who are about to die may see it at night with an arrow stuck in its back. Other spirits followed the Hyper Pike-Characin to the lakes it created, but most stayed at Tahununu, which is considered a very dangerous place.

If rivers and lakes are inhabited by beings who see themselves as humans, this means that what Western thought might call ‘nature’ is actually a fully *social world*. Consequently, what we call ‘engagement with the environment’ is a type of social relationship that involves communication, ethics, attention, care, and respect. This makes fishing a careful process of mediating social relationships between humans and aquatic beings. Nowadays, most fishing is done using nylon lines and metal hooks. Only men fish, and the main precaution a fisherman must take is never to have sex the night before a fishing trip. Fish don’t like what they call the ‘smell of sex’, and they shy away from fishermen under these conditions. Skillful fishing also requires body preparation through scarifications and medicines. Scarifications are done using curved pieces of gourd with a row of sharp dogfish teeth. The scratches allow bad blood to leave the body and allow plant medicines with special properties to enter. These medicines always come from plants cultivated by spirits and contain the qualities of the spirits who nurtured them. Thus, humans enter into a bodily exchange with the spirits, so they must be very careful not to do anything that would displease them. The medicines to improve fishing abilities are rubbed on the wrists after scarification and serve to transmit to the fishermen the qualities of the dogfish, one of the main predators in the region and considered the chief of all the Fish People.



Figure 3: Aerial view of Aiha, the main village of the Kalapalo people. Credits: Thomaz Pedro.

The relations between humans and fish become more complex during collective fishing trips for the big interethnic festivals. These large-scale events can bring together delegations from all the communities of the Upper Xingu. The host village must fish to feed all the participants, which is a laborious task. These fishing expeditions, carried out in lakes, combine different technologies, such as the construction of wooden dams, the use of *timbó* (a fishing poison), bows and arrows, collection baskets, and fishing nets 100 to 200 metres long. Collective fishing necessitates diplomatic engagement with the lake's spirit chief. The chief may be a Jaguar, a Wild Peccary, a Whirlwind, or an Anaconda. The fish are 'his children' and only become available to humans if he releases them from his village.

The event requires a shaman to go into a trance, talk to the spirit who controls the place, and inquire whether it intends to release its children to feed the human beings or not. If the conversation is unpromising, the fishing trip will be unsuccessful, and the humans could be attacked by the fish chief and other water spirits. The day before the fishing trip, the men build a large dam to keep the fish trapped in one part of the lake. Large quantities of *pequi* (*Caryocar brasiliense*) juice and chilli juice are prepared and offered to the spirit-owner of the fish. The participants throw some of the juice into the lake while praying for the spirit to be calm and generous. Pots with the *pequi* and chilli preparations will remain by the lake all day to allow the spirit to consume the drinks during the fishing trip, and the pots' contents will be poured into the lake at the end.

The men stretch out a large net opposite the dam and drag it. The frontline must be made up of wrestling champions who chant the same cries as the warriors of old. The Kalapalo say that this practice happens because there is a war between humans and fish people. Various things can interfere with fishing. Men who have recently had sex should not even go near the water. Lack of respect for the place can also provoke the wrath of the spirits and jeopardize the venture. If the owner of the place feels that his antagonists are not sufficiently generous with *pequi* and chilli juice, he may choose not to give up his children for slaughter. In sum, it is necessary to force the spirit-owner of the lake into an exchange relationship: the fishermen feed the spirit, so it can liberate its children to feed the humans.

Water spirits also have complex social relationships with each other. They are happy when humans are satisfied with their catch, as they gain a reputation for being generous among both humans and other spirits. Spirits can also be very jealous. The Kalapalo used to fish in a lake controlled by the spirit of the Gigantic Wild Peccary. However, one year, a shaman said that the spirit would not release his children to be killed, and the fishing trip was indeed a failure. The following year, they decided to go fishing in a different lake, controlled by a Jaguar. The Jaguar promised to be very generous, but suddenly, strange things happened. First, there was a fire next to the fishing camp, attributed to a retaliation by the Fire Spirit, a being that inhabited the region and had not been consulted by the shamans about the construction of the camp and felt disrespected. That same day, a strong wind suddenly arrived and overturned the large, heavy metal pots of porridge that had been offered at the edge of the lake. A whirlpool formed, and shortly afterwards, it calmed down and the fishing could continue. Soon afterwards, the shamans went into a trance to find out what had happened. The Gigantic Wild Peccary, owner of the lake overlooked by the Kalapalo, had become jealous and attacked the camp to fight the Jaguar and devour the fishermen. Whirlwind, who was the auxiliary spirit of one of the Kalapalo shamans, intervened, broke up the fight between the two spirits, and sent the Gigantic Wild Peccary back to his home.

What we see in the Kalapalo's relationship with their rivers and lakes is the refusal of any separation between nature and culture, or subject and object, equivalent to that made by Euro-American thinking (and please note the difference between 'a lack of' and 'a refusal of'). Their territory is the product of the actions of special people in the past, and the landscape is the contemporary manifestation of transformations of their bodies. This landscape is inhabited by myriad beings who also see themselves as humans. They have villages, chiefs, and shamans, who are born, grow up, get married, and celebrate. The life that humans observe in the landscape is nothing less than the social life of animals and plants, which need to go fishing, work in their gardens, and attend festivals. Viewing nature as an object, as Western thought usually does, is considered an act of violence because all Kalapalo relations with the territory are inherently social. Treating the territory and its inhabitants as if they were 'things' is an act of aggression, and all aggression can be met with retaliation. This is part of what they have been calling 'climate change'. For humans to be able to feed themselves and keep their festivals alive and plentiful, they must follow a logic of reciprocity in their relations with fish, never an objectifying logic. From this perspective, what many researchers might call 'ecology', or 'ecological relations' is, first and foremost, a type of *ethics*.

The Kalapalo's water bodies today suffer various threats that run counter to these ethics. Every day, from sunrise to sunset, motorboats ply the rivers on their way back and forth between the indigenous territory and the surrounding towns. As well as polluting the river with traces of petrol and oil, all this movement scares away the spirits, who hate the noise of the engines. As a result, the Kalapalo say, many chief spirits are moving to more distant places, taking all their people with them and reducing the availability of fish for humans.

The increase in sport fishing on the borders of the Indigenous Land is also an issue. Fishing by non-indigenous people is a problem because of the large volume of fish taken, but sport fishing creates an additional challenge. Since fish are people, they have learning capacities and communicative abilities. According to the Kalapalo, hooked and released fish learn to avoid bait set by humans, and pass this knowledge on to other fish, forcing humans to continually reinvent their fishing techniques.

Rising temperatures and increasing droughts also have worrying effects on water bodies. In the rainy season, the Kalapalo dedicate themselves to collecting and processing *pequi*, a fruit typical of the Brazilian savannah that also occurs in the transition zone between the savannah and the Amazon rainforest. Once cooked, the *pequi* pulp is removed and stored in containers made from plant materials, which were, until a few years ago, submerged and buried near the shores of a lake or left submerged, but not buried, in colder streams. This technique preserves the *pequi* for a whole year. Six or seven years ago, there was a tragedy, and the Kalapalo lost almost all their *pequi* production because of the rising water temperature in their lake. When they went to remove it, they realized that everything had spoiled. They stopped using the lake for that purpose, and it has been getting shallower and hotter ever since.

As an alternative, they are now using colder streams for storing *pequi*. However, the springs feeding these streams are being damaged by the opening of roads through the indigenous land. Consequently, the traditional containers have been unable to prevent the *pequi* pulp from being contaminated by the large volumes of suspended sediments that now course down the streams. This has led the Kalapalo to use plastic bags instead of containers made from plants. The bags are efficient, but they cost money, generate rubbish, and send a long tradition of sustainable food preservation technology into oblivion.

Dry seasons are also getting noticeably longer and more intense. This year, the Culuene River and one of its important branches, the Twatwari, dried up almost completely. In some places, it was possible to cross the Culuene on a motorbike at a time when the rivers should have been full. In the Kalapalo region, there have been no reports of fish dying, but the Wauja, another community in the region, are suffering because an important stream near their main village is now dry and the fish have been dying.

Further problems arise due to the effects of dams at the headwaters of the Culuene River and possibly at its sources, which are outside the Indigenous Land. A large stream that cuts through former Kalapalo traditional territory was formerly the community's main fishing place. But now it has almost completely dried up, a process that began more than 10 years ago. The Kalapalo do not know exactly why this has happened, but they suspect that farms in the area may have built small dams to make reservoirs for fish farming or for irrigating crops, cutting the stream's flow. The only known dam is linked to a small hydroelectric power station on the upper Culuene. Unfortunately, this dam destroyed Sagihẽgu, one of the most important places for the Xinguano. It was at Sagihẽgu that the Sun and Moon honoured their dead mother, giving rise to the hereditary chieftaincy's mortuary ritual, the Quarup.

The construction of this dam (called Paranatina II) was a painful business, as the Upper Xingu people were never consulted about the work, and the only gesture made to their interests was to have the site listed as a Brazilian material heritage site. At the end of a complex process, the place was listed as an archaeological heritage site, which does not make any provision for maintaining the relationship that the Kalapalo currently have or wish to have with this place. Even its material integrity has been seriously compromised because, although the listing limits private property rights over the site, it leaves the responsibility for looking after the asset in the hands of the landowner. The Wauja have experienced the worst effects of the limitations of Brazilian heritage protection policies. One of their sacred sites, the Kamukwaka, listed under the same process, was severely damaged. In the case of Sagihẽgu, the site has illegal constructions, suffers from illegal fishing and hunting, is degraded by the accumulation of rubbish left by fishermen and hunters, and the use of machinery to clear the ground has radically de-characterized the sacred landscape, erasing the visual signs that are fundamental to preserving the memory of the site (IPHAN 2006).

Personifying the world

As I said at the beginning, Kalapalo humanity is largely defined by its relationship with water and fishing. We are not only facing threats to 'natural resources', but threats to a whole way of life, to an understanding of what it is to be human in this world and how we can be human while sharing this world with other beings, conceived as other-than-human people. According to the indigenous writer Ailton Krenak, one of the roots of contemporary ecological problems is precisely the understanding of nature as a 'resource', which reveals the persistence of what he calls an extractivist mentality (Chagas, Stropasolas and Krenak 2020; Krenak 2020). This mentality permeates people's relationships with each other and with the world, making them always unfold as relationships of expropriation, which also means relationships of violence. Extractivism is one of the hallmarks of colonialism.

And we must not fool ourselves: the insistence on maintaining any ontological distinction between nature and culture is a reproduction of the same power matrix that structures the history of colonialism. The separation between nature and culture has historically served, above all, to create relations of domination, firstly of humans over non-humans (Latour 1994) and then of some humans over those who,

in the course of history, have had their own humanity questioned. It would be appropriate to quote here the young indigenous activist Txai Suruí, of the Suruí people: ‘When I meet relatives without their original lands, I feel colonialism in their feet. When the smell of the burning Amazon invades my day, I recognize colonialism in my nose. When I mourn the murder of my fellow forest defenders, I experience colonialism in my eyes’ (Suruí 2023).

Not only is the nature/culture divide problematic, but the very idea of nature should be subject to critique. During our gathering here in Kohima, we have discussed the recognition of humans as part of nature. I would say that if I have learned anything from my Kalapalo friends and teachers, it is that we should seriously consider another alternative. We seem to be reasonably fine with the idea that humans are also part of nature, a concept that does not take us completely outside Western thought traditions. But would we be as comfortable with the idea that the whole world is inhabited by persons? Is humankind ready to give up the special place it has claimed for itself in the world, seeing ourselves not as ‘also part of nature’, but as just another type of person, among many others? There is indeed a difference. The first option, that of naturalizing humanity, sustains an idea that is in fact quite Eurocentric: that there is a universal realm of being that might be assessed from the objective point of view of an external observer. For 500 years or so, this has been the main approach of a certain scientific tradition to nature (Dussel 2005; Latour 1994). What I think our Amazonian thinkers are trying to convey is that there is no such thing as an external observer or universal neutral subject: each and everyone, human or otherwise, is a potential subject; *objectivation can only be the result of desubjectivation, and thus a form of aggression*, a power relationship. Every being in the world can be the source of thought, agency, and subjectivity. More than naturalizing humanity, Amazonian peoples have been maintaining sustainable, which means ethical, relationships with their environments by *personifying the world*.

Yanomami shaman and leader Davi Kopenawa has warned us that the destruction of the earth by capitalism will cause the sky to fall on our heads. The shamans, he says, have a hard job to prevent the sky from falling, and they can only do so with the help of the *xapiri*, spirits that inhabit all our world. With environmental degradation, the *xapiri* will be gone, and it will not be possible to hold the sky anymore. He argues that the exploitation of the land by non-indigenous people comes from their ignorance of the *xapiri*, the spirits of the forest, the true holders of knowledge of the world. Through dreams, the Yanomami shamans leave their bodies and get to know the dwelling place of the *xapiri*, from whom they learn how to properly interact with the land and other living beings. The whites, on the other hand, have a self-centred dream life: ‘The white people, they do not dream as far as we do. They sleep a lot but only dream of themselves’ (Kopenawa and Albert 2013: 313). Kopenawa’s message is that the only way out of the rut that colonial extractivism has put us in is to repopulate the world with other subjectivities.

Conclusion

To conclude, I would like to go back to Ailton Krenak, who tells us that the whole world is alive and insists, in what is a very deep philosophical and political statement: ‘life is not useful’ (Krenak 2020). I shall not give any interpretation of that sentence and leave you to think about it for yourselves, hoping that, in the very near future, the intellectuals of Nagaland and the Amazon might directly discuss it and carry on the conversation that we have just started today.

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Photo essay²



Photo 1: The main lake near Aiha village was one of those created by the Hyper Pike-Characin fish in mythical times. The village name comes from another, smaller lake, which carries the name of the Spirit Jaguar who owns it.



Photo 2: Every lake has a spirit owner who takes care of it and all its inhabitants. The success of a fishing expedition depends on the spirit owner's willingness to allow 'their children' to be caught. It is necessary to offer foods that the spirits appreciate, such as *pequi* and chilli juice, and use enchantments that might calm their anger, as the two men in the canoe are doing.

2. All images belong to the personal archive of Antonio Guerreiro and Marina Pereira Novo, except for image 6, which was courtesy of Thomaz Pedro.



Photo 3: Festivals demand large fishing expeditions, in which men combine the use of fishing nets, *timbó* (a vine used to poison fish), spears, bows and arrows, and baskets. Fishing nets, such as the one pictured above, vary from 100 to 200 metres in length.



Photo 4: While young adult men use spears to catch fish poisoned by the *timbó*, a few women help them collect their catch. It is very important that none of the fishermen have had sexual relations the night before, and that the women are not menstruating. Spirits dislike the smell of sex and menstrual blood, and if they detect either, they could turn against the fishers.



Photo 5: Young boys are expected to participate actively in fishing expeditions because this will become one of the most important activities in their lives.



Photo 6: The process of preparing to become a fisherman begins early, with the body serving as the medium for learning. Scarification helps young men and women develop their bodies and abilities. It lets the body bleed and incorporates, through the skin, substances from medicinal plants cultivated by spirits. Learning usually demands the development of social and bodily relationships with more-than-human beings.



Photo 7: Feeding over a thousand guests during a festival requires large quantities of fish. The fish are slowly roasted for at least two days, so they become dry enough to last for the few days during which the village hosts its guests.



Photo 8: Interethnic festivals are the pinnacle of Xinguano social life, especially the mortuary ritual in memory of deceased chiefs and their kin, known as *Quarup* (*egitsü*, in Kalapalo). The wrestling matches that start after dawn are highly anticipated events in which the hosts' champions will face the champions from all invited groups. Through food, music, dancing, and wrestling, the Kalapalo and their neighbours continually reinvent the Xinguano civilization.