Overseeing Amazonia:

Environmental Media

of Brazilian Grounds

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Introduction

“We have indeed mastered nature, just as we have mastered its imaging.”

* T.J. Demos, Against the Anthropocene

In 1988, public concern about the destruction of Amazonia was heightened in the United States. Along with a particularly hot and dry summer, astronauts in NASA’s Discovery mission photographed thick clouds of smoke covering a vast area of Brazilian territory. [EXTRA 2] According to newspaper coverage, compared with the last images made in 1973, the difference was “terrifying.” Alongside the space view, closer photographs and recordings of rainforest fires raised global awareness about the growing greenhouse gas emissions and the reduction of carbon sinks because of uncontrolled deforestation. It was around this time that the atmospheric connection between distant places became popular and climate change became a legible concept. With the rise in public consciousness about the risks of transboundary environmental issues, Brazil gained leverage as a nation central in global environmental debates. At the same time, multiple sovereignties started to overlap in the Amazonia in autochthonous and foreign efforts to manage and protect the region. An environmentalist idea about sovereignty was prominent among a group of international leaders who declared the forest a planetary possession. It was 1989 when Al Gore said that “contrary to what Brazilians think, the Amazon is not their property. It belongs to all of us.”

Despite the environmentalist urge of the 90s, over the course of this project’s development, deforestation in Brazilian Amazonia reached record levels. Many recent environmental reports reveal the advance of illegal cattle raising and mining in protected areas. [EXTRA 3] Alongside scientific coverage, images of a burning rainforest populate pages of newspapers, social media feeds, art exhibitions, and television screens, announcing a close and irreversible turning point. Climatic concerns gained even more urgency in the face of the relentless state violence against Amazonian peoples and ecologies over the last four years. Since 2018, Jair Bolsonaro’s former administration succeeded in pushing this poignant sense of emergency. During those four years, the region became the direct target of a politics that openly supported illegal extraction and denied support and protection to local communities, especially indigenous groups that report rampant encroachment of their lands.

[VIDEO 60] Facing this scenario, the presidential race of 2022, which reelected Luís Inácio Lula da Silva’s (PT)[[1]](#footnote-1) and ended Jair Bolsonaro’s (PL)[[2]](#footnote-2) mandate, may feel like a national turn, an overcoming of the far-right politics that failed to secure endangered territories and endorsed illegal extraction in Amazonia. [EXTRA 4] But what comes to the fore with the rise of right-wing politics in Brazil is how Amazonia’s historic peripheralization favors an identitarian entrepreneurialism that currently pushes the frontiers of extraction further. This “neoliberalism from the ground”[[3]](#footnote-3) emerges with strength in Brazil’s North Region, where environmental devastation and far-right support juxtapose. If, in the 70s, the forest symbolized a hopeful and industrial future, today, many capitalize on the ruins of this old dream. Current neoliberal models of extraction are tethered to the ways we historically represent the forest within a technical, utilitarian, and essentialist aesthetics that obscure Amazonia’s affective and embodied reality. This project maps the environmental imaginaries and designs that support, maintain, and counter extractive sensibilities that give shape to the state of emergency in the rainforest. [EXTRA 5] It unpacks the visual and discursive mechanisms that support policies, master plans, and big solutions and looks for their insights and limitations.

The stories I gathered here are, in themselves, three different models of Amazonia’s reality, told through a sequence of images. [EXTRA 6] In these pages, I weave visual analysis not to reveal one objective truth but to bring forth the complex network of discourses, mappings, words, and photographs that make it real and meaningful. [EXTRA 7] Real because, when crossed, the images leave any attempt to describe a territory accurately behind as they become enmeshed with subjective illusions and multiple perceptions that one might have of it. This project is about how these images are far from neutral and about how they can act back and shape the world they represent.

Reactionary and violent responses grow apace with the falsely obvious goodwill of those acting on the forest's behalf. The climate crisis creates new technologies of representation and control that, by trying to solve the problem at hand, hide their ideological conduct. They delineate a binary that couples science and local knowledge to work in opposition to alien criminals. They trace a return path to a state of “natural” equilibrium. Instead of the perception that human activity can only cause harm, this project tries to make the point that Amazonian media (its produced, artificial, cartographical, digital presence) is just another part of its ecological systems. Thus, just as the mercury in the rivers, they should be a matter of concern when thinking about the equitable and sustainable models for the rainforest. The mapping that I trace here identifies a dispersed, multilayered, and multiscale situation that can’t be bounded to the north region of Brazil. Amazonia then is more than a territory defined with an outline, it is both material and imagined, constituted spatially and meaningfully through media.

Media have always influenced how people think and act. They mediate meaning between that which is concrete and spatial to that which is seen and interpreted. From printed propaganda, religious images, or tv shows, we know how media operates in population management. When we think about Amazonia, these media are central in making real to a planetary audience how they are physically connected to a distant reality. But if today images of deforestation or the violence against indigenous peoples become viral, the awareness they are capable of raising is far from reversing the situation. In fact, images can work mischievously forging the impression that awareness and harm reduction and other benevolent signaling are enough to change the reality on the ground. But despite the accumulation of evidence of devastation and its vast circulation on ‘traditional’ media, deforestation hits record levels today. [EXTRA 9] There is an awkward tension between the growing visibility of social and ecological harm in mainstream media and the expansion of ethnic hatred and climate denialism. While the multiplication of evidence renders the urgencies of Amazonia visible, it can backfire for assuming a universal interpretation. Creating a sense of catastrophe and chaos, these media can direct broad conscientization[[4]](#footnote-4) and flatten the solution as a matter of order reinforcement. Under this crisis it seems that the situation can only be settled with more surveillance and armed action against illegality.

Media also have the power to work as masks. They create unconscious conditions that are the background of environmental degradation. This project presents this “cloaking device.”[[5]](#footnote-5) Whether in the totalizing view from above or the hyper-localized view from the ground, framing an event to represent it always means to leave something behind. [EXTRA 10] Not to be simplified as an illusion, these images hide all the senses besides vision and all the unseen and situated experiences of an event in ways to maintain the primary system in which state and non-state actors can ‘sustainably’ profit and grow. For instance, PART I of this project, *Things from the Underground*, is concerned with reactionary images that ignore and openly oppose to environmentalists’ discourses. Here, the cloaking device works through images that mobilize a cruel optimism[[6]](#footnote-6) and push the frontier of extraction further against the evidence that points out the risks of doing so, as when the image of gold keeps serving as a signifier for self-enrichment while covering that the activity can only privilege very few. Environmental denialists use media to mobilize affects and justify extraction despite the stark evidence about its risks. It refers to the dynamics of desire and deceit[[7]](#footnote-7) that moves people to act ‘irrationally’ or against the basic logic of self-defense that could guarantee their own survival.[[8]](#footnote-8)

PART I looks at Amazonia through representations of gold mining. It looks at Itaituba, [EXTRA 11] a node in the global supply chain of gold. Known as the ‘gold-nugget city,’ its economy and identity are based on mining. The once small-scale and artisanal activity practiced by individual miners is now performed at an industrial scale, backed by foreign and local corporations that find less visible end uses for the metal. The celebrated memory of the artisanal miner has been used as a mask to industrial-scale extraction. In large scale, the search for gold creates a toxic footprint, with mines continuously opened within protected territories.

Populist discourses can mingle with gold mining’s promises to mobilize desires and optimism in para-state projects of extraction. They attach gold to the illusions of self-management and personal enrichment and reach those frustrated with the failures of top-down developmental plans. Far-right discourses encourage a violent reaction that sees illegal extraction as a rebellious and anti-systemic enterprise, as they mobilize fear of losing land for conservation units and indigenous territories. What is important to underline with the study of illegal mining, is that the cause for devastation that reaches protected areas is not only the dismantling of environmental protection organizations, the clear support of the former president, the international companies that buy illegal commodities, or the state’s support for industrial investment in the region, but an aggressive urge for entitlement that emerges from a libertarian individualistic identity. Again, media here works as a mask that hides the historical and contemporary fallacies of the rainforest and its inhabitants as an enemy to the project of a nation.

Despite very recent, the denialist turn under Bolsonaro’s mandate lead to the dismantling of an environmental protection apparatus that will have long lasting consequences. But grappling with them asks us to study the previous and opaquer commonalities around the apparently opposing fields of populist environmentalism and far-right climate denialism. As we will see in PART II, *Partitioning Grounds*, images can articulate a shallow solutionist imagination. Differently from the flat denialist lure, they don’t deny the problem and the need for a change in the management of extraction, but they do so by assuming simplistic solutions. Often, these solutions serve a neoliberal resource extraction scheme that facilitates capital accumulation in the name of the protection of Amazonia.

On the typical lists of threats faced in the rainforest, the absence of state planning, infrastructure, and law enforcement gives a rundown of the problem. The common sense that guides ecological action centers the state's responsibility as a drawing of lines and limits that divide that which is preserved from that which is extractable. These delimitations work within the logic of the state as a guardian, in which barriers seem like a benevolent and concerned territorial management tool. [EXTRA 12] They can sound just right in environmental reports or financial conferences as strategies to overcome underdevelopment and environmental hazard without giving up on development. But these tool’s work is ambiguous. Romanticized images of a stable rainforest and distanced cartographies that partition the land fail to represent the rainforest to convey and combat the systemic and enduring spatial and psychic patterns that cause social and environmental injustice. I understand that these images are a less obvious front regarding the debates surrounding environmental protection, even though they may have greater effects on the behavioral patterns that create the conditions for the abusive extraction models we see today.

It is this irony of environmentalist policies that I analyze in PART II. The starting point for this analysis was a Free Trade Zone inaugurated in Manaus. On the center of Amazonia, the zone was established in 1967, in line with prevailing models for developing so-called third-world countries. Adding to a five-year plan for development and the liberalization of Brazil’s economy, the Zone was planned as a temporary measure. Now after 54 years, the Free Trade Zone adopted an updated “green” format that guarantees its further longevity. Despite the lack of regulation at the core of its purpose, the zone’s defenders argue that it works as an urban employment engine that attracts illegal workers from the preserved areas of the forest. As it creates urban employment, the Zone is seen as a mechanism to prevent illegal logging and mining in the region. But, at the same time, the Zone dismantled traditional non-abusive production circuits and made the city economy dependent on imports. While presenting itself as a symbol of national pride and a sustainable future, the Zone reinforces the peripherical status of the region by making tax exemptions an inevitable reality.

PART II analyzes the images of sustainable development that mobilized leftist agendas in the early 2000s and how they were captured by developmental and conservation projects with neoliberal underpinnings. As the image of indigeneity is a seemingly opposition to distanced interests, it became a tool in populist discourses that associate environmentalism with the paternalist role of the state as a caretaker. [EXTRA 13] This imaginary of protection then comes with another type of spatial enclave. If the Free Trade Zone works as a kind of bait to attract those who would extract resources autonomously and illegally, the demarcation of indigenous lands serves as a barrier to cast them out. Both restrain movement and create a contour, a place, either by entitlement or prohibition. Creating an image of autochthony attached to preservation and care bounds indigenous peoples to territories while fueling a pseudo-environmentalist agenda. Demarcation connects people to a place and, under the premise of environmental and social protection, ends up facilitating dispossession.[[9]](#footnote-9) Land demarcation is an effective immediate response and not something to fight against. But environmental geopolitics that effaces borders rather than multiplies them is key when thinking that this is the spatial mechanism that historically controls the movement of people to facilitate the movement of capital.

PART III, *Looking at the Sky*, explores a type of border effacement. In this story, I search for ways in which the visualization tools that put Amazonia at the center of planetary debates around climate change can tease out an imagined climate policy that spans beyond the harsh borders of nation-states. [EXTRA 14] The central object of study are the climate models used to demonstrate the influence of local environmental destruction within atmospheric systems. The models attempt to predict an avoidable planetary future and mobilize action around the urgency of climate-centered geopolitics. With contradictory cultural techniques, they can make otherwise inaccessible reality perceivable. [EXTRA 15] But how much of these simulations are a bent version of reality to show us what we want to see?

Today, the multiplication of atmospheric data and techniques of weather monitoring allows a precise range of catastrophic climatic futures. But this recent data boom does not coincide with a collective heightened consciousness or a mass ecological awareness effect. Such disconnection could push us to conclude that a purposeful articulation of scientific images will not necessarily address the patterns of thought and behavior that today allow the self-destructive abusive extraction that happens in Amazonia. And yes, perhaps this is not about collecting more data to make it more visible. The issue is how to portrait partiality and situatedness. Or how to make it subjective and partial. If modernity’s spirit can be summarized, as Bruno Latour suggests, as the belief that “tomorrow, we will be able to separate more accurately what the world is really like from the subjective illusions we used to entertain about it,”[[10]](#footnote-10) how do we, now, can embrace such illusions?

In the following pages, I won’t try to debunk illusions about Amazonia in search for a better delineated actual single crisis. The present mapping is not about objectivity or eliminating fetishes. [EXTRA 16] It seeks ways to take advantage of such illusions, making the point that Amazonia is more than a rainforest, or a haven, or a home. Looking at its media then, creates a map that considers dissent, contradiction, error, and difference. Such disorientation, as we’ll see, is central for projects that rejects the neoliberal environmental governance at place and its dreams of singular enemies and pristineness. Portraying this biological stratum as an embodied and changeable reality, not a fixed and immutable one, is one of the attempts of this project. When a return to biological equilibrium is not the ambition, there is not one right way to see Amazonia standing but many. [EXTRA 18]

PART I

Things of the Underground

[IMG 1] By the Tapajós River, on Itaituba’s waterfront, there is a monument in homage to the *garimpeiro* (gold panner). Like a handcrafted bibelot scaled up, the sculpture has slightly distorted proportions. The edges of its hat and pan are rough and its surface is lumpy and golden colored. The eerie figure depicts a male body with long stretched legs and short bent torso. Its asymmetrical arms suggest the delicate movement performed to filter gold. Standing on a two-meter-high pedestal, the man looks down, overseeing those who walk by. Itaitubense constructor Gilmar Araújo built it with cement and local craftsman Apolinário finished it with paint. This was the second monument made by the team of artisans in the region.[[11]](#footnote-11) [IMG 2]

Inaugurated in 2019, the handicraft-like statue follows a recent trend in the long tradition of built homages to the *Bandeirantes*. [EXTRA 23] From the 16th to early 18th century, these pioneers organized violent settler missions that left from the coast searching for independence from Portuguese imperial power. In their quest to control the “unknown” hinterlands, they collected gold, enslaved indigenous peoples, and snatched their lands. Among the early 20th-century carved-in-marble realistic monuments, the 1960s modernist tributes, and the recent artisanal statues, there is a shared celebration of the winning history of Brazilian colonization. [[12]](#footnote-12) All these representations hide the violence that undergird these conquest missions in name of one single tale that associates extraction with braveness. But perhaps, more than revealing the harms of a top-down project of memorialization, studying the shifts in gold mining aesthetics can have a lot to tell us about contemporary and on the ground extractive sensibilities.

While the modernist pieces deconstruct bodies with abstract geometric representation, the type of simplification that happens today feels way more anarchic—a familiar handmade bibelot you could find on a street market turns into an official municipal monument. The conflation of the amateur with the official aligns with far-right communication strategies that want distance from the curated and technical aesthetics of typical party politics. Broadly applied in Jair Bolsonaro’s communication strategy, the intention is to feel unmediated, autonomous and, therefore, *real*.[[13]](#footnote-13) The contemporary statues, rather than representing past idealized “heroes” of colonization, are an attempt to portray the real *garimpeiro*. [VIDEO 24]

Alongside Facebook posts sharing the inauguration of new monuments, many influencers on YouTube and TikTok help shape the contemporary aesthetic of mining in Amazonia with multiple amateur videos. Media theorist Hito Steyerl has called out for the political potential of these nonconformist and poor images.[[14]](#footnote-14) But despite their power to build alliances and circulate independently, outside the guidance of the state and mainstream media, this amateur appeal supports another type of authoritarianism here. The rebellious aspirations against distanced techno-scientific images that obscure the miner’s reality become a desperate attempt to create seemingly truthful representations. Instead, their authenticity tries to show mining as a tradition that empowers marginalized communities it the effort to antagonize environmental claims to ban gold extraction. In opposition to the journalistic coverage and scientific data, they work to craft the identity of the hardworking miner and a sense of their belonging and entitlement to Amazonian grounds. [VIDEO 23A]

If the online far-right communication strategies aim at a broad and placeless public in the chaotic space of social media, the translation into a physical artifact is a guided strategy with a particular and localized audience. The statue was commissioned by the mayor, Valmir Climaco (MDB-PA), and stands for the liberal discourses of local politicians against federal environmental regulations. Romanticizing miner’s precarious work conditions, gold mining supporter’s claim that gold panning is the natural vocation of both the population and the forest itself. [VIDEO 31A] This logic has a significant impact on electoral politics. Along with the multiplication of statues, many billboards supporting Bolsonaro’s reelection appeared in Pará. Bolsonaro had over 80% of the votes in the region in his attempt at reelection in 2022, after relaxing local environmental protection regulations.

When the monument gives form to the “real” *garimpeiro*, they are, in fact, emptied of meaning. While claiming to stand for a popular demand by portraying the reality of local worker’s, they adapt to privilege the interests of few. Neoliberal anti-indigenous conservative discourses find in this concrete object the perfect host. This Brazilian character, historicized as a benevolent hero, fluctuates from the coast to the hinterland to create a placeless anti-politics and bolsonarist identity. The statue shows how a dominant mentality that sees the forest as a resource is far from an exception of four years of right-wing government but is scattered as a more complex set of violent rebellious sensibilities. The conjunction of two things that don’t belong together in the 21st century (mining and rainforests) is far from obvious for most. Building from the political appeal of self-made entrepreneurs’ tales, the low-resolution monument offers symbolic support to the region’s extractive militias. So, while miner’s see it as a symbol of empowerment, it becomes difficult for the critics of mining to challenge it without personalizing the problem in the figure of local workers.

While big mining companies try to couple mineral extraction and sustainability, informal mining is among the leading causes for higher deforestation records in Amazonia. [[15]](#footnote-15), [[16]](#footnote-16) [EXTRA 19] Technological advances and sensing devices could make the work of gold prospecting easier and safer. Rather than a preference for the labor-saving devices, miners use precarious machines that harshly dig in river’s margins. But closer tracking of these mining pits could also help to verify where the gold bought and sold in small shops in Itaituba comes from, avoiding illegal mining inside protected lands. The endurance of an informal and toxic mining practice—that severely contaminates workers, neighboring communities, and river bodies—is not unwarranted. While some thrive with the metal’s extraction, informality doesn’t seem something to overcome but precisely the necessary condition for the success of those who profit the most with gold extraction.

Yet, the statue in Itaituba references a smaller-scale modality of the activity, rather than the large-scale clearings that environmental reports unveil. They help forge an amicable and accessible lifestyle by recalling the perception of pride for Brazil’s colonial memories and juxtaposing it with the false image of a harmless activity that can only bring wealth to the region. The amateur aesthetic celebrates arduous and independent work. Although it represents the solitary individualized search, from the on foot colonial expeditions to the entrepreneurs that fly helicopters today, it has always been an abusive and hierarchical activity. Having it at the center of the city, more than creating a personal link with those who walk by, helps to normalize the illegal activity, and stands for the seemingly independent and subversive economy that maintains the city. [EXTRA 20]

The resistance to missions of extermination led by *garimpo* bosses against indigenous peoples is not new. Many accounts show how ethnocide undergirds gold prospection in Amazonia, as narrated by Davi Kopenawa,[[17]](#footnote-17) and as was recently featured in mainstream media after the Yanomami tragedy.[[18]](#footnote-18) The brutality of the situation facilitates a dominant frame for the problem that restricts the miner as an enemy and a criminal. If the scales of mining differ throughout different regions of Amazonia, Law enforcement and securitization are the first solutions to stick people to their places and avoid any infringing mobility within the rainforest. Yet, framing the problem as one of lack of law enforcement means dealing only with the effect, in a binary dispute that can only spark further reactionary complications. Instead of expanding protection and security, this simplistic opposition triggers a peripheralization process of Western Amazonia's deeper regions. As in the comparison made by philosopher Paulo Arantes, the approach to suppress informality and illegal extraction in Amazonia is the same failed formula applied in big cities’ peripheries.[[19]](#footnote-19) When the solution is unified as crime combatting, as in what happens with the war on drugs that takes place in Brazilian favelas, the more complex problems regarding lack of basic infrastructure, severe inequality, and the precarity of life are translated into a moral issue.

This line of thought can only set dangerous environmentalist moral standards that fail to address the situation adequately. This bad translation gets even more pronounced with the eagerness for strong solutions that emerge from the threat to indigenous lives and the climatic anxieties around the rainforest. After the population boom caused by years of state incentives to colonize the rainforest, followed by the recent efforts to ban and criminalize mining, northern cities witness something like what anthropologist Arjun Appadurai describes as a “nostalgia without memory.”[[20]](#footnote-20) The statue is a piece within a project that tries to fabricate this memory by transforming gold panning into something more durable: a traditional craft and an identity. In one way or another, and despite celebrating colonial history, the statue rejects the modernist and normative “invisible statues” [[21]](#footnote-21) of Brasília, that can only exist by excluding all that is unfit to the project of a unified and harmonic Brazilian nation. [EXTRA 21]

What other sovereignty?

“A path to finding the gold mine.” This is how a 1970s propaganda piece described the Transamazônica road. [[22]](#footnote-22) Printed in popular magazines, many campaigns during the military dictatorship glorified the opening of roads and used the gold mine as a metaphor to suggest that unlimited and easy money was miraculously available with the construction of new infrastructure. It directly invited the reader to “transfer a big part of this gold to their own pocket.” [IMG 2] The same aerial perspective that works today to report deforestation and suggest a lack of physical control over the territory, worked at that time as a point of view that implied the triumphing efforts to manage the region. Gold’s meaning can be about extraction and abuse but also about, as we’ve seen, a historically built relationship between miners and the forest. Contemporary forms of reckless and precarious mining (and we could expand to other impactful extractive activities) are the result of a half-accomplished state-led urbanization plan that, for decades, associated gold with progress. Rather than a simple absence of order, the environmental impact we see today is consequence of planned efforts to colonize Amazonia.

In March 2022, local gold miners, truck drivers and their families blocked the Transamazônica road in the southwest region of Pará to oppose recurrent anti-mining police operations.[[23]](#footnote-23) [VIDEO 49A] They demanded the suspension of environmental protection operations that blocked illegal extraction. Protesters charged the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA) and the Chico Mendes Institute for Biodiversity Conservation (ICMbio), both state intelligence agencies, with damaging their work machinery and hampering their subsistence. In order to justify the suspension of monitoring activities, miners put forward an argument related to historical claims to the land. Miners allege that mining has traditional value, as the practice predates Portuguese colonization. While big companies like VALE[[24]](#footnote-24) are allowed to legally perform mineral extraction, local workers asked why environmental organs frame informal mining as the lead responsible for environmental damage.[[25]](#footnote-25)

Besides blocking roads, miner’s report the damages caused by these operations with live broadcasts on multiple YouTube channels. Many videos on “Independent Miners of the High Tapajós” show the war-like character of operations against illegal mining. [VIDEO 50] After identifying the site of illegal mining, special groups inside IBAMA, backed by local military police, set fire to all machines, cars, motorcycles, and fuel cargo they could find to impede further operation. While running, the *garimpeiro* who recorded the video laments the loss of the wooden tents covered with blue plastic linings and the seizure of their tools—mercury, guns, knives, scales, pans or Starlink kits.[[26]](#footnote-26) Some workers appear running trying to escape while others throw sand on burning backhoes to stop the fire.[[27]](#footnote-27) The scenes of panic are shot with an unstable cellphone camera and circulate among content that teaches and celebrates traditional gold panning.[[28]](#footnote-28) Interestingly, similar videos can be found on IBAMA’s social media feeds. But instead of miner’s narration of the precarious settlements and equipment’s destruction, the audio is substituted by a jubilant musical background you would expect to hear in action movies.[[29]](#footnote-29) [IMG23]

The miner’s demonstration took place 25 miles away from Itaituba. Also known as “gold nugget city,” its peak mining activity happened during the military dictatorship, in the 1980s. At the time, the city had one of the busiest airports in the country, carrying fuel and pieces of equipment for miners when the Tapajós River was still the only way to access the city. [[30]](#footnote-30) Despite the golden era and the attention of big companies’ representatives, the profits from extraction do not appear in the landscape and the lives of Itaitubenses. With approximately 100.000 inhabitants, less than 2% of the population has access to basic sanitation and, in 2014, only 1% had access to piped water. The municipality’s records of deforestation, violence against indigenous peoples, and death rates for infectious diseases are among the worst in the Northern region. The city hosts more than 80 metal ore companies and appears on a business data website as a prominent Metal Ore Mining location.[[31]](#footnote-31) Itaituba’s mayor, Valmir Climaco, owns gold extraction sites himself and collects many public statements against IBAMA workers. In 2019, he was sentenced to prison by the Federal Court for environmental crimes related to deforestation in a forest reserve[[32]](#footnote-32). The shared interests between politicians and illegal extraction appear inside an apparatus in which state and non-state agents profit from precarious and abusive extraction. Although multinational companies attempt to portray a sustainable version of extraction, the federal administration does not even attempt to maintain the appearance of environmental consciousness. During his mandate, Jair Bolsonaro openly announced his personal involvement with gold mining and his intentions of expanding the frontiers of extraction to indigenous demarcated lands.[[33]](#footnote-33)

Despite the recent federal government’s efforts to regulate mining, the criminalization of the activity has a long history. While the Mining Codes of 1940 and 1967 considered the scale, purposes, and techniques used to practice extraction in order to classify a miner’s activity as legal, the most recent law of 1989 works in more abstract ways. Mining permits are issued exclusively to individuals because it qualifies as a “rudimentary” and “traditional” activity. Despite being naturalized by the recurrent image of the hero miner, these permits are often issued to industrial-scale mining sites.[[34]](#footnote-34) The definition of a miner does not come from a description of their actual labor but rather from an abstract notion of what a miner is supposed to be, according to legislative bodies. Regardless of the workers’ tools and consequential impacts (i.e., million-dollar machinery vs. pickaxes and batters), each individual could be considered a small-scale miner. Labor abuse and environmental hazard are outsourced within this arrangement and are considered the responsibility of the subcontracted small entrepreneur.

These mining regulations convey conflicting ideas of extractivism. As explained by Imre Szeman and Jennifer Wenzel, extractivism can mean both a colonial action, as in the “ruthless looting of the environment for the benefit of a distant few,” or a postcolonial one, as in “a developmentalist ideology of social welfare premised on the extraction of natural resources.”[[35]](#footnote-35) Regarding neoextractivism in Latin America, although interconnected to populist agendas in developmentalist democratic governments, the colonial pattern is applied in less explicit ways. This happens because of the overlapping sovereignties that have taken place in Amazonia since the re-democratization. Once indigenous lands are demarcated, miners weirdly embody the logic of the state as it was in the 70s. Rather than para-state agents acting against the grain for independence, they become a reminiscence of the colonial reason of the state themselves.

[VIDEO 52] As shown in a report by the National Committee in Defense of Territories Against Mining, implementing an environmentally permissive policy enabling the opening of indigenous lands for business investments is an old dispute that gained momentum during Jair Bolsonaro’s administration. The report points out how large mining companies disregard labor or environmental concerns and keep acting as if they have free and constant access to ministries and other state bodies. [[36]](#footnote-36) Despite the terrible work conditions mining workers face and the considerable evidence of mercury contamination and its dangers, the workers demand further deregulation and ask the state to hold back any intervention. Perhaps we could see this simply as a misinterpretation by the workers, a failure to identify that the ‘true enemies’ are the foreign corporations that buy the gold. Or even to criminalize and associate them with a fascist nationalism that disregards the importance of a standing rainforest. But this becomes more nuanced once we grasp the cultural meaning of gold attached to a notion of independence and self-recognition in the region.

When thinking about the *garimpeiros’* aspirations, the image of the settler-colonial pioneer is in close contact with the neoliberal subjectivity of the entrepreneur, in a continuation of the modern-colonial mindset. [EXTRA 22] The abusive gold extraction is performed by workers who reject the state after a history of forced migrations, food insecurity, and lack of basic infrastructure in the process of half -accomplished urbanization of Amazonia. Here, there is a disconnection between the labor that happens in the mine and the work that represents a promise of an independent way of living and material wealth. This is a profitable disconnection in which glorifying the *garimpeiro* as an independent hero justifies poor labor conditions. The precarious situation turns death due to work into something recurrent. And although the techniques that can make the work safe are known, the death of a *garimpeiro* is a naturalized accident. The neoliberal logic that attaches life to value and individual effort creates a strange situation, such as the worker’s demonstration demanding deregulation. Their demands rely on preserving a glorified colonial memory, as an imagined resistance to the state. But the illegal territorial expansion that takes place in indigenous reserves is violent and unwary and presents no trace of a political insurgency. Instead of countering the corporations and the state that do not give support or protection, they demand the possibility of self-management and free entrepreneurship.

View from above

[IMG 3] Landscapes of gold extraction are an index of the cosmopolitical dispute that takes place in Amazonia today. Images of deforestation circulate as evidence of the impact of mining on the destruction of the forest’s ecosystem. Among these images, the aerial view is a common photographic genre in the media that depicts environmental justice issues, which, in the pages of environmental reports and newspapers, becomes a sort of rhetoric by itself. [IMG 3A] Like photographs of war, as philosopher Susan Sontag has put it, they reiterate, simplify, agitate, and create an ‘illusion of consensus’ by assuming an ecological-aware viewer.[[37]](#footnote-37) Yet, interpretations from these pictures are a conflicted field. Adopted to portray the scar left in the thick green coverage, the view from above shows the gold mines as isolated clearings within the forest. [IMG 3B] Usually deep inside protected lands, multiple bare patches like the one we see in the photograph by Lucas Landau in 2020 keep multiplying. Although the image doesn’t gather the Western symbols of war-like iconography—that is, they don’t depict shred-off flesh and the bodily horrors of battle—the photograph reports the reality of an endangered landscape and population. As photographs of war, the circulation and multiplication of these photos make environmental degradation real to those who watch the news. [IMG 3C] More than a representation, this is how reality is experienced by most people who engage in ecological agendas and has a similar eerie effect to that of seeing it right in front of your eyes. [IMG 3D]

Although mining is illegal in these territories, miners find ways to escape environmental protection squads and intrude on protected lands. As they are at constant risk of being caught, workers don’t settle for long—yet their impact is permanent. After a first assessment to identify the presence of gold, a group comes from the city and puts together wooden tents to accommodate their hammocks, a kitchen, and a covered place to work the gold. With a jet of high-pressured water, they dissolve the first layer of soil into sludge and open the pits we see from a distance. A hose sucks the sludge and directs it to a carpeted box that filters the gold from the soil. [VIDEO 31B] Only then do the *garimpeiros* start to look for the yellow powder. They use the *batéia*, a pan with a small cavity in the middle, to separate the gold from the clay. This delicate activity that requires skill and patience is also an extremely toxic one. To accelerate the process, they put a few drops of mercury in the pan to coagulate the minerals and finish the separation process. [VIDEO 31C] The liquid metal ends up contaminating the soil and bodies of water. There, bacteria transform it into methylmercury, its organic form that will be consumed by microalgae, larvae, and insects and then bigger fish to then, finally, intrude human bodies. The damage to their neurological system caused by mercury contamination is only one of the invisible consequences of mining. As the loud noise from the machines scares away the fauna and the smell that impregnates the water, the damages of gold extraction go far beyond the immediate impression one can have from visual evidence.

[IMG 4] Environmentalist sensitivities find it difficult to make sense of the scars on the rainforest beyond the quantitative and violent effects it has. While these clearings are portrayed as a sign of environmental destruction, criminalization, and law enforcement show up as straightforward solutions. And the problem is condensed as a lack of state presence and to a toxic and abusive activity. Or perhaps moral assumptions, such as the advance of populist politics, the embedded racism against indigenous populations, or even to climate denialism. But, to a foreign investor, they might indicate the presence of gold. And, to a miner, a sign of progress and resistance. As a spatial marker, the mines map the disagreements and different world views that collapse in Amazonia.

The view from above, as undeniable proof of the environmental harm of illegal mining, occupies the pages of newspapers and reports that associate the meaning of gold with greed, irrational accumulation, and demand for more state regulation. From this privileged point of view, these clearings seem like a parasite. Despite making illegal mining an undeniable, observable fact, the view from above still works as limited evidence. They simplify and create a sense of clarity in the organization of miners as invaders and protagonists in this event. Undeniably a sign of ecological harm, other ways of seeing them can complicate such consensus by looking at it through other senses that don’t make it an issue of identity or ideology. Instead, mining culture and the opening of these clearings work through a persuasive apparatus that involve more distant agents than the miners themselves. Such apparatus establishes a type of colonialism and extractivism that doesn’t work through the typical appeal to care, conquest, and land tenure. [VIDEO 23A]

Visual evidence of deforestation, high mercury concentration levels detected in the water[[38]](#footnote-38), and contamination of entire Mundukuru communities[[39]](#footnote-39) prove the continuous physical impacts of gold mining. The data collection exposes harmful and invasive activity within demarcated indigenous lands and has active political work. For instance, photographs and environmental reports can pressure federal monitoring organs to act upon specific illegal mines. Facing the dismantling of such federal organs, photographers work independently to monitor and call attention to the criminalized activity.[[40]](#footnote-40) They have a key role in the struggle to contain the current expansion of illegal extraction that happens in Amazonia, especially in Brazilian territory. Besides growing violence against indigenous peoples in the dispute for land, the activity has damaging impacts on the health of those who live by and depend on the contaminated rivers. Illegal mineral extraction, especially of gold, reaches 17.3% of the Natural Protected Areas and 10% of the Indigenous Territories of the Amazon region.[[41]](#footnote-41) These data render a useful binary but, at the same time, one that creates a simplistic figure-ground reading of the landscape. The division between protected land and invasive mine translates to the personification of local agents of protection and agents of threat. In other words, the figure-ground reading of space that appears in environmental reports and bird’s eye photographs work with the construction of identities of guardians and invaders.

Personifying environmentalism is part of an approach that focuses on moral conduct while masking structures of power. In her discussion about the visual politics of environmental justice, political theorist Teena Gabrielson calls attention to the risks in the visual culture of environmentalism that contribute to universal narratives and emphasize individual responsibility while obscuring systemic inequality.[[42]](#footnote-42) Dealing specifically with photography, she argues that “a more inclusive socio-ecological politics requires visual strategies that resist racialized ways of seeing while making visible the injustice of disproportionate environmental impact on low-income communities and people of color.”[[43]](#footnote-43) Resisting ‘racialized ways of seeing’ requires the perception of a non-standardized indigenous alterity without dismissing the severe impacts indigenous peoples suffer from the proliferation of mines.

Mappings of environmental threats should be concerned with the naturalist mindset intrinsic to modernity and the production of evidence. More than envisioning an ethical ecological dweller of the rainforest, such vocabulary must challenge the very viability of an exploitative extractive economy.[[44]](#footnote-44) Art historian T.J. Demos claims that one aspect of the decolonization of environmentalism is the connection between the exploitation of the environment to the exploitation of the disenfranchised, impoverished, and brutalized segments of the population.[[45]](#footnote-45) If the photographs document the dangers of human-driven alteration of the Earth, they also suggest that “‘we have indeed mastered nature, just as we have mastered its imaging.” [[46]](#footnote-46) Following Demos, it is precisely this illusion of control, that we can hold nature and look at it, that places technocrats and scientists in the role of fixing the problem. However, such ‘fixing’ relies on the same structures of power that sustain extractive industries. Opposing the harms of extraction, environmentalists and politicians deposit hope in the capacity of local knowledge or indigenous ontologies to decolonize thought and counter this idea of control over the landscape. But how to avoid colonizing differences by trying to decolonize environmental media? [[47]](#footnote-47)

Contrary to what a figure-ground reading might suggest, such landscapes are not static scenarios upon which humans act but rather an agent with their own representational capacities.[[48]](#footnote-48) British anthropologist Tim Ingold defines Landscape as a sort of embodiment in itself: embodiment not as an inscription but as a movement of incorporation.[[49]](#footnote-49) With his definition, body, and landscape must be thought of as complementary and mutually formed without any linear causality. Ingold’s definition pushes us to rethink the essentialist association of certain bodies with a specific place. That is, it makes us question any ‘natural’ relation between a body and its surroundings. It requires thinking that the landscape “is not a totality that you or anyone else can look at, it is rather the world in which we stand in taking up a point of view on our surroundings.”[[50]](#footnote-50) Considering the interaction between humans and the environment as an unfixed ‘movement of incorporation’ in which forms are generated—rather than transcribed onto material[[51]](#footnote-51) —we must avoid the personalization of the problem of the mine as a problem of the miner. Now part of the ecology of images that make deforestation an object to look at and reinforce the reality of climate change, the photographs become images of a war we witness from a distance. Instead of creating thought, they tend to mesmerize and flatten the event as part of an apocalyptic (and recently right-wing and climate denialist) expansion.

[EXTRA 16] It's not only the embodied, subjective and on the ground realities that these representations avoid. Rather than an issue of lack of state presence, mining today is also an issue of corporate action. We can delineate the impulses and desires that foster mining through two axes. First, through an expanded spatial frame, which comprehends the relationship between the site of extraction and site of consumption. And second, through a broader temporal frame that addresses the history and traditions that formulate subjective meanings of mining. The landscapes we see in these pictures as simply stark is not a violent exception within preserved lands but an event with broader spatial and timely relations. When we attempt to see the thickness of this event and position it alongside others, we can think about the network of relations that explain the narrowness of visual proof to explain the current situation of illegal mining expansion.

What constitutes an event is not only it’s material configuration but how attributes and affordances of local and distant elements organize space in time. In the case of the mine, when looking at the event of the opening of the clearing, instead of only visual facts and land use data, what other senses could complicate common discernments? It’s important to highlight that this question is not an attempt to disavow the material reality of the impact of deforestation and not to put any doubt on visual evidence. But to return to that which is presupposed to look at the event itself to find other representations and images that inform mining beyond the edges of the mine. And this might be a way of expanding common grounds, a step towards an investigation of how to deal with differences in the common agenda for social-environmental solidarity. The point is not to reveal or expose the naïve belief of miners, businesspeople or scientists that lack knowledge but to question the type of evidence that reduces itself to a matter of seeing the obvious when the question is not just about knowing but a necessary change in perception. In the path to understanding who should be held accountable and how to start negotiating, it’s key to understand an operation of power that is not manipulative and totalizing but dispersed and affective. And to complicate what evidence means, it is crucial to look at other types of events that are harder to render visible and can’t be apprehended with a Canon. They too are important in the work of imagining plural political arrangements in Amazonia that goes beyond reductionist divisions between autochthonous guardians and foreign intruders.

abstract fascinations

While miners reject the rules of the nation-state sovereignty by reclaiming old mystical meanings of gold, big-tech corporate alchemists have new financial fascinations with the metal. Gold atoms are older than our solar system and have their origins in the collision of neutron stars that hit an early-formed Earth’s crust billions of years ago.[[52]](#footnote-52) In a way, the metal is the cry of the sky, as the Incas would describe it. Its forever well-known appeal has a key symbolic role in the histories of colonization. Besides its malleability, electrical conductivity, and resistance to chemical change—which makes it suitable for making jewelry, circuit boards, and PVC—gold’s symbolic capital keeps luring miners towards a violent and precarious chase inside the Amazon Basin. What represents a few parts per billion (0. 0000001%)[[53]](#footnote-53) in the Earth’s crust mobilizes a $100 billion per year industry that looks to the unwatched hinterlands of the globe for tax-free exploitation of land and labor.

Italian engagement rings and MacBook circuit boards are peculiar precipitates of illegal gold extraction in the Amazon. In 2021, a police investigation revealed a network that fed Apple, Microsoft, Google, and Amazon circuit boards with illegal mining in Yanomami, Mundukuru, and Kaiapó protected lands.[[54]](#footnote-54) While buying illegal gold extracted in Pará, refining companies create self-congratulating sustainability certificates to render the possibility of reasonable gold extraction. [[55]](#footnote-55) The Italian Chimet, for instance, uploaded on its website a sustainability policy that has as principles: “minimizing the impact of our activities on the environment; conducting our business in a socially responsible and ethical manner; and consolidating and increasing the company’s assets in order to ensure re-investment of capital and the introduction of innovative technologies for continuous improvement.”[[56]](#footnote-56) The typical corporate hypocrisies put on environmentalist masks in the 21st century. While it crafts an ecologically responsible discourse, the company refines the gold extracted illegally in Brazil before selling to US big-tech companies on the west coast.

Although the use by big-tech companies corresponds to 37% of gold demand in the US, the global demand has a more abstract destiny. Instead of being directly sold as a component of other products, in 2021, 47% of gold demand was towards investors that keep reservoirs of the metal waiting for its further appreciation. In ten years, the market value of gold increased by 256,73% in Brazilian markets, and investment websites describe it as the investment of the decade. In times of crisis and global pandemics, gold is neatly presented as a safe choice to protect one’s investment portfolio.

If the gold rush of the 18th century pushed settlers from the coast to the hinterlands looking for independence from Portuguese imperial power, the contemporary neoliberal version of this hunt requires exceptional support of the state. A 2022 investigation by Forensic Architecture tracks how during Jair Bolsonaro’s administration, “vast tracts of the Amazonia rainforest, and the indigenous communities who live within and care for it, have been subjected to increasing violence and a rapid rise in illegal gold mining.”[[57]](#footnote-57) In this process, the federal government weakened and defunded environmental protection agencies, reduced fines for environmental crimes, and made public attempts to legalize mining on Indigenous land. Bolsonaro signaled to the populations that experience an acute identity crisis with the criminalization of their work, especially after decades of incentives to occupy Amazonian lands. It is important, however, to understand the military formation of these ‘wildcat’ miners not because of Bolsonaro’s administration but through an intimate relationship between state and non-state agents. [VIDEO 32]

The recent financialization of the rainforest expands the abstract meaning of gold even further. In this context, the spatial delimitation of the mine and the quantification of deforestation loses, even more, its ability to represent the current situation. Considering the work of political geographer Martin Arboleda on circuits of extraction in Latin America, for instance, the limited space where the soil is carved or the infrastructural networks required for commodity circulation doesn’t correspond to where the value of minerals is created. Instead, they work through a relational network of production, circulation, exchange, and distribution of natural resources.[[58]](#footnote-58) But more than the material expansion Arboleda describes, there is what lies beneath the carved soil. If we see that the fetishism that creates value without labor, through pure financial abstraction, stands with the belief in inanimate creatures, the agency of gold, the earth, and the sky perhaps seem less distant and the binary that organizes miners as invaders against the natural forest starts to get more complicated. Beyond the less perceivable worlds of financial capital, there are the hard-to-sense meanings of the rainforest itself. [EXTRA 17]

The point here is to turn the mine into a contentious site. While it scars the forest and transforms geophysical processes that have unseen impacts far beyond its boundaries, it also signals other mappings of the crisis in Amazonia. Professor of inhuman geography Kathryn Yusoff explains how the mine establishes a paradigm through which colonial psychic emerges and racist hetero-reproductive violence is maintained, governed, and regulated. But, as she also points out, while “mining unearths the exoskeleton of geologic life to produce the nowness (or the now, now, temporality) of contemporary life (its energy and communication networks, its highways and pathways), it also creates an opening and the passageways of unintended fractures—fissures—that lead into other undergrounds.”[[59]](#footnote-59) This consideration alerts us to what distanced evidence misses. Not just the more profound political and reactionary dangers that a war against miners can provoke. But also, what could be a space to map a fracture that situates humans as “geophysical beings.”

Of things that threaten Amazonia, its representations are hardly considered something that deserves attention. Adding them to the list, however, stretches the limits of the situation at hand. If too often they are regarded as neutral evidence of harm with all its good intentions, a closer look can show how they condition the reactions. Instead of playing within the lines of allies and enemies, a visual analysis—or perhaps a counter-visual one – can help blur the line that has become suspiciously clear. That is to build alliances within differences by critiquing what goes without saying and a careful closeness with what is considered absurd. These images are not simply consequences of a mindset. They, too, constitute a mentality and a worldview. As feminist philosopher Donna Haraway notes, there is no unmediated framing of evident or pure evidence, “there are only highly specific visual possibilities, each with a wonderfully detailed, active partial way of organizing worlds.”[[60]](#footnote-60) So, what I’ve tried to portray here are the limits in framing environmental degradation as an issue of illegality. Simplifying criminalization fails to see the specificity and difference within these events. Despite not being an argument for the lack of state presence, it is an attempt to map the fog that covers the current Amazonian condition and limits the ways to interpret it.

PART II

Partitioning Grounds

In their ghost talk, these spirits told us:

“We are returning from distant lands that the white people have drawn and cleared. Be careful! Your forest is already covered in these same drawings. They want to take it over. They are very close and are already eating into its edges. If they advance any farther, the forest will wind up turning to chaos and you will perish with it. Defend your land by fixing images of our metal stakes around it. This way those outsiders will not be able to invade it!” –

Davi Kopenawa, *The Falling Sky*.

[VIDEO 6B] In September 1987, Ailton Krenak walked up to the deputy chamber’s podium wearing a white suit and a grey tie borrowed from a friend.[[61]](#footnote-61) This wasn’t the first time the indigenous activist visited Brasília. After being blocked from entering the house a few months earlier for what he was wearing, he followed the house dress protocol.[[62]](#footnote-62) He carried a small metal box in his hands containing a black substance. While speaking slowly and confidently, in protest against the house’s tendencies to privilege private interests, Ailton painted his face with the jenipapo’s grease. At first, he planned to remain silent during his performance to disrupt any expectation to follow the white’s protocols, but his congressman friend convinced him to speak so that there would be a record of his appearance in the assembly’s files. That day, his protest was not just countering “greedy politicians” but worked especially against the imaginary that insisted on framing those living under thatched roofs as an obstacle to the nation’s progress. If for centuries the constitution represented indigenous people as an isolated minority yet to be incorporated into national society, this moment would mark a transition to a permanent legal representation of indigenous rights. Krenak’s now iconic speech was a turning point that introduced a new image of autochthony, tradition, and indigeneity. His performance is one example of the necessary and unlikely alliances that began in place of the old binary antagonism. The congress hosted an act of empowerment and an experiment of resistance as translation and negotiation.

His speech took place during the assembly that debated the 1988 Constitution. The document marks a shift in the legal representation of Brazilian citizenship after 20 years of a nationalist project guided by a military government. Over the decades of dictatorship (1964-85), the federal policies towards indigenous groups framed protection as assimilation. In this period, the demarcation of indigenous lands became regulated by an administrative process for the first time. [IMG6C] But by then, it was predicated on very distinct purposes. The 1973 “Indian Statute”[[63]](#footnote-63) (Law 6.001) determined the state’s duty to protect indigenous territories and their right to practice their traditions, costumes, and rituals. There are three categories of “Indians” in the statute: “Isolated,” “In the process of integration,” and “Integrated.”[[64]](#footnote-64) The categories indicate the management of indigenous groups as a project of integration in which a gradual homogenization would shape a singular nation. Indigeneity was considered a trait of Brazilian culture that should be symbolically valued but progressively erased. Categorizing heterogeneous peoples into three evolutionary stages of “Indians” constituted an evolutionary continuum that implies a transformation process. The conceptual distinction between “Nature” and “Culture” marks the line between primitive and civilized, giving the state an advantageous position to offer the undeniable gift of progress.

The military dictatorship’s developmental projects overlaid biological and territorial betterment. As architect Paulo Tavares explains, the Brazilian military government launched “Operation Amazon” amidst the first discussions held in the UN about territorial strategies to absorb the yet-to-come global “population bomb.”[[65]](#footnote-65) The program made the Amazonas watershed a detached jurisdiction by deflating regional governments’ power and allowing the centralization of developmental plans under federal rule. Besides the legal exception, a remote sensing program, backed financially and technically by the United States, built an inventory of the forest’s resources. This “legal-cartographic apparatus” complexified the many-centuries-old utilitarian imaginary of the rain forest as a resource-rich ground yet to be explored. “Operation Amazon” created the base for the 1971 “Plan of National Integration,” a program for the North region’s development. Considered a “demographic void,” military governments planned to transform the rainforest into a frontier by expanding infrastructural networks, industrial farming, and agriculture. The plans’ goal was to secure national sovereignty by neutralizing internal insurgent groups.[[66]](#footnote-66) If the “Indian Statute” claimed to protect Indigenous groups as it regularized demarcation, the material consequence of the legal exception is quite the opposite. As extensive investigation has shown[[67]](#footnote-67), this unification project represented multiple forms of violence against Indigenous peoples that go far beyond legal descriptions, and its consequences echo in indigenous lives until today.

In contrast to the politics of the 70s and 80s, the Constitution of 1988 overcame the socio-evolutionary approach to indigeneity by eliminating the perception of Indians as subjects of the past. One of its chapters focuses exclusively on the issue of Índios. The legal apparatus that ensures the right to ethnic and cultural differences substituted the integrationist approach. As described in the 1973 Law, Indigenous lands would continue to be Union property, but it became the State’s constitutional duty to demarcate them administratively in five years. [IMG 10] Article 231 declares that “[t]heir social organization, customs, languages, beliefs and traditions, and the original rights over the lands they traditionally occupy are recognized to Indians, and it’s the Union’s responsibility to demarcate them, and protect and enforce respect for all their assets.” [[68]](#footnote-68) Secretary of Legislative Affairs, Luiz Armando Badin, describes article 231 as a legal construction that “escapes the traditional definitions of civil law.”[[69]](#footnote-69) For understanding and recognizing differences and traditions goes beyond the legal codes of jurists and demands an interdisciplinary description of land that crosses historical, biological, anthropological, and social issues. Former Minister of Justice Ayres Britto described the Article’s purpose as “fraternal and solidary” as a reparation for the years of accumulated historical disadvantages. Instead of a tutelar protection of individuals yet to be assimilated, the Article describes interethnic relations as mutually beneficial, a “summation of worldviews.”[[70]](#footnote-70)

Article 231’s first paragraph says that: “Lands traditionally occupied by Indians are those inhabited by them on a permanent basis, those used for their productive activities, those indispensable for the preservation of the environmental resources necessary for their well-being and those necessary for their physical and cultural reproduction, according to their uses, customs, and traditions.” [IMG 5] Therefore, to be considered Indigenous Land, the area must follow specific temporal, economic, ecological, and cultural parameters. Instead of property rights, the concept of Indigenous Land refers to habitat, as it acknowledges indigenous groups’ particular relationship to the land. It attaches Land to survival as in a biological connection. In addition, the term “traditional” doesn’t have a temporal connotation as a reference to the original occupiers. It refers to the specific way these groups cultivate the land and how it is attached to their cultural and physical subsistence. The term “permanent” reinforces the nexus between Indigenous’ bodies and cultures to the land because it determines the continuation of a traditional form of non-abusive extraction. This configuration created a mechanism of environmental protection while restricting land seizures from indigenous groups and abusive use of water, mineral, vegetal and animal resources inside their lands.

[VIDEO 36] Rather than a negotiation for citizenship, what was at stake during the constituent assembly was self-organization, that is, the right to articulate forms of political organization beyond the State’s rule. More than the return of a democratic regime, the 1988 constitution initiated a process of countering the legacies of colonialism in Brazil by allowing for a type of citizenship that does not create a homogeneous cultural category for those considered Brazilians. The document acknowledges the differences between the more than 300 Indigenous groups, and their multiple languages and cosmologies have become a permanent part of the national project. But there is a limit to the forms of protection and reparation that can happen through the codification of land. Accommodating to boundaries delineated by the state, demarcation works in contradictory ways. When a tool of resistance becomes institutionalized, the State keeps its status of protector. The organization of “difference” under the blanket of citizenship is a way of protection as well as a mechanism of control.

Blanket citizenship

In 2010, 21.7% of Legal Amazonia was demarcated as indigenous territories.[[71]](#footnote-71) The territory corresponds to 414 Indigenous Lands occupied by 450.000 individuals of 173 different groups, besides another 46 non-contacted groups, speaking more than 150 different idioms.[[72]](#footnote-72) A 2015 report by the IPAM (Environmental Research Institute of Amazonia) shows how forest loss inside Indigenous Lands was below 2% between 2000-2014, while the rainforest’s average deforestation rate was 19%. Moreover, between 2004 and 2008, under Lula’s presidency and with Marina Silva (REDE) as Ministry of the Environment,[[73]](#footnote-73) 10 million hectares of Brazilian Amazonia were demarcated as Indigenous Lands, plus 20 million were protected under the Action Plan for Prevention and Control of Deforestation in the Amazon. With the establishment of protected areas deforestation rates dropped 37% because of how indigenous communities live with the land, as was well stated in the 1988 Constitution. [IMG45]

Despite arguably a blanket category, the identification of Indigenous groups was crucial to mobilize broad solidarity during the early 90s in Brazil. During this period, an unprecedented political articulation among Indigenous leaders, environmentalists, rural workers, politicians, and artists took place in Brazil. Also, at that moment, the global emergence of concerns about climate change and multiple images of forest fires in news coverage increased widespread concern for the region’s conservation. In this context, besides the issue of identity and self-recognition, the 1988 Constitution also collaborates in creating a perception of forest preservation attached to the image of its stewards. There is, however, a misconception when the acknowledgment of difference (in terms of nationhood) is translated spatially as demarcation (in terms of land management). [IMG46] Differentiation, unlike demarcation, doesn’t account for an exception to the norm. Differentiating, in fact, excludes any normative distinction between Indians and Non-Indians. It encompasses multiple differences rather than a binary one. Thus, recognizing differences can also be a way of outsourcing environmental protection to traditional communities. The mistranslation of citizenship status into land management strategies that seems to distribute power while centralizing it is not new in Brazilian history. Still, it gains new forms in front of the new symbolic value of Amazonia’s social and ecological characteristics. Although efficient in many ways, this process has unintended consequences, as demarcation also delimits an ethnic minority while turning it into an asset of environmental protection.

[IMG8] If today guaranteeing indigenous territories is the main agenda for indigenous activists and environmentalists, its prominence emerged in reaction to extreme violence faced by Amazonian dwellers. Since the 1987 assembly, resistance to the process of land demarcation started to appear, for it meant blocking the extraction of natural resources that would supposedly take Brazil out of the so-called third world. At that time, rumors about a potential subversive agenda to weaken national sovereignty started circulating. For instance, concurrent with the assembly, the newspaper Estado de São Paulo published an editorial against the advance of indigenous rights fomenting a conspiracy theory that continues to reemerge. Based on documents with forged signatures, and distorted facts, it claimed that the actual goal of indigenous rights advocates, hidden behind the discourse of diversity, was a separatist endeavor. Rumors of separatism contribute to the imaginary of a threatened and coveted Amazonia that requires a strong tutor or a caregiver. Despite imaginary, the threat has since been used to incite fear about a plurinational state. It may be one of the reasons why the assembly failed to prove the importance of recognizing multiple nations within Brazil’s territory. So even if the constitution was a victory at that point, it was limited to creating protection mechanisms that rely on identity rather than autonomy. The role of the State as a protector then was urgent but contradictory as in the long-term, it facilitates dispossession by weakening autonomous political organizations. The coalition of the State with the “Indigenous” still fits within the division between “natives” and “citizens.” But the rise of indigenous rights transformed the division into a conflict to be negotiated rather than an opposition to neutralize.

A report published in 2021 by the Indigenous Missionary Council[[74]](#footnote-74) registered an increase in the rates of violence against indigenous lives and lands across the country over the last decade. The rising number of murders, suicides, racist verbal violence, and sexual violence show the increasing brutality faced by indigenous populations. Recently publicized, the humanitarian crisis in which hundreds of Yanomami children died from malnutrition after the invasion of illegal miners in Roraima makes clear the risks around the lack of state presence and regulation.[[75]](#footnote-75) During Jair Bolsonaro’s mandate (2019-2022), an anti-constitutional campaign against indigenous rights encouraged private exploitation inside indigenous lands. Beyond the presidential declarations against land demarcation, many official anti-indigenous acts tried to revoke the right to demarcation granted in 88. For instance, Law Project 490/2007 determines that indigenous peoples would be entitled only to the territories that were effectively occupied by the promulgation of the 1988 constitution, which would reduce drastically the area that should be demarcated.[[76]](#footnote-76) [IMG 7] These attempts try to deflate administrative autonomy in protecting indigenous rights and complicate the demarcation process by recuperating the old and violent logic of ethnic cleansing. But the conditions that allowed it to happen started taking form early on. The historical infrastructures of land demarcation and its association with a frozen image of indigeneity may be related to current brutality.

Suppose the constitution’s imperfections might have been necessary accommodations during a re-democratization period that required broad national negotiation. In that case, they should be seriously reconsidered today, facing debates regarding social-environmental justice. Rethinking the constitution’s terms is especially critical when remembering how the transition back to democracy failed to address years of crimes against traditional populations inhabiting Brazil’s hinterlands. It even granted amnesty to those responsible for the multiple crimes of erasure – the “erasure” of artists, communists, political leaders, environmental activists and the “non-modern” people of the hinterlands. The omission didn’t leave much space to negotiate the necessary legal and territorial reparations—neither to achieve deeper epistemic justice—to traditional populations inhabiting Brazil’s hinterlands. The new Constitution failed to start a political process that could effectively avoid further social and environmental injustice. The government crushed the creation of new imaginaries for the rainforest by obscuring the stories and the crimes committed over the years of military dictatorship. At the same time, the number of invasions and violent acts toward indigenous groups continues to increase.

The irony here is that what could be an advance in the fight for indigenous rights and environmental justice allows for agendas that appear benevolent at first glance but that indeed push extractive policies further. What seems to be granting rights ends up segregating and facilitating dispossession. The imaginary of indigeneity, which was once a symbol of backwardness and relegated to a myth of origin, becomes a token for environmental protection in this context.

Ailton’s performance entered the realm of shared images referencing what it means to be indigenous in Brazil. [IMG 6] Alongside his appearance, multiple indigenous leaders started gaining political space to advocate for their community’s land rights.[[77]](#footnote-77) Their participation within hegemonic political mechanisms change the modern perception of indigenous as primitive. However, there is still much more to change before we can connect indigeneity with the future rather than the past. Addressing that which is indigenous as modern is to create space in collective aspirations to imagine a world that is not only “sustainable” but that works with different political organizations. As many have explored, demarcation has its contradictions, but more than a legal process, demarcation is a spatial mechanism that fails to guarantee political autonomy of indigenous groups.

Neoliberal and developmental agendas tackle environmental issues in similar ways. First, through a new perception of indigeneity and second, through a new perception of land. Instead of primitiveness, indigeneity is associated with benevolence, and non-modern people—not restricted to those self-identified as indigenous—become the guardians of the standing forest. A forest that is no longer a wealth depository in terms of resources but in terms of bioeconomy and carbon stocks.

Demarcating difference

The history of Indigenous Lands demarcation goes further back to the Constitution of 1988. But the codification of land and its ethnical assignment had very different intentions during colonial times. Ethnic demarcation was part of the legislated project for assimilating original populations to the Empire. “Indian villages” were a type of enclave that gathered indigenous individuals who submitted “peacefully” to the Crown. The villages worked by gathering indigenous groups to “incorporate” them as labor force. Concentrating these populations was a way to liberate vast territories in Brazilian backlands and to fabricate a frontier imaginary regarding the “untamed” lands. These villages were also a means to disarticulate indigenous identity, where the Portuguese would incentivize non-Indian settlement and mixed marriage. So, despite recognizing indigenous groups as wards of these places, a gradual process of forced integration transformed them into squatters on their own lands.[[78]](#footnote-78) Even after Brazilian independence and the growth of abolitionist resistance, the efforts towards racial mixing kept an intimate relation with legal strategies for land seizure. It is during the XIX century that a shift regarding the project of Indigenous genocide happens and, as anthropologist Manuela Carneiro da Cunha explains, it was when “the Indian issue ceased to be essentially a labor issue and became a land issue,” an issue of space.[[79]](#footnote-79) The paradox here is that inclusion through making Indians “wards” of these villages was a strategy of dispossession and control for centuries. If the “patriarch of independence” recognized Indigenous populations’ legitimate—and divine—entitlement to their lands, it only meant that settlers had to officialize the mechanisms towards dispossession. [[80]](#footnote-80)

However, institutionalizing these land dynamics didn’t mean turning them into Law but creating a pattern of exceptions. According to anthropologist James Holston, the chaotic structure of land tenure that postcolonial Brazil inherited resulted from how the elites dominated the legal system, making it ambiguous and complicated to their own advantage. Squatting had an ambiguous juridical status that legalized illegal land seizures depending on its use. The strategy was applied for both the rich landowners and the poor but created a particular insecurity towards the small land-grabbers that couldn’t prove the usufruct of the land. The state systematically legalized the illegal by sponsoring amnesties for illicit activity and extending deadlines for regulation.[[81]](#footnote-81) Lack of land regulation and titles increased insecurity fueled by the actions of “pirate patriots,” the *grileiros*, who appropriated large tracts of land for speculation, a practice that continues to this day. The illegal appropriation of land also meant indigenous genocide, the unlawful means toward the national territory’s modernization. Presenting genocide and usurpation of land as nation-building is the playbook to progress in Brazil and it still haunts Brazilian land distribution and legal systems.

If the disarticulation of various Indian sovereignties happened through legal means, we should then ask: what are the limits of codifying land for current and future projects of indigenous autonomy?

There are many contradictions between land demarcation and national membership as mechanisms of democratization. For instance, broad legal inclusivity has been a misleading term for over 200 years of Brazil’s legal history. James Holston traces how from very early on, the Brazilian conception of citizenship was radically inclusive but never egalitarian.[[82]](#footnote-82) In Brazil, the mismatch between national membership and access to rights—what is too common for most nation-states—is built upon a particular image regarding the malleability of race. Taking the case of the first constitution of 1824, the incentives for racial miscegenation disguised the racist intention to “whiten” and “civilize” non-white citizens. It built a sense of nationhood and general belonging that relied on the belief in racial evolution through miscegenation. While finding ways to portray the progressive efforts of a harmonious nation, it reinforced the centrality of the Brazilian state—and its white leaders and elites—through the thin imaginary of a unified nation.[[83]](#footnote-83) This constitution granted national membership to whoever was born within the national territory. No racial restrictions were applied even though slavery was still legal.[[84]](#footnote-84) Citizenship status is a blanket category that flattens Brazil’s vast territory and miscegenated population into an imagined nation. As Holston explains, “inclusive and perfectible, Brazilian incorporation was simultaneously based on dependency, deference, and deceit, as well as their correlates of exploitation, paternalism, and ambiguity.”[[85]](#footnote-85) This shallow inclusion is the bedrock of the myth of a “racial democracy” that denies the reality of racial inequalities and blocks the articulation of other structural social demands.[[86]](#footnote-86)

As national membership, land demarcation for indigenous peoples is a contradictory process. Fencing a territory violates indigenous ways of living as it infringes on their perception of land. Territorial control, delimitation, and land ownership find no place in the reality of the many Amazonian cosmologies. Indigenous leader Ailton Krenak explains that “since we live in a culture where borders are a distinctive mark of domination, indigenous people claim a border for external reading rather than a border for internal reading.”[[87]](#footnote-87) [VIDEO 37] Facing historical and current efforts of ethnic cleansing, demarcation becomes a lesser evil, a needed negotiation. More than an issue of delimitation of the border as an outline on a map, the protective border of demarcation creates an island for a way of living, a strange cultural monocrop. But facing the legacies of a chaotic and violent administration of land, securitizing the territory, and isolating indigenous communities are presented as the only possible alternatives. It enters the realm of what is considered “realist” in political terms, while the claims for a plurinational state seem to get further from any possible political articulation.[[88]](#footnote-88)

Here, the spatial blanket of demarcation and the cultural blanket of indigeneity conflate securitization and stewardship. The negotiation and partnership of indigenous peoples and the state become the only way to “save” the rainforest. So, although demarcation has become the primary strategy for protecting indigenous lives and lands and the central claim of indigenous and environmental activists, its core spatial logic is very close to the organizational language of enclosures. After delimitating an area, it goes through a sweeping process that securitizes the region by expelling all those who don’t self-identify with the indigenous group to which that land is designated, a sort of resettling. [VIDEO 35]

Quilombola leader Antônio Bispo dos Santos explains that when a group negotiates land regularization through writing, it doesn’t mean they agree with it. [[89]](#footnote-89) Doing so is a way of weaponizing the enemies’ tools, turning them into a means of defense. The mechanisms to prove one’s ethnicity and previous land occupation are central to the problematics of the process. Since 1996, to have the right to land, one must prove to be indigenous or quilombola[[90]](#footnote-90) to get an anthropological report. An anthropologist grants the ethnic “diagnosis” through a Technical Report of Identification and Delimitation (RTID) that contains extensive data with historical, anthropological, socio-economical, cartographical, environmental and landholding information that aims at proving the traditional character of occupation and the belonging of a determined group to a delimited territory. The presence of anthropologists is central to the process of self-determination as they avoid what could be an external and essentialist procedure that would form a static perception of traditionality.[[91]](#footnote-91) Yet, for dos Santos, the anthropologist is not a neutral translator, and identifying and categorizing individuals is a sophisticated use of state intelligence to map resistance.[[92]](#footnote-92) What should be a self-declared status, an act of political autonomy, is mediated by a state-granted authorization. But the mediation remains important as it blocks false claims of traditionality, like the recent attempts from gold panners that demanded the status of traditional communities.[[93]](#footnote-93)

Another disadvantage for Indigenous groups in this process is the hurdle to collecting evidence of spatial occupation. As they don’t settle in one plot of land for long, architectural ruins can leave too gentle marks on the landscape making it difficult to trace it back. Therefore, observing Indigenous architectures in Amazonia may require a broader shift in an anthropocentric perception of design. [EXTRA 26] Architect Paulo Tavares explains that “the spatial distribution of tree and plant species, the geometry of the canopy, the mosaic patterns of forest formations, mild variations in relief and topography, differences in soil composition, etc., are all indexes of specific forms of social assemblages.”[[94]](#footnote-94) These botanic arrangements may seem neutral or pristine to some eyes, but each, with its different patterns of reflection and absorption of electromagnetic waves, may show anthropogenic traces. Thus, pixels composing satellite images provide information about canopy density, photosynthesis rates or soil moisture to determine an archeology of human occupation.[[95]](#footnote-95)

With the advance of mapping technologies, Antonio Bispo dos Santos’ argument about legal recognition as surveillance gains new nuances. Relying on the same spatial mapping technologies that are complicity with colonial power to work against it is a treacherous path. However, what seems to flourish from this process of self-recognition and self-demarcation is the establishment of unlikely partnerships. Rather than submitting to top-down forms of territorial control, we seem to witness a form of “insurgent citizenship.” When successful in reclaiming lands stolen during the military dictatorship,[[96]](#footnote-96) we can compare indigenous struggle for land to the phenomenon James Holston identified in Brazil’s urban peripheries during the XX century in: the emergence of a type of citizenship from land struggles rather than labor claims. [[97]](#footnote-97) Just as the autoconstruction of residences granted new types of citizenship from demands for basic infrastructure, a similar process can happen with the self-demarcation of lands.

Labor of belonging

Since 2004, the annual Terra Livre (Free Land) event has gathered indigenous leaders on a campsite in Brasília to pressure the Brazilian government for indigenous land demarcation. In 2006, the demonstrations targeted the shortcomings of Lula’s politics of indigeneity. In a letter, they report how “Lula’s government maintained a retrograde, tutelary and governmental indigenist policy, confusing the interests of the indigenous peoples with those of FUNAI (National Indigenous Peoples Foundation), confusing the indigenist government body with indigenist policy.” [[98]](#footnote-98) Following the 1988 constitution, the slow implementation of policies failed to effectively protect indigenous leaders and lands. Thus, despite the record numbers of land demarcation areas and the unprecedented decrease in deforestation, critiques about environmental management during the years of PT’s administration are multiple.[[99]](#footnote-99)

From 2002 to 2008, Marina Silva, Lula’s Ministry of the Environment, led a process that demarcated 25 million hectares of conservation units and 7 million hectares of extractivist reserves. And in the administration’s first four years, the ministry demarcated 18.5 million hectares of indigenous lands, representing 13,8% of the national territory. 98% are in Amazonia, representing 23% of the biome’s area. However, as we’ve seen, indigenous groups suffer today from the constant threats of dispossession of lands and physical violence with the multiple invasions of illegal miners and loggers.

In the 2022 Terra Livre, months before the presidential elections he would win against Jair Bolsonaro, Lula’s participation had a very distinct atmosphere. [VIDEO 43] Wearing a Waurá necklace of glass beads forming the image of a macaw, he sat at the center of the front row on the stage, accompanied by many Indigenous Leaders.[[100]](#footnote-100) By his side were the current Minister of Indigenous Peoples, Sônia Guajajara, and the current chair of FUNAI (National Indigenous Peoples Foundation), Joênia Wapixana. Cheered by the crowd, Lula sat down as a guest of honor in one of the many staged presentations over ten days of the event. Among shouts for resistance and immediate demarcation, many shouted the candidate’s name throughout a day that seemed more like a rally. Singer Djuena Tikuna was invited to the stage to start the ceremony with the national anthem. For the first time, she said, it made sense to sing it not in Portuguese but in Tikuna, her original language. Indigenous leaders’ speeches supporting Lula’s election echoed the event’s conciliatory mood. The aesthetics of resistance in this context are closer to the type of anger common to the tradition of party rallies. The speeches addressed Lula and asked for the revocation of laws that liberated extraction in Indigenous Land and highlighted their ancestral connection with their lands. Besides the appeals, many also gave him gifts. Chirley Pankará, an activist and educator, gave Lula a Macará, a rattle used by many Indigenous peoples to accompany rituals and celebrations. “Whenever you need connection with our cosmology, our ancestral force, you can play this Maracá.” A sort of civility marks this encounter in contrast to the language we see in the images of self-demarcation or urban struggles for land.[[101]](#footnote-101) In the last speech of the day, Lula, before promising the creation of the now real Ministry for Indigenous Peoples, talked about the centuries of racist myths about the laziness of Indians. He refuted this old mentality by underlining how *Índios* have always worked by taking care of those lands before we, non-Indians, arrived.[[102]](#footnote-102)

The vocabulary of labor and class struggle, familiar to leftist party politics, overlaps with a struggle of a very different nature. When leftist discourses and aesthetics frame the indigenous issue as a struggle between autochthonous guardians and criminal invaders the issue is not just about a mistranslation that takes a cosmopolitical struggle as a class struggle. The problematic consequence is also a stagnation of political imaginaries that happen outside of these terms. Demarcating lands and hacking institutional centers with the election of Indigenous politicians become the main goals of an organized resistance.[[103]](#footnote-103) More than that, the mistake here is turning a whole cosmovision into an environmental service. That is, the mistranslation renders indigenous groups’ intimate relationship with their land into a work of forest protection and consequently an asset for Amazonia’s increasing value. Thus, the old extraction frontier seems to have an updated green version for sustainable development in which the minimum efforts of social-environmental protection get a cloak of big solutions for the climate crisis. [IMG 67]

Dependency

There is nothing new about the projection of hope upon the rainforest’s potential. [EXTRA 24] An imaging of the frontier has historically cast collective aspirations for the region. Unlike the United States, Brazilian frontier myth doesn’t follow the tales of divine command for occupation. Despite the similar intentions of individual entitlement and a door for entrepreneurship, Amazonian lands never delivered the optimistic promises of individual and local enrichment as in the US. And the imaginary of the brave conqueror has always been charged with desires for a nationalist (and seemingly democratic) project of miscegenation. The nationalist project points out a future that never comes and Brazil becomes a project, a country that exists in the future.[[104]](#footnote-104) While in the United States, the frontier is the settler line of progress, in which nationalism happens through sheer erasure. By not rejecting its past, the nationalist project becomes a civilizing one, which thinks standardization through equalization of difference. In this scenario, Amazonia has historically taken the place of a peripheral symbol of national pride, as it becomes a symbol of the national exotic. It’s an imagined marker of what a nation should understand as backward. Something to point to as the Other, what is outside the civilized norm. But after too many frustrations from the plans to overcome the “Green Hell,” [EXTRA 25] contemporary nationalist projects adapt to find relationships with difference other than integration or overcoming. After years of military dictatorship and amidst growing planetary environmental concerns, the neoliberal discourses of the 90s managed to put forth another universalist place for the “Other.” The new lexicon makes the frontier a promise of economic uplift, turning an obstacle into an opportunity. Delimiting the Other spatially means to mark a periphery that depends on a center.

Besides, a paternalist state’s centralizing efforts tend to connect economic growth to foreign capital attraction. According to Becker, this frontier is a privileged space for transnational corporations’ actions for three reasons: First, for its low demographic density and the challenges in organizing centralized resistance; second, the region is a geological anomaly that concentrates an unusual mineral richness; third, it contains the world’s biggest watershed and an immense forestry potential with multiple possible economic destinies.[[105]](#footnote-105) Despite its potential, the treacherous accessibility and the lack of workforce composed, in the 20th century, the so-called “Amazonian factor” accounts for the irrationalities and bad reasons involved in the industrialization of a rainforest.

Sociologist Jorge Larrain explains why ‘dependency’ is a simplistic explanation for underdevelopment. His critique is useful to understand the mischievous logic that most planners use in projects for Amazonia’s “development.” For instance, thinking about the Global South through the dependency lens implies that an underdeveloped periphery should be integrated into a developed world system in order to overcome inequality. But this can also be considered in regional scale. The totalizing framework is useful for both Marxist and liberal agendas to explain inequality and create universal solutions. Instead, we can’t think of dependence as the consequence of underdevelopment. In fact, the opposite seems to be true. Larrain explains that in “Latin America itself, the period of inward-oriented development meant a progressive income distribution and a widening of democratic structures and social participation whereas in the outward-oriented period and the last period controlled by international firms the opposite features predominated.”[[106]](#footnote-106) Dependency theory is a failed attempt to explain underdevelopment as the result of a “drain of surplus.”[[107]](#footnote-107) It fails to see the granular and local systems of abusive labor and environmental relations, treating these as issues of secondary importance. This, while favoring expansion of infrastructural networks and attraction of foreign capital. The peripheral nature of Amazonian capitalism cannot be laid out simply as an issue of capital distribution or imposition of coastal urban centers, but through more nuanced, dynamic, and multi-scalar power plays.

Through the dependency framework, “socialism ceases to be a movement for the liberation of the working class and becomes a movement for the modernization of underdeveloped societies.”[[108]](#footnote-108) This rupture in socialist causes is helpful to understand the rise of an environmentalist populism in Brazil. [IMG 65] Despite the years of PT’s government, the path for the “liberation” of the working class happened through the investment in a popular entrepreneurism, that reaches for independence through financial inclusion. Despite undeniably successful in the struggle against poverty, hunger and inequality in the country, this logic has also restricted the projects for Amazonia to a utilitarian framework. Now, not through civilizational plans, but environmental services. Whether indigenous peoples are considered primitive or stewards, the image of the frontier is still operative in forming their identity. The image of indigeneity attached to conservation works by separating the environment as an autonomous object on which we act upon and control. It still supposes a hegemonic and modern way of being sustained through maintaining a green periphery. This dependent periphery takes national membership, demarcated lands, and securitization in exchange for environmental labor. And under this logic, non-extractive modes of living boil down to a simple counterweight for development.

Now, Amazonia’s geofacts become assets for its work in carbon sequestration and biodiversity. “Natural capital” is a term that refers primarily to material commodities as subsoil assets, agricultural lands, timber, and all available resources. A 2011 World Bank publication presents the rule of thumb for sustainable development in developing countries: always re-invest the capital from resource extraction into intangible capital. But if “[t]he development challenge for resource-rich economies is to transform nonrenewable natural capital into other forms of productive wealth,” the plan for developing countries would basically mean the exhaustion of its resources. In this authorization for extraction, “natural capital” gets a second meaning that relates to the hardly calculated, but no less material, services provided by the rain forests. The solution relies on the demarcation of protected areas, and a balanced and intelligent partitioning of land. But the benefits taken out from this territorial pattern are not exclusive to one nation. As a carbon storage, Amazonia provides wealth in terms of global climate mitigation. Here, the certainty of the planetary risks coming from an economy based on fossil fuels is perversely translated to the inevitability of extraction for economic growth. However, “To bring these CO2 values formally into the national accounting and wealth framework, there would have to be agreement about property rights, the principles of international law to apply, and the ethics of imposing either climate damages or the costs of climate mitigation on developing countries.”[[109]](#footnote-109) Which requires more sophisticated techniques for value calculations.

So, what other images and vocabularies are at play than those that categorize the forest as a *periphery*? Back in the 1980’s, before the more recent efforts to study Amazonia’s extended process of urbanization, geographer Bertha Becker suggested the concept of an ‘urbanized forest’ because of the industrializing plans of the mid-20th-century and the expansion of infrastructural networks. The category challenges the division between urban and countryside—a center and a periphery—as insulated spheres. This abstract division supposes a space in between, a contact zone historically conceptualized as a frontier.

Gifts

To solve the “drain” of wealth (that from dependency theories), rich countries offer gifts to entice global south economies. Through the lens of developmentalism, free trade zones, mining sites, and oil blocks seem like kind contributions from capital rich investors and nations to “resource-rich” developing countries. But these gifts often work the other way around.[[110]](#footnote-110) These investors get greater and less visible rewards. They codify the host country spatially—through protected areas, mining sites or oil blocks—and subjectively—by turning forest dwellers into citizens and citizens into consumers.

As natural capital turns into less visible assets, these gifts also change. Their mission is not only local and humanitarian but also about planetary climate concerns. Brazil is the leading recipient of REDD (Reducing Emissions from Deforestation and Degradation) funds. REDD+ offers a guide to how countries willing to reduce emissions from deforestation should get financial compensation.[[111]](#footnote-111) As it is a reward for goals accomplished in the past, it creates conundrums like when in 2019, the northern state of Acre registered record levels of deforestation, while the local government received approximately US$30million in funds from Germany.[[112]](#footnote-112) REDD’s propose is to sell certificates to land owner’s that cultivate their lands without deforesting it. But, instead of reaching the farmers and reserve dwellers directly, the monetary compensation is managed by local administration manages. What could be a means for wealth distribution and an investment in, for instance, basic water infrastructure or internet access, has no real good impact on the ground. In fact, the gift can backfire as greater deforestation. [IMG 9]

The package of foreign gifts also includes funds for demarcation. A study conducted by Brazilian geographers analyzed the limits of demarcating conservation areas in stopping deforestation.[[113]](#footnote-113) Researching illegal extractive practices inside protected areas, they show that ambitious regional developmental plans “do not guarantee immediate changes in the institutional mindset involved in public institutions policy-making, nor do they result in lasting improvements in the infrastructure of public agencies responsible for enforcing environmental laws.”[[114]](#footnote-114) Such “institutional mindset” are the cognitive and behavioral patterns that sustain the shallow and solution-driven policies we are grappling with here. In the study, researchers take the “Rondônia Agricultural and Forestry Project” (PLANAFORO) to show how a project financed by the World Bank reflect the financial interests of international economic institutions biased toward Global North interests. The PLANAFORO secured almost 170 million dollars in loans to the Brazilian federal government. As its implementation took too long, what could mean a great long-term investment was a warning to illegal loggers and miners that started a process of land grabbing when the government announced demarcation plans. Furthermore, by the time it started, the areas FUNAI had to demarcate reduced almost by half. When the remaining money had to be redirected, it ended up funding new roads. A poorly executed plan to provide security and land restitution is far from harmless good intentions.

Fear of big spaces

Amazonia is often described as a monolithic object and an obstacle to modernity, essentially traditional in opposition to the cosmopolitan urban centers. Far from homogeneous, many sovereignties overlap in its vastness. Indigenous lands, quilombola territories, extractive reserves, conservation units, oil blocks, mining concessions or cattle pasture overlap with Nation-State’s territories. Slipping into these official boundaries, corridors for legal commodity flows and zones of tax-exemption determine especial arrangements to regulate the mobility inside the region. And hidden outside legal frameworks, other commodity flows of illegally extracted wood, gold, and wildlife, or major routes for drug and gun trafficking disturb the jurisdiction of nation-states. All of them intertwined with river’s flows, atmospheric circulation, non-human mobilities and geological formations. But political economists described the rainforest as a periphery of the modern world throughout the twentieth century.

Beyond physical unbonded territories and mobilities, urban geography offers another framework to challenge the conceptual division between center and periphery. For instance, Brazilian urban planner Roberto Monte-Mór studies the effect of late capitalism in expanding urban-industrial forms, formerly restricted to cities, to distant peripheries, in what he calls extended urbanization. Drawing from Henri Lefevre, he explains that “multiple urban centralities, from cities and towns to commercial and service centers, industrial plants, large ranches, local communities, rubber estates, and eventually indigenous areas combine to connect and rearticulate local, regional, national and global forces and thus produce a variety of locales more or less linked to urban-industrial capitalism.”[[115]](#footnote-115) More than an issue of spatial sprawl, extended urbanization creates multiple forms of social subjects, resulting in a multi-conditioned social space.[[116]](#footnote-116) With this, the antagonism between urban and rural, extractive and non-extractive zones, is only a matter of creating top-down boundaries into an unbonded and uncertain ground.

To permit the recognition of demarcated lands, stakes driven into the ground hold signs that identify it as Terra Protegida (Protected Land) and that access is forbidden to strangers.[[117]](#footnote-117) This partial independency grants protection while getting something in return. The ability to securitize and control who accesses the territory shows how the land’s management is subjugated to state’s supervision. The control over the forest happens no longer with physical imposition (through deforestation) but with sight (through supervision). As French philosopher Bruno Latour notes, the beautiful contradiction of the English word “oversight” is that it “captures the two meanings of this domination by sight, since it means at once looking at something from above and ignoring it.” [[118]](#footnote-118) With this softer power, and as in an experiment, dwellers, even if still attached to land, become preserved, classified, and tagged.

The codification of land is built together with an ethnic code that determines a “partial connection” between parts. Peruvian anthropologist Marisol de la Cadena explains how Latin American indigeneity doesn’t work as the typical opponent, or a total Other. Because the ethnic category of the Indigenous emerges from a collaborative friction with institutional agents. The State denies an ontological difference of indigenous groups by attaching the right to life to national membership. By making indigenous groups citizens, inclusion happens through the State’s terms. Thus, these lands, like ethnic categories are neither homogeneous nor heterogeneous from the national territory or its citizens. “[T]he entity that results is more than one, yet less than two.”[[119]](#footnote-119)

Emerging forms of urbanization and identity require a policy that overcomes binary or static categories. Still, rather than recognizing difference, demarcation is presented as a strategy to make this spatial and biological unevenness, legible. Just as spatial delimitations, ethnic categories work for their ability to contain large numbers.[[120]](#footnote-120) If the abstract containers for identities help to manage persons, the abstract demarcation of land is useful to preserve and quantify tons of carbon stocks.

If during the military dictatorship the periphery was an image, built from the point of view of the State, to direct a migration from the coast to the backlands, it had to be reversed under sustainable developmental plans. Demarcation of traditional territories, extractive reserves, and conservation units work as security mechanisms to push illegal workers out from the green regions of the forest. Urban centers such as Manaus need to become attractors to those who were once encouraged to occupy the forest. The frontier gains new nuances facing the balance between indigeneity as stewardship and green economy projects. The change in the mindset happens through an imaginative reframing of indigeneity and the hinterlands. And in this project, old formulas for industrial development get new environmentalist nuances.

Free Trade Zone

An open-winged heron seal stamps many home appliances in Brazilian households for the past decades. It marks all products assembled in the Manaus Free Trade Zone (MFTZ). [IMG 19] A symbol to the potential of a free economy conjoint with ecological stewardship. The Zone is an urban category of spatial demarcation that shows up in sustainable developmental plans for the region. In Manaus, tax incentives help to turn the otherwise distant and isolated city, in the middle of the Brazilian Amazonia, into a competitive Industrial Pole. In turn of the incentives, companies have to use a percentage of local labor to stimulate the region’s economy.

In 2010, a study conducted by the Amazonas Federal University with the financial support of Unions from different industrial sectors concluded that the Industrial Pole of the MFTZ had a successful impact on the conservation of Amazonia. Through an econometric analysis, researchers from the Piatam institute[[121]](#footnote-121) speculate on the Industrial Pole’s impact on deforestation records of the Amazonas state. They considered that the focus on industrial activity provides Manaus with a production standard that demands absent or low use of forest resources. While boosting service and commerce sectors, considered to have a low environmental impact, it potentially avoids the growth of activities such as cattle raising and extensive agriculture. Their calculations point out that the Zone contributes to the reduction of 85% in what the area of deforestation in Amazonas would be. Thus, extending the tax exemptions is presented as an efficient public policy for controlling deforestation while promoting socio-economic development.[[122]](#footnote-122)

More recent projects such as the Green Free Trade Zone add to MFTZ’s claimed ecological potential and political leverage. The project extended incentives for industrial production working predominantly with local raw-material from mineral, vegetal, or animal sources.[[123]](#footnote-123) Another effort is the Center of Biotechnology in Amazonia. Inaugurated in 2002 and under Suframa’s administration, the research center has recently partnered with local communities to produce items such as kombucha from local ingredients or biodegradable packaging with local fibers.[[124]](#footnote-124) [IMG41] But beyond the Free Trade Zone, more robust and non-governmental investments in ecological entrepreneurism came up in the early 2000s include the *Bolsa Floresta* (Forest Allowance) fund[[125]](#footnote-125). Led by the NGO Amazonas Sustainability Foundation, which works with the collaboration between Private Bank Bradesco and the Brazilian government, the program offers monthly financial compensation to households that commit to zero deforestation. The funds come from Yamaha, Samsung, Coca-Cola, and other companies operating in the MFTZ. Despite the potential success of programs based on cash transfers, many have shared concerns about how often they can turn into electoral appeal. [VIDEO 39]

In an event in the chamber of deputies in 2019, Piatam’s president, Alexandre Almir Ferreira Rivas, lectured about the Free Trade Zone's importance for conservation and the survival of forest peoples. [VIDEO 42] The economy professor said at the event that modern civilization brings Amazonia as we know it to an imminent end. He said: “I am referring to the end of the romantic, intact Amazonia. The Amazonia that continues to exist (or the one that its caretakers' desire) is the one integrated and articulated with global markets, producer of exotic goods and environmental services, holder of unique landscapes, culturally rich, and far from green untouchability. Thus, it is important to have a strategic plan and coordinated actions to establish an economic model for the future of Amazonas.”[[126]](#footnote-126)

Corporate groups widely advertised the Piatam report among politicians. It was distributed in meetings at the National Congress and the Chamber of Deputies and reached a parallel event at the COP-15 in Copenhagen. Environmental Scientist Thaís Brizeni shows how the report circulated not only in public circumstances but also in many closed-door meetings in which the privileges of the zone were under debate.[[127]](#footnote-127) Its econometrically proved ecological performance grants it a type of political insulation. Its defenders come both from the left and the right. Today, politicians naturalize its presence as not only a solution but an object of national pride. For more than an issue of economy, it is openly a matter of political disputes. Issues of the state and the economy overlap insofar politicians center the opinions regarding its performance over potential experts in economy. Many of the expectations for Free Trade Zones rely in the idealization of a model for development free from the bureaucracy and corruption of the State. But the predominance of politicians’ and pseudo-technical opinions in defense of the model is a hint of new partnerships between state and non-state actors in Amazonia’s management.

In *Extrastatecraft*, design theorist Keller Easterling unpacks how, in a globalizing world, it is infrastructure rather than diplomacy that dictates radical changes. Large-scale spatial technologies create *de facto* forms of polity that overrun official modes of governance.[[128]](#footnote-128) The Zone is one example of the ‘spatial formulas’ for ‘incentivized urbanism’ that Easterling describes. Insofar that they require parallel administration dealing with governmental and non-governmental interests, they promote the image of efficiency and freedom for its disassociation with the state. Yet, another form of statecraft emerges rather than its dissolution. Politicians and Businessmen work in an intimate partnership to camouflage each other’s actions and strengthen their powers.

The many mutations of the Manaus Free Trade Zone exemplify the disconnection between how these protocols act differently than what they say. The new appeal to ecological aesthetics is central to its recent form. In the narratives that politicians articulate to defend the “free” developmental mechanism. Then how does the transformations regarding the association of Amazonian lands with traditional peoples, as we’ve seen, gives the Manaus Free Trade Zone particular twists when compared to its siblings throughout so-called developing countries?

Ironically, the original plan for the Free Trade Zone was tethered to a developmentalist national integration that saw no value at the standing Amazonia. The experiment combined local aspirations for a nationalist agenda with international development strategies promoted by the United Nations and World Bank. Today’s promotional videos for the MFTZ start with an overview of the Amazonas River. Internal shots of industries show workers assembling motorcycles and share the screen with scenes of a prosperous wildlife. The imaginary of industrialization from the 70s presented a very different intention towards forest life. For instance, a propaganda piece from the 1970s celebrates images of a teared-down forest. [EXTRA 27] Over a black background the outline of the Brazilian map stands out in white. In the map, Amazonia’s outline stands out. An image of factories, cattle, and industrial workers occupies the portion of the map that corresponds to the rainforest’s area. “Enough with the legends, let’s make money,” says a text in bold. In a text by the map, there is an invitation: “The Transamazônica is there: the road to find gold. There is a treasure waiting for you. Take advantage of it. Make money. Grow rich together with Brazil.”

First implemented in 1956 as a free port the MFTZ became an industrial pole in 1967. The Law Decree established a “free import and export trade area where special fiscal incentives apply, […] intending to create in the Amazon Region an industrial, commercial and agricultural center under economic conditions that allow its development.”[[129]](#footnote-129) The decree also created the Suframa (Superintendency of the Manaus Free Zone) an autarchy of the Brazilian Federal Administration under the Ministry of Development, Industry and Foreign Trade. Its purpose is to manage and control the tax incentives granted to companies established in the MFTZ. It administrates the commercial, industrial, and agricultural poles of the Free Trade Zone in five northern states: Acre, Amazonas, Amapá, Rondônia and Roraima. Only three years after the cue that initiated the military dictatorship, the articulation of the Amazonia within a global marketplace stands alongside large plans to expand heavy infrastructure. Labor regulations, communications networks, urban and social services scattered throughout the country.[[130]](#footnote-130) The state apparatus grew along the efforts to conquer the extractive frontiers and securitize national territory. Although implemented as a temporary tool, MFTZ’s expiration date was extended multiple times. During the military dictatorship, the plan was to end the model in 1997, but during the redemocratization period, the constitutional assembly decided to renew it until 2013. Lula’s government postponed it once more until 2015. And in 2014, under Dilma’s mandate, it was determined it would remain until 2073. Thus, a developmental plan created the zone as a tool to accelerate progress, and under the popularization of environmental concerns in the 90s it mutated to adapt to environmentalist discourses becoming a symbol for what “sustainable development” means in the rainforest.

To celebrate the last 50-years extension, there was a ceremony with over one hundred thousand people in Manaus. [IMG38] On the stage, Dilma and Lula sat side by side while wearing headdresses with macaw feathers, a gift from indigenous leaders. Outside the event, the Landless Workers Movement’s[[131]](#footnote-131) and Greenpeace held a manifestation against the new construction. Besides the amendment for the MFTZ, the celebration was also for the inauguration of the Rio Negro bridge, a year later than expected. Completed one year after planned, the bridge connects Manaus to Iranduba, on the river’s South Bank. [VIDEO 57] The declared goals for the new phase of the MFTZ were three: to spread its incentives to other parts of the Amazonia, to access and explore regional potentialities and to internationalize local industry. Achieving them required a territorial infrastructural rearrangement capable of lubricating commodity flows. The glossy cable-stayed bridge epitomizes the type of symbolic effort of past federal governments to show care towards Brazil’s, historically peripheral North region.

The bridge exists within a broader package of state-sponsored projects and real estate market investments. Since the 1990s, they find a fruitful ground paved with narratives that combine urban densification and ecological purposes. Public policies find reasons to focus investment on Manaus so it keeps its status as a primary metropolitan area while its development should naturally spread to the rest of the state. But in fact, new infrastructure and private housing investments create an uneven development pattern within and beyond Manaus’s limits. For instance, Ponta Negra is a neighborhood inaugurated in the 90s that houses luxury condominiums with the most expensive market value in the city. [IMG 11] Benefiting from exemptions of land-use regulations, private actors invested in a new leisure complex that appropriates waterfront spaces to give access to a high-end tourism and housing complex. This project is part of the broader metropolitan zone delimited for tourism, commerce and housing developments established in 2007 together with the announcement of the construction of the bridge. As urban geographer Juan Miguel Kanai explains, the Manaus Metropolitan Region was demarcated arbitrarily in a way that demanded infrastructural linkages between previously isolated territories.[[132]](#footnote-132) The effect is that “gleaming condominium towers and glamorous shopping malls stud the most desirable districts in a fragmented cityscape in which most of the remaining districts lack even the most basic services.”[[133]](#footnote-133) While aiming at connection, these plans usually reinforce local inequality.

The Free Trade Zone was famous during the 1980s for being an attractive tax haven that brought many tourists, looking for well-priced TV sets and all sorts of electronic devices, to Manaus. Today, the commercial pole is no longer a desirable destination. While the Free Trade Zones that proliferate throughout the world as a “model for the metropolis,” with high-tech appeal, skyscrapers and automated cars, the skyline in Amazonia is rather monotonous. Far from a high-tech park, it’s limited to assembling products rather than gathering administrative or creative operations. If there is any urbanistic advance with the new high-quality housing units, the cost was the displacement of many people to peripheral areas that lack basic infrastructure and employment opportunities.[[134]](#footnote-134) When the developmental plans offer local populations as cheap labor, instead of ‘integrated’, they become urban poor. The magnetic effect produced by the MFTZ works similarly to a trap. The alluring narratives around its potential are misleading attractions to an already vulnerable population: those who provoke or suffer with land encroachment and the violent consequences of illegal activities in the isolated green areas of the rainforest.

Despite the pride for environmental protection records, Amazonas is the leading Brazilian state in informal urban growth. Other three northern states follow in the rank. [[135]](#footnote-135) The model for incentivized urban development in Manaus fails to create sufficient infrastructure and stable employment for the people it ‘attracted’ to the city. Facing the lack of affordable housing, or unemployment, many occupy the margins of the Free Trade Zone in informal settlements named “invasions.” [IMG 12]

The Zone legitimizes the dependent status of Amazonia. Further tax exemptions and cheap labor become not only necessary but desirable as a mechanism for the rainforest’s protection. As urban geographer Juan Miguel Kanai argues, while the investments in this entrepreneurial urbanism aim at upgrading Manaus metropolitan economy, they do so by creating a peripheralization process. This periphery exists in multiple scales and reaches spaces beyond the limits of Manaus and its nearby informal occupations. As Kanai shows, rapidly and precariously growth reach neighboring municipalities like Iranduba.

Biologists Marcos Sorrentino and Thaíz Bizenqui, underline how the MFTZ limits the Amazonian economy to an unstable model “with companies that do not add value to the local companies that do not add value to the local biodiversity.” [[136]](#footnote-136) And although its industrial production grew 42,27% last year, compared with 2020, it didn’t create any new jobs for the region. [[137]](#footnote-137) Thus, the symbolic appropriation of the standing forest by projects claiming to make Manaus part of the globalized world in fact produces wealth. But its profits fail to reach the urban poor or the remote communities that become even more marginalized. Even if statistics prove that deforestation and extraction rates seem better, Amazonian populations hardly feel real advantages. The distinction between private and public interests becomes blurred by establishing an intricate system of nested ‘dependencies’ through new center-periphery imaginaries. In this context, pleasing the market is equaled to social-environmental protection. Here, benevolent agendas may have opposite results in order to benefit private interests. For its defenders, the Free Trade Zone should bring foreign modernity to the rainforest. Yet it only replicates the same dependency pattern of center and periphery while creating new forms of extraction.

Despite all its shortcomings, Lula visited Nokia’s factory in the MFTZ during the presidential campaign in August 2022. In an interview, he signaled against his opponent’s, Jair Bolsonaro, recent declarations. He said that the MFTZ is a “patrimony of the north’s development” and that, during his mandate, “it will remain untouched.”[[138]](#footnote-138) [VIDEO 61] Earlier in that year, during Bolsonaro’s mandate, the MFTZ made into the news after a decision from the Ministry of Economy to reduce the taxes of industrialized products (IPI) to all regions of the country. When tax incentives reach more industrial poles with geographical advantages, Manaus’s loses its competitiveness, and many companies threaten to leave the city for better deals. This tension within party politics intensifies the narratives that picture the free trade zone as an unavoidable path towards the economic autonomy of the rainforest. After the conservative neoliberal right presented no plan to compensate for the consequences of expanding tax incentives in the north, recuperating the old model with green features sounds like a popular scheme for the region’s economy.

While the Free Trade Zone directly or indirectly employs many people living in Manaus’ poor peripheries, and robust alternative plans seem to be nowhere, the belief in the industrializing model remains unshaken for liberals and leftists. The imaginary dependency on a failed project is reminiscent of the tales of political salvation that redeem foreign investors. Far from that, implementing protocols for abuse masked as modernization is a pattern in Amazonia.

Spatial uncertainty

[VIDEO 13] In August 2021, activists gathered for a vigil in Brasília on the Three Powers Square. It was the night before the judgment of a law project that could establish the theory of a “temporal frame” to regulate indigenous entitlement to land. If approved, the law would drastically reduce the area available for demarcation. On the south portion of the square, next to the Supreme Court, protesters used many small LED flashlights to assemble the phrase *Brasil Terra Índigena* (Brazil Indigenous Land), visible from above. Playing *maracás* and holding candles, they danced and walked around the illuminated words together. [[139]](#footnote-139) The phrase refers to the plea for their constitutional rights, but it also implies the image of unbounded lands. It won’t let go of the image of Brazil as a nation but suggests a way of building from it a mode of differentiation without what philosopher Denise Ferreira da Silva describes as the “principle of separability.” As Ferreira explains, “separability” is one element of contemporary ethical and epistemological projects that considers the social as a whole composed by smaller parts. “Each of these parts constitutes a social form, as well as geographically-historically separate units, and, as such, stands differentially before the ethical notion of humanity, which is identified with the particularities of white European collectives.” [[140]](#footnote-140) But as a hidden message, behind the claims for demarcation, the sentence serves the promise of a nation that understands all its lands as native. Not in an effort for cultural acceptation within a Brazilian state apparatus, nor a perception of a hybrid land, but as a Brazilian-Indigenous imagination entangled with its (non-human) ground. “Terra,” in Portuguese, means at the same time, land, soil, ground, dirt, and Earth. In the sentence *Brasil Terra Indígena*, the noun, “Brasil,” and the adjective, “Indígena,” connect through the noun Terra. Instead of meaning strictly that all national territory should be considered indigenous, it could also mean a *Brasil* that is constituted by its grounds. *Terra* is the non-human mediator that blurs the distinction between human and non-human imaginaries, and that sees the political agency of its grounds.

Marisol de la Cadena reminds us that the problem with inclusion as politics is that it denies conflict through the harmonious frame of multiculturalism. Liberal democracy flattens difference by refusing ontological antagonism. Acknowledging the political work of non-human entities (too often set aside framed as “indigenous beliefs”) she proposes that the effective work of difference happens through multinaturalism rather than multiculturalism. This project is necessary to overcome the ontological distinction between “Humanity” and “Nature” that sustains the hegemonic notion of the political.[[141]](#footnote-141) Because this delimitation will always imply a continuum from primitiveness to civilization and work by the logic of the State as an agent of betterment rather than one of mediation.

If, as Arjun Appadurai suggested, the new global cultural economy can’t be explained by models of center and periphery, push and pull, surpluses and deficits, or consumers and producers, [[142]](#footnote-142) the separations between land (geographical and physical) and citizenship (social relations and representations), are also not enough to explain the political game at hand.

Establishing the agency of non-human entities is not necessarily an issue of knowledge in a grand educational project of collective conscientization. Rather, it relates to a different political mentality that doesn’t negate the state but reframes and multiplies its repertoire to assure the space for dissent and difference. Indigenous land demarcation is a seed of this spatial imagination. Because, in imperfect ways, it challenges the Westphalian logic of sovereignty. Perhaps, from it, a borderless jurisdiction with permeable demarcations can start to be rehearsed. [IMG 69]

PART III

Looking at the Sky

“Whoever writes x2 + y2 =1 is describing a perfect circle. Every possible solution to this basic equation represents a circle drawn on a plane. But if one considers not only real numbers and the Cartesian plane, but also the bizarre spaces of complex numbers, there appears a series of circles of various sizes that move as if they were living creatures, growing and evolving in time.” –

Benjamin Labatut, *When We Cease to Understand the World*

Looking at the sky and seeing more than what’s visible can move us away from a vision of the planet as an all-encompassing globe. One way to craft this ability is by multiplying the intermediaries between each body with its respective ocular globes and the sky’s interface. Sensing technologies have always done this. By recording data that we wouldn’t see otherwise, thermometers, barometers, laser radars, or anemometers defy homogeneous celestial depictions. [VIDEO 71] They translate into a language of patterns and measurements, an erratic atmosphere constituted by so many communicating interweaving systems.

Thus, if the unified globe is central in shaping a gaze that renders forests as resources, what are the epistemic shifts scientific modeling and climate simulations enable? Even though some catastrophic climatic diagnoses have flattened the complexity and unpredictability of these atmospheric systems (as we will see), the premise on which weather sensing relies can challenge hierarchical and stabilizing descriptions of the planet. Instead of a large-scale body of which biomes are its smaller-scale functional constituents, weather sensing sees a much more unruly scalar relationship. Rather than equilibrium, these tools describe a chaotic and unpredictable geophysical language.

If behind corporate gold extraction or extensive agriculture that threatens Amazonian ecologies, we find the common perception of a capital-n “Nature,” the urge to defy them often crafts an oppositional ecological politics that reinforces that same unifying perception. For, by generalizing anthropogenic change as a disruptive presence in a stable system, they push forward the independence of the “human” from its surroundings. Such image of human presence as negative disturbance fabricates too weak and unreliable sustainable solutions. For instance, today’s neoliberal modes of ecological governance see the quantification of carbon stocks and the financialization of the rainforest as pure and technical environmentalism. Yet, by drawing abstract financial connections between living beings, they produce what media theorist “Bifo” Berardi describes as the “mathematization of language.”[[143]](#footnote-143) That is, a “submission to techno-linguistic automatisms” that removes meaning from actions by justifying them for their functionality. [IMG 15] Considering Amazonia, this happens with the recurrent translations of the rainforest as a lung, a hell, a haven, or the many other symbols with maternal appeal. This metric imaginary operates behind the mindset that searches for easy rearrangements, based on the already given tools, to solve an equation.

Visual and distant evidence of ecological devastation are tethered to the dominant “mathematical” environmental solutions. In a way, these images define an ecological problem that we can see and quantify, but barely scratch the surface of what can happen. The seemingly neutral tuning of parameters has great power to influence the propositions to counter such destructive patterns. What I want to reflect here is how these technical images work as cosmograms, mechanisms of world making that can influence political organizations. They play with what’s visible and what’s not to forge a shallow logic and sense of reason that make specific solutions be deemed as ‘realistic.’ [IMG 21]

But while Berardi is speaking about the process that subjects social life to meaningless regulating financial algorithms, let’s also consider another type of mathematization. At first glance, climate models are simply a tool that supports such abstract regulation. The maps and graphs generated by them are, in fact, in the realm of distanced empirical evidence that can portray a biome in a totalizing way, as pure knowledge. But when considering its mechanics and tools, weather sensing can also allow for affective perceptions of environments that resist single ecological solutions and abstract governance.

Global Amazonia

Throughout the 1990s, General Circulation Models (GCM) helped to popularize global climate change. [IMG 14] The tool simulates atmospheric and oceanic physical processes and has been used since the 1950s for weather forecasting. It became central to illustrate and popularize the idea that places that are far apart are, in fact, connected through the circulation of air and water. More than raising awareness, models made clear that survival, facing a climate crisis, wasn’t a task based on locality but one that encompasses action on a bigger scale. Anthropologist Anna Tsing writes about how climate change modeling became a contradictory tool in debates about global climate at that time. The atmospheric patterns of water and air circulation generate an abstract globe that is “unified, neutral, and understandable through the collection and manipulation of information.”[[144]](#footnote-144) The General Circulation Models (GCM) made visible a global climate by reducing the planet to a modeled globe. The technical graphs and maps that result from the models are described here as simplifying mediums. For that, they epitomize the contradiction of environmental governance over the necessity of simplification to mobilize political effort and its capacity to manipulate and concentrate power.

Models mobilize technical aesthetics to support the framing of geopolitical debates toward rational discussions about science-driven universal environmental policies. But the realization of scientific images’ capacity to mask ideological motivations raised suspicion not only of their innocence but, ultimately, of the technologies’ reliability.[[145]](#footnote-145) Doubts about the ability of models crafted in the Global North to fairly assign climate action spurred dissent in global negotiations. By questioning why all nations should have the same goals when they have very different environmental impacts, many politicians argued that the global scale obfuscated the abyssal difference in Global North and Global South’s greenhouse gas emissions and reproduced unequal power structures. Tsing’s ethnographic work shows how charging the models and scientists as biased proxies of the powerful was a misleading maneuver that made the case to increase concentrations of power further. It eventually opened the path for U.S. politicians to frame transnational climate negotiations as ideological and withdraw from the Kyoto Protocol in 2001. A “glorification of incompatibilities” instrumentalized the distrust in simplifications to support liberal economic agendas.

Over twenty years ago, Tsing argued that imagining productive and planetary collaborations required negotiating common grounds and conciliating scales to generate a “Global Nature.”[[146]](#footnote-146) But even with the multiplication of reports and visual evidence of all sorts, climate denialism gains new and far-right shapes today. Besides the fallback of the Kyoto Protocol, we witness current geopolitical arrangements' incapacity to reach the Paris Agreement's goals. In Brazil, federal environmental politics incentivized illegal extraction during the four years of Jair Bolsonaro’s presidential mandate. Imazon[[147]](#footnote-147) shows that in 1975, 0.56% of the Amazonia had been deforested, a percentage that grew to 5.5% during the military dictatorship. [IMG 46] Despite the changes in the constitution and the awareness about the violent environmental destruction of the rainforest, the percentage hit 20% over the last 30 years and keeps growing. While climate change and the Anthropocene become ubiquitous concepts, petrocapitalist imaginaries advance[[148]](#footnote-148) and carbon capture machines are still far from slowing down rapid atmospheric changes. In fact, since climate change became legible, carbon emissions have only grown. Despite knowing it, effective alternative governance systems to accompany this “Global Nature” are still cemented on locality and conjoint efforts of nation-states.

This apparent incongruence could mean the lack of appeal of scientific evidence. Rather than establishing quick communication, its simplistic character has often been read as cold or somewhat bureaucratic, as a combination of maps and data that sum up the pile of challenges and misfortunes that society must overcome. These images allow for accurate yet simple representations in which complex transformations become accessible. For its simplifying efforts, they operate within a range of known measurement systems that ensure its legibility. Measures of air humidity, temperature, suspended particles, and carbon in the atmosphere confirm, one model after the other, with higher precision, the single vector of change towards warmer futures. So, if this object is, on the one hand, unemotional, it is, on the other, simple, reliable, and straightforward. The parameters that make climate maps cold are also what make its message travel faster and reach more people.

Simplification encompasses reducing the planet's climate to hundreds of thousands of units of code in a mathematical representation that has parallel structures with economic models. The set of parameters positions catastrophe as a linear change that establishes current normalcy in opposition to a yet to come collapse. Just as an economic model, they describe reality in an incomplete way to make predictions. More than a parallelism, economic models more and more frequently are mixed with environmental models. Within the pages of reports and economic forums, subjective parameters with technical masks repeatedly combine environmental solutions with economic growth. The promises of sustainable development are based on the faith on—or at least inevitability of—a market-based economy. Alongside its compositional rules to describe the present (as a world we can live in), its capacity to simulate futures based on land-use variables sets rules to maintain these desirable parameters. The code that helps us understand our planetary future creates a sense of emergency that rather than allowing for imaginative alternatives, seems to imply a necessity for sticking to the rules of markets. And, instead of a tool to understand the effects of how we act, they start working as a prescription for how we should act. The misleading neutrality of the scientific mask turns models into part of an argument to update a capitalist developmental logic rather than reversing it.

More than descriptive patterns, models’ ability to predict the future and manipulate possible outcomes makes its use into a sort of gamble. In this game, digital parameters are taken as rules to guide real policy. [IMG 48] With this language, the quantification of environmental degradation is framed in the linear economic axis of growth and decay, and ecological ‘solutions’ become economic parameters. With this, models become prescriptive, and variables become instructions in reports and guides for how to develop and grow sustainably. So, instead of creating a new language to guide an open discussion, the models become a guide for ‘realistic’ action. The issue with the mechanistic soulless character of models is not in how they describe climatic changes, but with how they are mistaken as guides. Instead of nourishing a common language to describe the atmosphere, they are appropriated to limit possible responses.

The blurred line between model and reality is embedded in visual inscriptions. Their work is contradictory insofar that they create a space in which empirical evidence and subjective simulations share the same soundness. French philosopher Bruno Latour called these objects *immutable mobiles.* Maps, photographic plates, graph papers, money, Petri dishes, or the image of a saint are examples of these reproducible and mobile objects. They can travel easily, as they are limited in size and shape. Their content has a modifiable scale and is presented in two dimensions. And although allowing information to reach more viewers, they can work towards accumulation and ultimately domination on a grand scale.[[149]](#footnote-149) According to Latour, in these inscriptions, empirical and speculative information share the same “optical consistency,” creating hybrid perceptions and relations that blur the limits between “nature” and “fiction.” “[N]ature seen as fiction, and fiction seen as nature, with all the elements made so homogeneous in space that it is now possible to reshuffle them like a pack of cards.”[[150]](#footnote-150)

But the visual quality of models is not what explains the power of scientific language. Latour argues that these objects are only the tipping point of “the cascade of ever simplified inscriptions that allow harder facts to be produced at greater cost.”[[151]](#footnote-151) Here, the power in turning things into inscriptions depends on turning them into fewer inscriptions. That because an increasingly empty signifier supports increasingly meaningless solutions. Accelerating abstraction and simplification of climatic futures produces uncertainty, anxiety, and fear. The emergence of this affective structure is tethered with the verticalization of decision-making process and a narrowing of possible alternatives. That is, the promise of endless scientific accuracy creates a demand for more climate models and the space to doubt those we already have. And the movement towards precision becomes a murky search for better outcomes.[[152]](#footnote-152)

Thus, it seems that the hollowing out of meaning and specificity is unavoidable in the process of making the global visible. And the growing knowledge about climate futures is stuck with systems that valuate nature. This simultaneous growth of knowledge and stagnation has many times been explained as a problem of big numbers, or the cognitive incapacity of humans to grasp the planetary scale of time and space in comparison to the individual time and space. However, as science historian Debora Coen has argued, such problem of measures is not an ingrained cognitive necessity, and it hasn’t always been present in the way humans think about time and space.[[153]](#footnote-153) Coen explains how this cognitive limit is a result of a search for common standards of proportionality that require a sampling the world. Sampling is based on a system of absences and presences that privileges some information over other— “say the chronologies derived from proxy climate data such as tree rings versus those of personal and collective memory.”[[154]](#footnote-154) As Tsing explains in her account, the recently forged imagination of the global scale of climate can risk a blatant evacuation of the local.[[155]](#footnote-155)

It is the lack of embodied readings in these technical images that disable the playfulness in thinking alternatives. Turning Amazonia into a machine or an organ renders its problems as an issue for technicians. In this case, doctors or mechanics that can take care of the rainforest are many. Being them indigenous peoples, economists, or engineers, these experts gain an authority that can be contradictory. Both identitary and scientific authority can plaster politics by silencing dissent. In the book “The Utopia of Rules”, anthropologist David Graeber argues that the appeal of bureaucracy is a fear of play, novelty and emergence and is ultimately a tool of control and imaginative discipline. The uncertainty created by the promise of global climate models fosters the fear of play Graeber describes. Instead of creating a productive sense of imaginative disorientation and space for collective politics—and, therefore, scape for dissent— they narrow down possibilities and concentrate power.

Leapfrogging

In October 2019, during the panel “A world without the Amazon?” at Princeton University, Elena Shevliakova and ecologist Stephen Pacala presented an experimental climate model. [VIDEO 16] In the Geophysical Fluid Dynamics Laboratory, they simulated how the Earth would respond if the entire Amazonia was deforested by 2050. Super-computers processed the effects of a gradual substitution of the land correspondent to rainforest with grasslands over 30 years in parallel with the already average expected changes. In this scenario of total deforestation, they predict an increase in the global average temperatures of 0.25°C beyond the global general expectation, and of 4.5°C for Brazil’s northern region.[[156]](#footnote-156) During their lecture, Shevliakova and Pacala carried a small badge in their chest, together with a credential. [EXTRA 28] As a sort of flag or identification, the image represents annual global temperatures from 1850-2017. Beginning with mostly dark blue stripes from the right and turning to maroon ones in the left, the image synthetizes global warming as a linear change. The flag excludes all other “superfluous information” turning it into the most abstract Irma Boom-like images.[[157]](#footnote-157) Their abstraction is productive as they create thresholds as the standards to what we consider too hot, too dry, too chaotic, and too dangerous.[[158]](#footnote-158) They make complex and large-scale climatic changes easier to read as they are presented a sort of weather forecast.

In her presentation titled “Exploring the world without the Amazon,” professor Shevliakova begins by explaining how changes in land use by human or climatic reasons affect regional and global climates. She is referring to the Climate Change and Land IPCC report from 2019, which highlights how regional climate change can be somewhat controlled by local land cover and land use, which is the most efficient way of controlling temperature changes. This means that not only carbon emissions count in understanding global climate, but also the ways people use land. If the rainforest is torn down, the tropical country will become severely hotter. Taking down trees would eliminate carbon stocks and stop the flows that take the rainforest’s humidity to Brazil’s Midwest, Southeast, and South regions. It would also rain 25% less in the country, meaning that droughts would become more and more usual. This would impact the access to water in urban centers and the production of the country’s primary export commodities, as soybeans, coffee, and corn crops depend on rainfall. The grass that substitutes the tree coverage in the model not only erodes the soil and exhausts its original resources but also interrupts the vaporization system that allows the current agricultural production in the region.

Shevliakova explained that models are probable scenarios, and they don’t work with single outcomes. Many laboratories collaborate to cross information and work to get more precise predictions, but they always have multiple outcomes based on different inputs. In her presentation only, there were two possible scenarios. SSP1 is the optimistic prediction, in which ‘we’ take ‘the green road,’ and 50% of the Amazonia is deforested. It considers a change in land use, simulating a form of mitigation that would be the result of policy regarding land management. The second, SSP5 ‘takes the highway,’ and 100% is deforested, causing a disastrous effect locally, but cascading disturbances would be felt all over the planet. During the Q&A, after being asked about the assumptions the team makes regarding climate mitigation policy, professor Shevliakova underlined that these images are not predictions, but projections. As the system is fundamentally chaotic, she said, the models can only inform us about the things we can lose and “hopefully point to the things we can gain.”

The panel was held at Princeton University as part of the conference “Amazonian Leapfrogging: Long-term Vision for Safeguarding the Amazon for Brazil and the Planet,” organized to discuss alternative visions for a forest “threatened by illegal deforestation, fires and socioeconomic inequality.” With graphs and maps that mark the planet’s surface with red and purple specks, and multiple references to IPCC reports,[[159]](#footnote-159) the presenters made the case for not only stopping ongoing deforestation, but also for urgent efforts to recover forest coverage and to cease the burning of fossil fuels. The grammar of these scientists and environmentalists borrows the idea of “Leapfrog” from guides for economic development. The term hints at strategies for jumping steps ahead, so that whoever is behind can catch up sooner for the benefit of all. It usually refers to the sustained used of innovation by a corporation to keep its competitive status. More recently, the term has been applied for technologies capable of promoting development without environmental harm. It refers to the collective effort during the conference to turn Amazonia into an economically and infrastructurally integrated region and at the same time avoiding the destructive pattern of growth of industrialized nations. Social and environmental solutions are juxtaposed, and the forest’s “bio-social diversity and environmental services” are turned into an asset.

But juxtaposing social and environmental issues, rather than complexifying the response, creates hopeful illusions for conflated packages of green development. This conflation of social and environmental crisis reduces the ‘social’ to an issue of poverty and the environmental to an issue of ‘resilience.’ However, when translating the forest’s value to a desired currency in global financial markets, the symbolic capital of ecological conservation and stewardship, generates more revenue to distant investors than the fruition of smaller economies.

Environmental scholar and professor at Princeton Rob Nixon coined the term “slow violence” to explain the chronic and long-term impacts of environmental degradation, climate change, toxic exposure, and other environmental harms that are a type of gradual and uneventful violence. Difficult to make palpable and quickly engaging, they can have long but quantifiable effects such as forced migration and dispossession but also less visible consequences.[[160]](#footnote-160) As amorphous calamities, they are sometimes incapable of mobilizing public attention, that often requires a dramatization of violence. In the case of Amazonia, many new urban dwellers suffer with the lack of access to water, public health system, public education, or internet access, but also from the theft of ways of living. Rather than a psychic or conceptual violence, this theft happened with the reinforcement of state control from both right- and left-wing plans that, to develop the region, transformed autonomous populations into urban workers.[[161]](#footnote-161)

Thus, the crossing between empirical data (based on sensing) and creative modeling (based on manipulation of inputs) has a productive sense: craft desirable futures by attaching rainforest protection with economic growth. [[162]](#footnote-162) In this model, the dramatization of deforestation creates a simulation of total subtraction that acts in two ways. First, it creates a state of emergence concomitant with the common disastrous images of higher sea levels, drastically loss of biodiversity, massive migration, and more natural disasters that have been popularized since the 60s. The aesthetics of disaster create a moment of suspension before something bad happens. It allows exceptions for rule reinforcement and give unwarranted credibility to the old strategies for development and economic inclusion. Secondly, the simulation of total subtraction enables monetary valuation.

In this case, the future scenario ignores the parameters of believability that usually guide the risk assessments. Despite the logic description of the problem, based on vast data bases, the total destruction scenario is very unlikely as it isolates Amazonia as a single extra source of carbon emissions. But it becomes productive because it extrapolates the point of producing scientific truths to clarify the relevance of the rainforest in Earth Systems. It illustrates the famous conception of the rainforest as a cooling system for the planet. Detaching the rainforest as an independent entity is like putting it on a scale. When subtracted from the Earth System, the disruption in average temperature can be translated into market value. Although creating the sense of urgency for more efficient policies to “protect” the environment, these disastrous scenarios also produce a precise valuation of the biome. That is, this model gives a monetary value to the “natural carbon-capture-and-storage technology” while creating an emotional appeal from the threat of a state of emergency.

The connection between catastrophic renderings and environmental governance is visible when looking at the project Amazonia 2030. Since 2020, the non-governmental research initiative works closely with Princeton University’s Brazil LAB to create “precise recommendations for immediate adoption by private decision makers (such as businessmen, entrepreneurs, investors, and banks), public decision makers (such as the Executive and Legislative branches, as well as municipal, state, and federal agencies), and international cooperation and investment agents.” [[163]](#footnote-163) In two years, a group of 60 researchers has published over 50 technical reports on topics of sustainable development. One of them, titled “Financial Opportunities for Brazil with Reduced Deforestation in the Amazon,”[[164]](#footnote-164) sees high rates of deforestation as an opportunity for carbon credit sales. It states that stopping the predicted legal and illegal deforestation between 2022 and 2031 can generate revenues of over US$18 billion. The value is based on the promises of voluntary and regulated carbon markets from the expansion of REDD+ donations to the private sector. This approach takes the ecological relevance of the rainforest as an opportunity to reinforce its connections with global markets. It aims at businessmen, the state, and mysterious investors that already dictate the rules of the game. Framing the rainforest as “one of the planet’s most threatened ecologies,” rather than a neutral strategy to attract resources for conservation, opens a door for seemingly benevolent donations.

The same maps that raise environmental consciousness also endorse plans that foresee the forest’s financialization.[[165]](#footnote-165) Here too we have a problem of how to make perceivable otherwise invisible realities—of how to create a second type of presence. That is, if awareness about a crisis leads to false alternatives, there is a mistake not just in the solutionist efforts that attempt to solve it with big plans, but a mistake in the very interpretation of the crisis. The challenge in interpreting is tethered to the predicament of representing. In an age that venerates instant spectacle and in which systemic violence is too obvious and visible, the violence that happens in very different timely and spatial scales from that of the human body becomes very hard to address.

If the mathematization of the rainforest can lead to the financialization of ecological thinking, one could argue that data are inherently cold and that by suppressing intimate spheres they disable imaginative alternatives. But what puts models in the category of the quantitative metric mapping are not the sensing technologies for data collecting. What makes them feel distant is the centralized techno-scientific authorship that tunes an ungovernable atmosphere into a legible set of patterns. But is not the data that works in reaffirming the same measurement systems over and over, but the format (the world-image) it is bounded to. Democratizing the capacity to measure can also give hints on how to counter the top-down forces that manage environmental governance.

Instead of debunking models, the question is how other formats might expand these sensing technologies to stretch ways of seeing rather than narrowing them down?

grids and maps

Amazonia’s vastness has made the cartographic view from above a dominant point of view for guiding regional planning. [IMG54] Whether from a regional, national or global scale, distanced maps with abstraction capacities unify the rainforest as a single and closed body. Through visualization, they create a passive (and endangered) object to be planned, helped, and saved from itself. But if these images, for naivety, intention or necessity ignore the subjective micro-realities on the ground, they do so by erasing something else. The dualistic (local x global) modes of representation for the forest, rather than complementary, flatten the multiscalar and unbounded relationships between small villages, mosquitos, soy, clouds, and big cities like São Paulo.[[166]](#footnote-166)

Just as maps, Climate Models are frequently at the service of master projects for Amazonia. These objects are simplifying visual artifacts that support the ability to manage a territory. As we’ve seen with Latour’s theorization, this capacity is tethered to a growing abstraction that, in the case of models, comes with an expanding data collection. Comparing it with two dimensional maps is helpful to understand how the simplification of information can facilitate legibility of a large-scale territory and increase management capacity upon the area. Political theorist James C Scott explains how, more than an arrangement of information, maps forge the “utopian, immanent and continually frustrated goal of the modern state.” For master plans “reduce the chaotic, disorderly, constantly changing social reality beneath it to something more closely resembling the administrative grid of its observations.”[[167]](#footnote-167)As Scott argues, abstraction facilitates the state’s ability to engineer people and space at the expense of local, autonomous, and practical forms of knowledge. As cadastral mapping, climate models classify “Nature” not simply to know and represent it, and also not just to inform guides for technical rearrangement. They foster the planner’s utopian desires to control and solve problems as a quest to obtain the illusional stability that those same images portray. As master maps, they steer master plans that bound biomes as climatic machines and try to protect it with capital injections. These distanced representations create unifying perceptions that ignore the complexity of habitats by rendering them as public utilities and economic resources. If cadastral maps produce a synoptic view for the state that ignores local knowledge,[[168]](#footnote-168) climate models inform extra-state plans that build upon the global and local spheres to foster ecological governance.

But instead of the thin planar projection of cadastral maps, models represent a thicker Earth’s crust as a three-dimensional grid with pieces of atmosphere, ocean, sea ice and land surface. Contrary to the privileged aerial view, the vast gathering of data on geophysical processes is distributed in a spherical matrix of cells. Ever smaller grid cells generate ever more precise renderings. Also differently from two-dimensional maps, models are not frozen in time like a snapshot as they work with a time step that simulates change within days, months, or years. More detailed probabilistic calculation means smaller time steps and smaller grid cells. At the Princeton University conference, Shevliakova showed a world-map in which pixelated red and purple clouds indicate temperature variations. The researcher explained that the resemblance to low resolution images happens because each pixel corresponded to the smallest part modelers could divide the planet’s surface into to form a grid analysis of land use. Instead of opting for illustrations with smoother temperature patches, they stuck with raw images from the model. As hardware nails and natural wood in a chair, the pixels reveal the computational process of model’s fabrication. The decision might signal to an honesty regarding the making of the map and a pride of the unfished object. But, in the context of climate simulation, it can also convey a Beta quality and a promise of future completeness.

In the Geophysical Fluid Dynamics Laboratory, where a team processed the model, scientists divided the globe into ‘boxes’ each with 30 layers corresponding to 110x110km parcels of land and 55x55km parcels of ocean. This scale corresponds to the latest version of a series of resolution improvements in models. By 1990, the first IPCC Assessment Report used a grid of cells of 500km x 500km with one-layer for the ocean and ten atmospheric layers. The expectation of higher resolution increases confidence in the fidelity of models with reality. As they can always get more precise their inaccurate character gives space to a hope for the perfect model that will be able to provide total reliance. And at every new partition of cells, models seem to get closer to the two-dimensional efforts of maps.

The interactions between the cells are programmed based on the repetitions of previous meteorological events. (The observable atmosphere’s patterned language provides rules to speculate about future climatic conditions.) Only after processing this simulation, the results are translated into a visual mapping that turns a complex process into a legible artifact. Usually accompanied with a temperature red-to-blue spectrum key on the side, the map is superposed by pixelized red and blue clouds that represent the expected rise in temperature and the disruption of cloud formation processes.

For these models, weirdly, higher levels of abstraction come with higher levels of detail. Scott refers to the diagrammatic aspect of maps as an “abstract sketchiness” that has the power to make visible selective facts and with that support authoritative acts. Models, on the other hand, convey a hoarding of information rather than a thin selection. That is, although climate modelers don’t explicitly tell policymakers how to act, their intention is to inform about the risks and implications certain responses to climate change might have. So, to justify any measure, cut, or goal in geopolitical environmentally concerned debates, an increasing amount of information must be accounted for so that these risks are measured with precision. As if to guarantee that no radical numbers or exaggerated disturbance in current human arrangements has to be done. Although not all models should necessarily be higher-definition than the previous and different resolutions are complimentary, the political leverage and ‘policy-relevant’ (in opposition to “policy-prescriptive”) status they aim at requires a sense of accuracy and full coverage that comes with quantity and constant development.

To be policy-relevant the analysis from models must surpass the technical language to achieve more people. The colorful graphs and data diagrams that travel easily might suggest a broader popular participation but usually the opposite is true. As we’ve seen, the multiplication of data visualization hardly coincides with significant change of destructive patterns of extraction or broad conscientization. The process that transforms model’s hoarding of data into diagrams can flatten the big by framing it as “too complex to comprehend and deal with.” Instead of new modes of governance, seems easier and manageable to turn to the local as a possible action path. But rather than an alternative to modernity’s universals and global representations, this inverted binary can only fetishize the local in neoliberal schemes that individualize ecological harm.

While they challenge the capacity of total master maps, the symmetrical inversion to the local fails to grasp atmospheric behavior. The “think globally, act locally” maxim sets the mood for broad popular ecological consciousness as a response to the failure of states to deal with a planetary crisis. The return diametrical turn to the local (or even to the individual, when thinking that no one is too small) rather than disrupting the global, reinforces it by opposition. The trope opens also enables neoliberal ecological efforts such as multinationals claiming environmental responsibility by creating local roots. This illusory care for locals grants the sense of action by ignoring grand-scale environmental impact and the need for cooperation far beyond the individual sphere. When crossing lack of state response to a catastrophic scenario in a simple equation the result always seems to be in the too weak and dangerous key of reversing the climatic fate around by leapfrogging ahead. While the collaborative aspirations of simple images and actions can suggest democratic process, it obscures bigger networks and responsibilities.

Even though representing the impossibility of local and global division, the consideration of non-observable metrics and the chaotic unpredictability of weather has been only recently explored. Models go through a process of ‘tuning’ in which physical models of unresolved process are simplified.[[169]](#footnote-169) In these parametric choices, all parameters that cannot serve as input are adjusted to optimize model simulation. To optimize means to convey a believable aesthetic and to suggest correctness. Rather than looking for the precise total depiction however, what this search misses is the potential for error and incompleteness that are embedded in climate sensing. Considering this open range of unstable parameters can open the equation for disruption, by dismantling an idea of a stable and quantifiable “Nature.” To show how there is no stable circle to turn around to, only the space of bizarre numbers to which the result is necessarily a series of variables that grow and evolve in time.

Just as grammar deals with language, climate modelers deal with the intractable patterns of climate. Reducing the “degrees of freedom” in tuning processes, also calibrates “the tension of the free play of human creativity against the rules it is constantly generating.” [[170]](#footnote-170) Thus what makes it cold and static is not the process of calibration. Grammar and simplification are intrinsic to language, but if this tuning can facilitate financialization what other possibilities could come from new tunings? As Graeber underlines, “there is also no language in which everything, including grammar, is not constantly changing all the time.”[[171]](#footnote-171) So if models are part of the discourses that privilege the distant rule of experts and, in the name of Nature, end up supporting systems of inequality, it’s because their technical apparatus is bended towards linear solutions when in fact, sensing technologies only turn evident that there is no single vector between local and global, and no possible way back to a stable controlled climate.

So, albeit the critique of visual simplification of world-maps follows similar terms to the critique of observational cells as an architectural dispositive rooted in disciplinary society and biology, [[172]](#footnote-172) models’ cells can also provide insights on the fragilities of the scalar imagination that separates local and global. Contrary to modern architecture’s cell this minimal element of construction in GCM works to support addition and creation of information rather than controlling and categorizing. Modeling, rather than used to give “Nature” a value or providing an assessment of risks, can also provide an observational frame that is not based in zoom-in and zoom-out mode of navigation.[[173]](#footnote-173)

Pixie-dust

[IMG 17] Invisible flying rivers bring water vapor from the Amazonian Basin to the south of the continent. To explain this mechanism, agronomist engineer Antonio Donato Nobre compares each of the 600 billion trees of the forest to a geyser. Every day, they throw in the atmosphere an amount of water bigger than the Amazonas River. More than water, the trees emit what Donato calls *pixie-dust*, the organic compounds or aromas that make the nucleation of droplets more efficient and facilitate the formation of clouds. When such clouds form, the pressure above the rainforest decreases, pushing the ocean’s humidity into the continent. The interaction between the forest and the atmosphere changes the rain systems in South America and turn regions that would be otherwise deserts into productive lands for agriculture. Understanding Amazonia as a “biotic humidity bomb” unsettles the local x global scalar divisions that typically describe it. That because, insisting on the anatomical analogies, its image becomes more like veins that spread in many directions and facilitate connection rather than a bonded organ within a body.

Before Elena Shevliakova’s presentation, Paulo Artaxo, a professor from São Paulo University, started his lecture reminding the audience that although Amazonia is a key component in the Earth System, its isolation is counterproductive. Even if all the tree coverage is demarcated and preserved, on a planet in which energy is fossil-fuel based, the inevitable increase in temperature will necessarily cause permanent harm to the forest’s ecosystem. He shared the recent results of his team’s research of combined climate models and empirical data that shows changing conditions in the rainforest’s carbon emissions and hydrological fluxes. Beyond the typical claims that frame the biome as a carbon sink, he started his presentation by underlining that the planet needs Amazonia as much as Amazonia needs planetary cooperation. In a room full of scientists, journalists, and politicians, he reminded them that “Amazonia is a living organism, and sometimes climate modelers ignore that.”[[174]](#footnote-174) Artaxo was referring to the intricate and multiscalar geophysical feedbacks that the biome is entangled with. They describe complex and unpredictable chains of causality that are impossible to trace. Yet, climate scientists keep relying on more precise devices to observe in more detail biogenic aerosols interactions to then process and cross the data with more powerful computers. Rather than more precise outcomes, they make otherwise invisible qualities of the rainforest tangible.[[175]](#footnote-175)

The biogeophysical feedbacks that professor Artaxo described shows how sensing technologies provide ways of seeing (and imagining) Amazonia that are neither from above nor on the ground. [EXTRA 29] For instance, sensing technologies can track how the anthropogenic emissions in urban centers like Manaus alter pathways of biogenic aerosols forming over the Amazon basin and have an impact on patterns of hydrological circulation. Models can describe continuous cycles that connect humans and more-than-human transpirations. But they do more than proving that faraway places in the Earth’s surface are connected to each other. Artaxo’s research shows how practices of observation can impact hegemonic ways of describing the world. They are affective insofar that they expand the ways we can perceive the rainforest. Not in a subjective way, but in a collective sense that affects our political imagination as well. [IMG 59] As argued before by Kathryn Yusoff and Jennifer Gabrys, the affective spaces of climate change are not simply a turn from the remote to the intimate, they are also “effective in reconstituting the registers and knowledge networks of climate change through their material-sensible arrangements.”[[176]](#footnote-176)

Environmental perceptions are tethered to our political imaginations. The modern atmosphere is conceptualized as a totalizing sphere, as the stage for the image of a globalized and multicultural citizen to emerge. Satellite views of deforestation, for example, organize the imaginary division between protectors and enemies of the forest. But sensing technologies offer us images with different effects from the detached view from above. When reduced to an epistemological novelty, they create the chance for ideological maneuvers, but when faced as objects that require an ontological questioning, they present grounds for new environmental imaginations. If the modern atmosphere is a totalizing image, the ever-changing atmosphere of these models are a way of unlearning this blanket understanding of the sky and, consequently, the category of the human itself. [VIDEO 70]

More than a way of quantifying carbon stocks so that environmental services can be trade with fairness, seeing the complexity of the earth’s crust by multiplying the ways we look at the sky means a possibility of an affective geography in which object and subject are not divided, one that is neither vertical nor horizontal. Amazonia seizes to be a passive object to become an agent. Sensing can render visible, with all its imperfections, the atmosphere as an interaction between life and non-life, between human and more-than-human matters.

embodied evidence

Considering the broadly discussed techno-scientific threats of world-images, thinking planetary representations is part of shifting hegemonic aspirations for Amazonia. In the 2008 exhibition “Native Land, Stop Eject,” curated by Paul Virilio and Raymond Depardon, multiple video panoramas mapped physical and digital mobilities (e.g., forced migration, cash flows) to discuss the conditions of rooting and habitation in a time of rapid general movement.[[177]](#footnote-177) The panorama *Exit* dedicates its final section to the effects of this global condition in tropical forests or the places that are “the home of many indigenous people and contain 90% of Earth’s biodiversity.”[[178]](#footnote-178) The video shows increasing deforestation by substituting the abstract green shapes of tree coverage with a bright red grass-like texture. [VIDEO 53] The sound of chainsaws and falling trees becomes louder and mingles with the bird tweets and frog quacks in the background. In a close-up of the Xingu Indigenous Park (MT, Brazil), black pixels substitute the green and pink background image showing the expansion of soybean fields and pastureland use. Fifty-six yellow crosses pop over the satellite image of the area, each representing one of the xinguano villages endangered by the advance of industrial farming. With each cross that appears, a video game beep goes off. The subtitle on the bottom of the screen remembers the viewer that “the destruction of indigenous peoples’ environment leads to the loss of their culture and language.”[[179]](#footnote-179) Each pixel represents one person, or one village, or one hectare. But the pixelization of the body, in this context, rather than a pervasive abstraction, works towards the revelation of the affective and local nuances that master maps tend to overlook. The panorama ends with the same spinning globe that repeatedly shows up between each one of the sections, but now, instead of the google-earth satellite image composition, the globe is all black like a screen—one single marble with no oceans nor continents. The long list of endangered languages becomes red characters that gather throughout the globe’s surface in their respective native geographical location.

In his analysis of the exhibition, philosopher of technology Benjamin Bratton writes that the “persistent irony of modernity’s auto-technologisation is that as the capacity for very high-resolution representations of worldly space scales quantitatively, our own individual and collective abilities to comprehend and access the world as a coherent situation correspondingly wane.” [[180]](#footnote-180) This ‘modern ethos’ ends up acting in dominating other worlds to put forth its own project of auto-technologization. The common assumption is that it creates a disjuncture in which the multiplication of data and the effort to represent the planet with accuracy ends up dissipating any situated, embodied concerns. For Bratton, what has been categorized as a “metaphysical catastrophe, political disorientation and a pervasive precarity of social cognition,”[[181]](#footnote-181) is “not a pathology of the modern but a condition of worldliness per se, of the inscription of territorial information as a reductive ‘framing of the earth’, and as the fundamental basis first of architecture and then of art, of any synthetic identification and projection: of design itself.”[[182]](#footnote-182)

In the EXIT panorama, mobile bodies are represented simply as floating pixels. But this reduction and “tuning” that purposefully cuts out subjective aspects in world-images is not per se what forces the mathematization of life or the techno-scientific solutions. Rather, the scalar division of local and global and the privilege of one over the other in maps and models is the logical background that organizes the too weak monetary driven approaches. The pixelization of individuals, instead of imposing an address or function to the body, carries only quantitative data. Those pixels don’t have the ambition of representing a body in its completeness and subjective subtleties, they isolate numeric functions precisely to build meaning upon it. The flock of green pixels that flow over the black background world-map describes feedbacks between on the ground small-scale events and global flows in a disruption of the opposition between local and global. Here “the ‘global’ is not some master abstraction, and the local is not an autonomous thread of events and instances.”[[183]](#footnote-183) Just as in cloud feedbacks, molecular scale, bodily scale, planetary scale are all within one another.

As cosmograms, models are not symbolic images separated from the world they represent, but projective ones that are interwoven with such world. As historian of science John Tresch defines it, cosmograms are human depictions of the “elements of the cosmos and the connections among them.”[[184]](#footnote-184) They act back in the world by fostering, challenging, and keeping ways of thinking about it. Rather than a measurement of the present, of something we can touch and see, modelling creates measurements.[[185]](#footnote-185) Unruly cloud feedbacks, or floating flocks of pixels are images that, by collapsing the local x global dichotomy allows us to look back at a patchy planetary scale instead of the unifying global one. [[186]](#footnote-186) The feedback loops that happen among abstract grided boxes of earth, water and air partially show a particular event.

In these cosmograms, what is outside of the frame of a depicted event is not a zoomed-out view but a diagonal drift that must go closer and further away. Rather than working as master maps, its crossing nested parameters create yet other ways of seeing Amazonia. When considering more than that which is observable, models of global climate may create a sense of disorientation that debunk simple solutions. Rather than an all-encompassing globe with flat unifying layers of sea and land, they shape a planetary materiality that consists of uneven atmospheric patterns. These can only be read and exist by the crossing of multiple agencies and interpretations. Digital climate models don’t work individually, their authors are constantly referencing each other in readings that can only make sense through comparison. When seen individually, these navigational tools might indicate the climate crisis as a linear crossing from A to B, as referring nostalgically to the cold days of the nineteenth century. But as a collection, they also simulate the dissensual array of material positions and imaginations regarding climate mitigation. These images are contradictory. At the same time phenomenologically shallow but central in the task of reimagining a politics capable of sustaining Amazonian livelihoods. Dealing with such contradictions requires aligning our cognition (or our interpretation) not to what is already known (the neutral understanding of facts, including the experiences of the *local*) but to what makes us look for new (planetary) interpretative parameters.

can the sky speak?

So far, we understand that the parametric tuning of climate models can forge a false image of atmospheric stability that sets the grammar for climatic solutions. But, at the same time, models represent the sky not just by making it visible through drawings and charts, but by making its representation central in geopolitical debates and for environmental policy decisions. The maps derived from a vast sensing apparatus describe the atmosphere as a patterned and rhythmic phenomenon in a trick of metric representations. Described from fundamental Newtonian physical laws, models frame forests as ecological entities through the quantification of water vapor, reflection of solar radiation, or cloud feedbacks, they elapse its unpredictable behavior. If this is a process of silencing, what can we say then about the insights these models offer us, and the potential ability sensing technologies have to make the sky speak?[[187]](#footnote-187)

In her presentation, professor Shevliakova pointed out a few times that the images she is presenting are not a solidified future, or a grand scientific narrative of doomsday. Rather, she said, they want to predict multiple futures to be avoided so that there is *hope* for better ones— “It’s a leap of faith.”

When dealing with the atmosphere, the spiritual commitment of modern science seems to stand out. If this in no way raises doubts in earth sciences’ findings, it does question the effects of its visualizations. The previously cited analysis of Debora Coen and Robert Nixon overlap on pointing out to a general political homeostasis coming from a flaw in representation. The question at hand seems to be what kind of images are necessary not just to see and sense better but to what is the kind of evidence capable of pushing forward the appropriate responses.[[188]](#footnote-188)

There is no one response to the aesthetic strategies that should be adopted to disturb the dominant tuning of climatic representations. For instance, media scholar Macarena Gómez-Barris calls out for a view from below, or a “fish-eye episteme” from which river bodies’ voices can emerge.[[189]](#footnote-189) If the distanced view from above facilitates the construction of dams that “silence rivers,” a change of perspective could point out to a different mindset. To hear the voice of more-than-human bodies is not a project for a general agreement of an idealized entity with rights. Far from a description of an endangered ‘Mother Nature’ or pristine Amazonia that needs saving, breaking the divide between Nature and Culture means to facilitate translation and dissent. Taking the sky as a political actor means to see it, as Marisol de la Cadena puts it, as “not only” property, “not only” a functional natural entity, and “not only” as a person.[[190]](#footnote-190) Again, it doesn’t embrace the romanticized take back of a feminized Nature but creates the capacity to restructure spatial protocols that see partitioning grounds and financialization as the possible strategies to protect the biome. Giving the sky political meaning is swerving the generalizing efforts of the same scientific images that make it visible in the first place. The patterned language of the sky must also occupy a space in the language of political equivocation more than that of scientific knowledge, not always a simplification but also another way to perceive an event.

The issue of conscientization about the importance of the rainforest then, rather than a learning process that operates through cognition, or simply a process of calculation that could be recalibrated, is an aesthetic and embodied process. As Debora Coen explains, these new modes of representation should come with a somatic and collective revision of the senses. [[191]](#footnote-191)Although this might seem a task that resides outside the imagining of GCM, they already indicate emergent ways of seeing. For it's not only the scalar category that is destabilized in the modeling process but the limits between human (figure) and non-human (background) as they are a means through which the sky can communicate. The expanding observations made through weather sensing allow for what Giuliana Brunno calls an “atmospheric thinking” in which the atmosphere is “constituted as a live medium of spatialized affects, memories, and sensations, it provides the very basis for sentient mixture and connection between diverse beings.”[[192]](#footnote-192) Here, “Nature” is not a balanced system composed by smaller biotic systems that balance each other. But if models can support the financialization of Nature as we’ve seen, the mathematization through sensing technologies is also part of an antiessentialist project. This is far from symbolic, or an emotional maneuver to convince, but a structural change in the basic distinction between Nature and Culture that supports the hegemony of growth-based ecological solutions.

In her critique of the feminist logics that rely on identity, or the conception of a total ‘Woman’s experience,’ Donna Haraway argues for a feminist critical empiricism committed to a mobile positioning. Such position assumes a detached embodiment, a way of knowing, a science, that dismisses the necessity of seeing from the subjugated standpoint to understand power structures. Because it sees the impossibility of doing so by taking a non-essentializing notion of ‘being:’ “One cannot “be” either a cell or molecule—or a woman, colonized person, laborer, and so on—if one intends to see and see from these positions critically.” Following Haraway, the question about whether the sky can speak or not is not an essentializing one, is not about how to simulate what is like to be the sky or be Amazonia to grant them their own rights.[[193]](#footnote-193) The question is reading it to see the incongruencies and limitations of current environmental politics to trace a line of thought capable of reorganizing it. As Haraway continues: “Vision is *always* a question of the power to see—and perhaps of the violence implicit in our visualizing practices.”[[194]](#footnote-194) Visualization as social organization is never innocent, but it can happen in a way that guarantees dissent and change.

If every grammar invites playfulness in resistance to it, it’s because they are not simply about knowing the world, but about how to navigate and experience it. Like climate models, they operate between nature and culture,[[195]](#footnote-195) and bring together heaven and earth in such way that brings the cosmos into an intelligible use.[[196]](#footnote-196) They act as Media in the sense that they not only bind (the past, the community) or network (space, time, people), but also organize. Thus, they are powerful disorganizing means. If they are coopted by the techno managerial efforts to rule politics through technique, at the same time they show how much we know about the chaotic behavior of a secularized sky.[[197]](#footnote-197) If the cloud is the image of frictionless communication coopted by neoliberal logics as neutral and liberatory, its feedbacks in a long-exposure also render a thick haze that obscures vision and demands the use of other senses so one can navigate.[[198]](#footnote-198) Clouds are also what breaks the day-light sky symmetry.

Embodied evidence then, rather than a spiritual matter, is that which allows us to understand the *para-empirical* condition of data and disturbs the comfortable illusion of control without dismissing the necessity of organization. Architect Laura Kurgan expands the critique on master maps: “They let us see too much, and hence blind us to what we cannot see, imposing a quiet tyranny of orientation that erases the possibility of disoriented discovery.”[[199]](#footnote-199) In her work, visualizations are “not presentations of the things themselves, but representations, figures, mediations— subject, then, to all the conventions and aesthetics and rhetorics that we have come to expect of our images and narratives.”[[200]](#footnote-200) Kurgan cites art historian Rosalyn Deutsche to explain how this condition requires a consistent thickening of interpretations, a continuous work of seeing and forging gazes in order to avoid authoritarian claims of neutrality. Deutsche says that “in the absence of given or nonrelational meanings, any claim to know directly a truth outside representation emerges as an authoritarian form of representation employed in battles to name reality.”[[201]](#footnote-201) This suggests the entanglement between truth and representation, and therefore a particular meaning of truth that doesn’t rely on visual observation. Weather sensing stretches the way we understand evidence because it is not purely informative, as it doesn’t describe a fixed object but a series of intensities.

An increading mobile population calls for other types of citizenship that are not attached to place, and the planetary imagination can hint at what this planetary citizenship looks like. Media scholar Jennifer Gabrys studies what we could call anti-bureaucratic forms of sensing.[[202]](#footnote-202) In the essay “Being Planetary as Praxis,” Grabys draws from Gayatri Spivak to frame the importance of a planetary imagination capable of fostering a sense of ‘collective responsibility.’[[203]](#footnote-203) That is, rather than the hope for a universal and conscious citizen attached to the image of the global, the perception of the planet can support a sense of solidarity not only among humans but also non-human and more-than-human beings. The planetary here is a collective practice that doesn’t turn into the same imaginaries of multicultural liberalism but opens space for an open-ended dialogue and for the appropriation of sensing technologies that are often in service of neoliberal agendas of environmental governance. Technical images of sensing are in a way parallel to the project of a planetary mindset. Moving away from the oversight of satellite images, sensing translates the world into a set of parameters that challenge the visual predominance of evidence. Using codes and abstract parameters, rather than a single biosphere, weather monitoring and imagining represent a nested scalar atmospheric processing of the planet capable of disturbing the centrality of human agency and scale of the climatic debate.

Cloud’s material qualities unveil cartography’s top-down utopian ambitions. Their unruliness opens space to think the reason behind informal processes, improvisation, and playfulness when considering social-environmental policy for the biome. More than engineering people, they show the need for plans that create spaces for such play to happen. To think through embodied knowledge means not to think about one’s individual body but to discuss as a species what atmospheric role we want to have on this planet. The importance of the affective can be subjective, familiar, poetic, and particular, but it should also be the construction of a collective body. Sensing technologies are an unlikely ally in the search for new mindsets. They start to require scientists to ask not only how it works, but where carbon emissions come from, and what to do with it.

What might be pushed aside as the delirious image of an anthropomorphized sky with will, however, in many ways, what already guides environmental sensibilities. It is not a denial of simplification either. Cutting is, of course, a necessity of design and history, as Tafuri reminds is so many times. But cutting is not synonym for suppressing nor suffocating. As they make visible what we don’t usually see, sensing technologies can cause another type of disorientation that is not that from the dramatization of disaster. If mapping technologies can be spatial “rules-as-constraining,” by establishing a common grammar, they turn into “rules-as-enabling.”[[204]](#footnote-204)

Ultimately, what models defy is the thin surface of conservation units, nation-states and indigenous territories jurisdiction that organizes ecological concerns. As much as this is hopeful it can also be that these thick geographies (as it has been so far) can only be tools to destabilize the centrality of the state, by creating new nodes of political power without expanding democratic systems. Scientists can serve as proxies to give technical justification for non-governmental attempts to organize territory, create borders and securitize the forest. [IMG 63] If states and sovereignty are ill-suited to face the geopolitical tasks that emerge from an ecological crisis, a new type of political organization comes with a new spatial imagination, and a new sketchy quality for spatial representations. Sketchy in the sense that it is a space to drawn upon and project but with a grid that doesn’t work to control and fix, but that facilitates movement and change. That is, a multiscale grammar that opens the path for unruly and ever-changing environmental organizations.

Instead of an appetite for clear weather predictions that assists confident sailors, hikers, and explorers to navigate, what kind of endeavors can emerge from an erratic and disorienting climatic forecast?

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1. Worker’s Party, in Portuguese, *Partido dos Trabalhadores* (PT). [↑](#footnote-ref-1)
2. Liberal’s Party, in Portuguese, *Partido Liberal* (PL). [↑](#footnote-ref-2)
3. Rodrigo Nunes, *Do transe a Vertigem*. [↑](#footnote-ref-3)
4. “Conscientization” refers to Paulo Freire’s work. In the Brazilian education philosopher’s book *Pedagogy of the Opressed,* the solution to oppression comes with mental emancipation. The enlightenment about the conditions of oppression is presented as a way to help those at risk. But is important to consider the critique by Tuck and Yang in “Decolonization is not a metaphor.” Where they argue that focusing on the pedagogical project of critical consciousness is nothing but “settler harm reduction.” [↑](#footnote-ref-4)
5. Peters, *Marvelous Clouds*, 7. [↑](#footnote-ref-5)
6. See Lauren Berlant, *Cruel Optimism*. [↑](#footnote-ref-6)
7. Rodrigo Nunes defines these as central to the analyses of historical fascism a dynamic between rationality and irrationality. [↑](#footnote-ref-7)
8. Professor of modern and contemporary philosophy writes in the book *Do Transe à Vertigem:* “In denialism, therefore, we find what is ultimately the greatest and most ironic misunderstanding on which the extreme right depends: the fact that it seals an alliance between those who prepare to survive in increasingly worse conditions and an elite that increasingly at ease with the idea that "there is no longer enough place on earth for them and the rest of its inhabitants." 49. [↑](#footnote-ref-8)
9. See for instance the recent developments for the approval of Bill 490 that was recently approved by the congress and limits the recognition of new Indigenous Lands. [↑](#footnote-ref-9)
10. Latour, “Love your Monsters.” [↑](#footnote-ref-10)
11. For more about the multiplication of statues like this over recent years: Inaugurated in 2017, by the same sculptor, Novo Progresso, Pará <https://www.folhadoprogresso.com.br/estatua-em-homenagem-aos-garimpeiros-esta-pronta-para-ser-inaugurado-ao-som-de-amado-batista-em-novo-progresso/> . See also Inaugurated in December 2022 in Poxoréu, Mato Grosso. <https://portalmt.com.br/delegado-claudinei-parabeniza-dia-do-garimpeiro-em-poxoreu-e-destaca-estatuas-como-homenagem/>. In 2016 in Salto do Jacuí, Rio Grande do Sul: <https://radiogeracao.com.br/monumento-ao-garimpeiro-e-inaugurado-no-trevo-de-acesso-a-salto-do-jacui/>  In 2020 in Ouro Fino, Minas Gerias: <https://www.tribunadasaguas.com.br/2020/07/09/ouro-fino-tera-mais-um-monumento-gigante/> [↑](#footnote-ref-11)
12. See for instance: Boa Vista, Roraima, Monument to Miners built in 1960. Or the Bandeirantes monument built in São Paulo in 1954, by Victor Brecheret. [↑](#footnote-ref-12)
13. For more about amateur aesthetics in Bolsonaro’s PR see: Beiguelman, [“O que dizem as imagens do presidente?”](https://revistazum.com.br/colunistas/imagens-presidente/)  [↑](#footnote-ref-13)
14. Steyerl, “In Defense of the Poor Image.” [↑](#footnote-ref-14)
15. See, for example, this propaganda piece by mining company VALE sharing their efforts towards Amazonia’s conservation: <https://www.youtube.com/watch?v=njfiCm5Os38> [↑](#footnote-ref-15)
16. Websites and reports that track the recent destructive growth in Amazonia, illegal mining appears in the package of threats alongside unchecked agricultural expansion, illegal logging, and lack of law enforcement. See for example: Non-profit organization Amazon Conservation’s list of ‘Threats to the Amazon:’ Unchecked Agricultural Expansion, Illegal and Unmitigated Gold Mining, Illegal Logging, Poorly Planned Infrastructure, Fires, Lack of Sufficient Governance, Climate Change, Lack of Law Enforcement. In: <https://www.amazonconservation.org/the-challenge/threats/> [↑](#footnote-ref-16)
17. Kopenawa, Davi; Albert, Bruce. *The Falling Sky*. [↑](#footnote-ref-17)
18. Figures obtained by SUMAÚMA in January 2023 showed that during Jair Bolsonaro’s far-right government, the number of children under 5 years old who died from preventable causes increased 29% in Yanomami territory: 569 young indigenous children died in the last 4 years from diseases that are treatable <https://sumauma.com/en/nao-estamos-conseguindo-contar-os-corpos/> [↑](#footnote-ref-18)
19. Arantes, Paulo, Interview with Sombini, Eduardo, Mesmo sem projeto, Lula terá sucesso se frear a extrema Direita, Folha de São Paulo Ilustríssima Conversa. March 11, 2023. <https://www1.folha.uol.com.br/ilustrissima/2023/03/mesmo-sem-projeto-lula-tera-sucesso-se-frear-extrema-direita-diz-paulo-arantes.shtml> [↑](#footnote-ref-19)
20. Appadurai, *Modernity at Large*, 30. [↑](#footnote-ref-20)
21. Lispector, “Brasília,” in: Todos os Contos, 595. [↑](#footnote-ref-21)
22. The Trans-Amazonian Highway (BR-230) is a transversal federal road. The construction initiated in 1972 during the military dictatorship was never completed paved. The construction many indigenous nations had to be displaced and many more were indirectly affected with the facilitated access to the forest. [↑](#footnote-ref-22)
23. “Garimpeiros bloqueiam rodovia Transamazônica no Pará contra fiscalizações ambientais,” O Globo, March 2022. <https://g1.globo.com/pa/para/noticia/2022/03/16/garimpeiros-protestam-na-br-230-no-para-contra-fiscalizacoes-ambientais.ghtml> [↑](#footnote-ref-23)
24. Vale S.A. (former CVRD, Companhia Vale do Rio Doce), is a multinational mining company, one of the largest of the world. It is the largest producer of iron ore, pellets and nickel. It was created in 1940 as part of the “Washington Agreement”, that determined the creation of a state-owned company to explore, commercialize and distribute iron ore, with the aim of supplying the British and American arms industry. [↑](#footnote-ref-24)
25. See YouTube channel “Cidade Pepita:” <https://www.youtube.com/watch?v=UXrptigB5ZA> [↑](#footnote-ref-25)
26. See Gavra, Douglas, “Elon Musk's Starlink kits are seized from illegal mining in the Amazon.” Folha de São Paulo, May 2023. <https://www1.folha.uol.com.br/tec/2023/06/kits-da-starlink-de-elon-musk-sao-apreendidos-em-garimpo-ilegal-na-amazonia.shtml> [↑](#footnote-ref-26)
27. See Cidade Pepita: <https://www.youtube.com/watch?v=B1pgXETra_E&t=1s> [↑](#footnote-ref-27)
28. The YouTube channel “Cidade Pepita” was deleted days after the January 8th invasion of the Planalto palace, the National Congress and the Federal Supreme Court, in Brasília, during the anti-democratic bolsonarist attacks. Their facebook page is still available: <https://www.facebook.com/cidadepepita/?locale=pt_BR> [↑](#footnote-ref-28)
29. See for example the video of Acupary operation recorded on May 26th, 2023. <https://www.youtube.com/watch?v=LlhGR88JiJg> [↑](#footnote-ref-29)
30. Prefeitura Municipal de Itaituba, “História do Município.” <https://www.itaituba.pa.gov.br/cidade> [↑](#footnote-ref-30)
31. Dun & Bradstreet, “Metal Ore Mining business information” <https://www.dnb.com/business-directory/company-information.metal_ore_mining.br.para.itaituba.html> [↑](#footnote-ref-31)
32. Castilho, Indriunas, “Acusado de grilagem, desmatamento e tráfico, prefeito é retransmissor da Globo em Itaituba.” <https://deolhonosruralistas.com.br/2020/11/08/acusado-de-grilagem-desmatamento-e-trafico-prefeito-e-retransmissor-da-globo-em-itaituba-pa/> [↑](#footnote-ref-32)
33. A survey by MapBiomas revealed that Bolsonaro won the election’s first round in 265 municipalities in the Legal Amazonia. They form the “arc of deforestation,” the region in which 70% of deforested areas in the last 30 years are located. Itaituba is one of these municipalities. For more about the overlap of electoral results and deforestation see “Bolsonaro won in the most deforested cities in the Amazon in the first round,”O Globo, October 2022. <https://oglobo.globo.com/politica/eleicoes-2022/noticia/2022/10/bolsonaro-venceu-nas-cidades-mais-desmatadas-da-amazonia-no-primeiro-turno-veja-o-mapa.ghtml> [↑](#footnote-ref-33)
34. Ministério Público Federal, “Mineiração Ilegal de Ouro na Amazônia.” [↑](#footnote-ref-34)
35. Szeman, Wenzel, “What do we talk about when we talk about extractivism?” 507. [↑](#footnote-ref-35)
36. Comitê Nacional em Defesa dos Territórios Frente a Mineiração. “Quem é quem no debate sobre mineração em Terras Indígenas?” [↑](#footnote-ref-36)
37. Sontag, *Regarding the Pain of Others*, 7. [↑](#footnote-ref-37)
38. Rede Amazônica de Informação Socioambiental Georreferenciada, “Amazônia Sob Pressão,” 30. [↑](#footnote-ref-38)
39. Fiocruz, “Estudo Analisa a contaminação por mercúrio entre o povo indígena Mundukuru.” <https://portal.fiocruz.br/noticia/estudo-analisa-contaminacao-por-mercurio-entre-o-povo-indigena-munduruku> [↑](#footnote-ref-39)
40. After calls from Greenpeace activists Brunno Kelly wrote a piece in Reuters with images of illegal mining in the Madeira river that pressured for federal organs response after months of indifference. See Neto, “PF faz operação no rio Madeira para destruir balsas de garimpo illegal.” <https://www1.folha.uol.com.br/cotidiano/2022/10/pf-faz-operacao-do-rio-madeira-para-destruir-balsas-do-garimpo-ilegal.shtml> Access: December 5, 2022. [↑](#footnote-ref-40)
41. Rede Amazônica de Informação Socioambiental Georreferenciada, “Amazônia Sob Pressão,” 30. [↑](#footnote-ref-41)
42. Gabrielson, “The Visual Politics of Environmental Justice,” 30. [↑](#footnote-ref-42)
43. Gabrielson, “The Visual Politics of Environmental Justice,” 28. [↑](#footnote-ref-43)
44. Demos, *Against the Anthropocene*, 55. [↑](#footnote-ref-44)
45. Demos, *Against the Anthropocene*, 55. [↑](#footnote-ref-45)
46. 17 Demos, *Against the Anthropocene*, 27. [↑](#footnote-ref-46)
47. See Lucas Bessire and David Bond, “Ontological anthropology and the deferral of critique.” [↑](#footnote-ref-47)
48. See Eduardo Kohn, *How Forests Think*, 2013. [↑](#footnote-ref-48)
49. Ingold, “The Temporality of the Landscape,” 156. [↑](#footnote-ref-49)
50. Ingold, “The Temporality of the Landscape,” 171. [↑](#footnote-ref-50)
51. Ingold, “The Temporality of the Landscape,” 157. [↑](#footnote-ref-51)
52. Phillips, “Mining and the Nature of Gold Deposits,” in Formation of Gold Deposits, 10. [↑](#footnote-ref-52)
53. Phillips, “Mining and the Nature of Gold Deposits,” in Formation of Gold Deposits, 22. [↑](#footnote-ref-53)
54. Camargos, “Apple, Google, Microsoft e Amazon usaram ouro ilegal e terras indígenas brasileiras,” Reporter Brasil, July 2022: <https://reporterbrasil.org.br/2022/07/exclusivo-apple-google-microsoft-e-amazon-usaram-ouro-ilegal-de-terras-indigenas-brasileiras/> [↑](#footnote-ref-54)
55. Chimet, “Sustainability” <https://www.chimet.com/en/company/sustainability> [↑](#footnote-ref-55)
56. Chimet, “Sustaintability Policy.” [↑](#footnote-ref-56)
57. Forensic Architecture, “Gold Mining and Violence in the Amazon Rainforest.” <https://forensic-architecture.org/investigation/gold-mining-and-violence-in-the-amazon-rainforest> [↑](#footnote-ref-57)
58. Arboleda, *Planetary Mine*, 10. [↑](#footnote-ref-58)
59. Yusoff, “Mine as Paradigm.” [↑](#footnote-ref-59)
60. Haraway, “Situated Knowledges” [↑](#footnote-ref-60)
61. “Indio Cidadão?” Accessed July 2022: <https://www.youtube.com/watch?v=kWMHiwdbM_Q&t=114s> [↑](#footnote-ref-61)
62. See Márcio Santilli’s report of Ailton Krenak’s speech: <https://medium.com/social-environmental-stories/pathways-forward-20b6f17b8996> [↑](#footnote-ref-62)
63. Law 6.001, December 1973, “Estatuto do Índio”: <http://www.planalto.gov.br/ccivil_03/leis/l6001.htm> [↑](#footnote-ref-63)
64. Art. 4 - The Indians are considered: I - Isolated - When they live in unknown groups or of which little and vague information is available through occasional contact with elements of the national communion; II - In the process of integration - When, in intermittent or permanent contact with strange groups, they conserve a smaller or larger part of the conditions of their native life, but accept some practices and ways of existence common to other sectors of the national communion, which they increasingly need for their own sustenance; III - Integrated - When incorporated into the national communion and recognized in the full exercise of civil rights, even though they conserve uses, customs, and traditions characteristic of their culture. [↑](#footnote-ref-64)
65. Reference to Pawley, “In the Year 2070,” apud: Tavares. Beyond Brasília Amazônia. [↑](#footnote-ref-65)
66. Tavares. “Beyond Brasília Amazônia,” 203. [↑](#footnote-ref-66)
67. The 2014 National Comission of Truth report pointed to deaths in conflicts and forced removals, supply crises, deliberately inoculated epidemics. [↑](#footnote-ref-67)
68. Título VIII, Da Ordem Social, Capítulo VIII, Dos Índios. [↑](#footnote-ref-68)
69. Badin, “Sobre o Conceito Constitucional de Terra Indigena.” [↑](#footnote-ref-69)
70. Britto, Supremo Tribunal Federal, March 19, 2009. <https://redir.stf.jus.br/paginadorpub/paginador.jsp?docTP=AC&docID=630133> [↑](#footnote-ref-70)
71. There are many phases in indigenous land demarcation process. This number refers to those in process of identification, with use restriction to non-Indians, identified, declared, reserved and homologated, According to IMAZON (Amazon Institute of Man and the Environment). Quilombola territories are not included in this number, and they correspond to 0,2% of Amazonian territory. <https://imazon.org.br/areas-protegidas-na-amazonia-brasileira-avancos-e-desafios-2/> [↑](#footnote-ref-71)
72. IMAZON, “Áreas Protegidas na Amazônia Brasileira.” <https://imazon.org.br/areas-protegidas-na-amazonia-brasileira-avancos-e-desafios-2/> [↑](#footnote-ref-72)
73. Marina Silva was a member of the Worker’s Party (PT) until 2009. She ran for president in 2010 as the candidate for the Green Party (PV) and is the current Ministry of the Environment and Climate Change. [↑](#footnote-ref-73)
74. Cimi is an organization linked to the CNBB (National Conference of Brazilian Bishops) created in 1972. The general objective: "To witness and prophetically announce the Good News of the Kingdom, at the service of the indigenous peoples' life projects, denouncing the structures of domination, violence and injustice, practicing intercultural, inter-religious and ecumenical dialogue, supporting the alliances of these peoples among themselves and with the popular sectors for the construction of a world for all, egalitarian, democratic, pluricultural and in harmony with nature, on the way to the definitive Kingdom." <https://cimi.org.br> [↑](#footnote-ref-74)
75. See Brum, “How did we get to the 570 little indigenous people killed by the negligence of the Bolsonaro government.” <https://sumauma.com/como-chegamos-aos-570-pequenos-indigenas-mortos-por-negligencia-do-governo-bolsonaro/> [↑](#footnote-ref-75)
76. Law Project 490/2007 establishes the theory of a “Marco Temporal,” or a “temporal frame” to regulate indigenous entitlement to land. Available in: <https://www.camara.leg.br/proposicoesWeb/prop_mostrarintegra?codteor=444088&filename=PL%20490/2007> [↑](#footnote-ref-76)
77. This is what Indigenous Leaders call the process of “Aldear a Política” or turn politics into a village by electing indigenous people for political offices. [↑](#footnote-ref-77)
78. Holston, *Insurgent Citizenship*, 73. [↑](#footnote-ref-78)
79. Cunha, *Legislação Indigenista no século XIX*, 4. [↑](#footnote-ref-79)
80. Silva, “Apontamentos para a civilização dos Índios Bravos do Império do Brasil.” In: <https://bdlb.bn.gov.br/acervo/handle/20.500.12156.3/430410> [↑](#footnote-ref-80)
81. Holston, *Insurgent Citizenship*, 143. [↑](#footnote-ref-81)
82. Holston, Insurgent Citizenship, 63. [↑](#footnote-ref-82)
83. James Holston describes Brazilian citizenship as “inclusively inegalitarian” and compares with French (inclusively egalitarian) and United States (restrictively egalitarian) citizenships. [↑](#footnote-ref-83)
84. The legal abolition of slavery in Brazil occurred in 1888, through the Lei Áurea. It followed a gradual abolition process following Eusebio de Queirós Law (1850), that prohibited slave trade from Africa to Brazil; Free Womb Law (1871), established freedom for the children of slaves who were born after that date; Sexagenários or Saraiva-Cotegipe Law (1885), established freedom for blacks over 60 years old. [↑](#footnote-ref-84)
85. Holston, *Insurgent Citizenship*, 81. [↑](#footnote-ref-85)
86. While sociologist Gilberto Freyre might be the main theorist of “racial democracy” (he coined the term in his book *Casa Grande e Senzala*, published in 1933), the concept denotes a common belief of Brazilian modernist movement: that Brazilian identity and nationalism should emerge from an internal and harmonious self-colonization. That because, among the (white and male) modernist ideologues, racial prejudice was not considered a reality in Brazil, as they saw Brazilians and a unified and miscigenated people. [↑](#footnote-ref-86)
87. Krenak. Interview with ENTRE, “Muros.” <https://entre-entre.com/manager/uploads/interviews/ailton-krenak-ii-370.pdf> [↑](#footnote-ref-87)
88. Reference here to the recurrent use of Realpolitik in a way to promote and validate the pragmatism that many times is a mask to the political actions and decisions that favor private interests, to the detriment of the common. [↑](#footnote-ref-88)
89. “Quilombos are settlements first created by enslaved people that escaped captivity and are one of the first experiences of freedom in the Americas. They had a community structure based on African cultural values and their economic model was the opposite of the colonial model with a diversified agricultural production that provided their own sustenance and maintained exchange relationships with the surrounding populations. [↑](#footnote-ref-89)
90. There are many other classifications of traditional types of extraction under Brazilian Law: Caboclos, Ribeirinhos, Rubber Tappers (Seringueiros), Caiçaras, Jangadeiros, Fisherman, Quilombolas. [↑](#footnote-ref-90)
91. See INCRA, “Relatório Técnico de Identificação e Delimitação do Território da Comunidade Remanescente de Quilombo de Povoado Tabacaria” <http://www.consultaesic.cgu.gov.br/busca/dados/Lists/Pedido/Attachments/1377082/RESPOSTA_PEDIDO_RTID___Territorio_Quilomb_de_Tabacaria___Palmeira_dos_Indios.PDF> [↑](#footnote-ref-91)
92. Antonio Bispo dos Santos, “Somos da Terra.” [↑](#footnote-ref-92)
93. Bolsonaro’s Minister of Women, Family and Human Rights, Damares Alves, foresaw the discussion about including gold miners and cattle ranchers as traditional peoples. See: <https://www.bbc.com/portuguese/brasil-59606546> [↑](#footnote-ref-93)
94. Tavares, “The Political Nature of the Forest,” in: The word for world is still Forest, 150. [↑](#footnote-ref-94)
95. Tavares, “The Political Nature of the Forest,” in: The word for world is still Forest, 139. [↑](#footnote-ref-95)
96. See Autonoma, “Memória da Terra, Arqueologias da ancestralidade e da despossessão do povo Xavante de Marãiwatsédé.” [↑](#footnote-ref-96)
97. Holston, *Insurgent Citizenship*. [↑](#footnote-ref-97)
98. CIMI, Letter from the Free Land National Mobilization, April, 2006: <https://cimi.org.br/2006/04/24704/> [↑](#footnote-ref-98)
99. See for example Brum, [“A esquerda que não sabe quem é”](https://brasil.elpais.com/brasil/2018/12/19/opinion/1545240940_077902.html) El País, Decemeber, 2018. <https://brasil.elpais.com/brasil/2018/12/19/opinion/1545240940_077902.html> [↑](#footnote-ref-99)
100. Watch the complete video of Lula’s participation on the event at <https://www.youtube.com/watch?v=_1YxcuwKHFM> [↑](#footnote-ref-100)
101. See James Holston, *Insurgent Citizenships* for more about the aesthetics of incivility in artistic resistance movements such as Funk and Rap. [↑](#footnote-ref-101)
102. In Lula’s words: “You are an intelligent people that took care of this lands before we arrived.” [↑](#footnote-ref-102)
103. The theme for 2022 Free Land was “Taking Brazil Back: Demarcating territories and Villaging politics.” [↑](#footnote-ref-103)
104. See Coelho, “Brasil como frustração” <https://www.revistaserrote.com.br/2019/03/o-brasil-como-frustracao-por-fred-coelho/> [↑](#footnote-ref-104)
105. Becker, *Geopolítica da Amazônia*, 185. [↑](#footnote-ref-105)
106. Larrain, “Latin American Dependency and Historical Materialism,” 180. [↑](#footnote-ref-106)
107. Larrain, “Latin American Dependency and Historical Materialism,” 190. [↑](#footnote-ref-107)
108. Larrain, “Latin American Dependency and Historical Materialism,” 191. [↑](#footnote-ref-108)
109. World Bank, “The Changing Wealth of Nations Measuring Sustainable Development in the New Millennium,” 2011. [↑](#footnote-ref-109)
110. For more about the work of gifts see “Pandas” in: Keller Easterling, *Extrastatecraft*. [↑](#footnote-ref-110)
111. See *The Little REDD Book*: <https://redd.unfccc.int/uploads/2_162_redd_20091201_gcp.pdf> [↑](#footnote-ref-111)
112. See “Deforestation in the Amazon and the REDD+ money that keeps on coming in Brazil” <https://www.wrm.org.uy/pt/artigos-do-boletim/o-desmatamento-na-amazonia-e-o-dinheiro-do-redd-que-continua-chegando-no-brasil> [↑](#footnote-ref-112)
113. Pedlowski, Dale, Matricardi. “The creation of protected areas and the limits of environmental conservation in Rondônia.” [↑](#footnote-ref-113)
114. Pedlowski, Dale, Matricardi. “The creation of protected areas and the limits of environmental conservation in Rondônia,” 104. [↑](#footnote-ref-114)
115. Monte-Mór, *Modernities in the Jungle*, 13-14. [↑](#footnote-ref-115)
116. Monte-Mór, *Modernities in the Jungle*, 16. [↑](#footnote-ref-116)
117. The official sign says: protected land by the federal government, the ministry of justice and the FUNAI. [↑](#footnote-ref-117)
118. Latour, Pandora’s Hope, 38-39. [↑](#footnote-ref-118)
119. Cadena, “Indigenous Cosmopolitics in the Andes,” 347. [↑](#footnote-ref-119)
120. Arjun Appadurai, *Fear of Small Numbers*. [↑](#footnote-ref-120)
121. PIATAM is the Institute of Strategic Socio-environmental Intelligence Of The Amazon. It was created in 2000 as a project of the Federal University of Amazonas (UFAM) within the scope of environmental compensation actions for the construction of the Coari-Manaus gas pipeline. It is financed by the Petroleum and Natural Gas Sectorial Fund (CT Petro) which is managed by Financier of Studies and Projects (FINEP) and with the subsequent adhesion of Petróleo Brasileiro S.A. Its objective is "to carry out Education, Research and Institutional Development activities of an environmental nature, in order to promote organizational modernization and the training of technical and managerial staff for the public sector and private companies." (PIATAM, 2012) [↑](#footnote-ref-121)
122. PIATAM, “Impacto Virtuoso do Pólo Industrial de Manaus sobre a proteção da Floresta Amazonia: Discurso ou Fato?” [↑](#footnote-ref-122)
123. See SUFRAMA, “Zona Franca Verde - Roteiro do Incentivo Fiscal” in: <https://www.gov.br/suframa/pt-br/zfm/zfv/conteudo-principal/roteiro-dos-incentivos/view> [↑](#footnote-ref-123)
124. <https://www.gov.br/suframa/pt-br/zfm/cba/cba-reune-parceiros-para-induzir-cadeia-de-fibras-vegetais-no-novo-remanso> [↑](#footnote-ref-124)
125. Similarly named to the Bolsa Família (Family Allowence) program introduced in 2003, when Luís Inácio Lula da Silva was president, as part of federal assistance initiatives that provided financial aid to poor Brazilian families. In 2018, the program Bolsa Floresta changed its name for Floresta em Pé (Standing Forest). [↑](#footnote-ref-125)
126. “Relevance of the Manaus Free Trade Zone is the agenda of a public hearing” September 2, 2019. <https://www.institutopiatam.org.br/relevancia-da-zona-franca-de-manaus-e-pauta-de-audiencia-publica/> [↑](#footnote-ref-126)
127. Brizeni, “O Deslocamento do Discurso Sobre a Zona Franca de Manaus.” [↑](#footnote-ref-127)
128. Easterling, *Extrastatecraft*, 15. [↑](#footnote-ref-128)
129. Law no. 3.173/1957 amended by article 1st. of Decree-Law no. 288/1967. [↑](#footnote-ref-129)
130. Mont-Mor, “Extended Urbanization and settlement patterns in Brazil: an environmental approach” in: Branner, Implosions / Explosions. [↑](#footnote-ref-130)
131. MST is Brazil’s Landless Workers Movement that fights historically for land reforms in rural areas. [↑](#footnote-ref-131)
132. Kanai, “On the peripheries of planetary urbanization: globalizing Manaus and its expanding impact,” 1079. [↑](#footnote-ref-132)
133. Kanai, “On the peripheries of planetary urbanization: globalizing Manaus and its expanding impact,” 1079. [↑](#footnote-ref-133)
134. Lima da Silva and Castro Lima apud Kanai, “On the peripheries of planetary urbanization: globalizing Manaus and its expanding impact,” 1079. [↑](#footnote-ref-134)
135. Amazonas has 45% of informal. Next comes Amapá with 22%, Pará with 14%, and Acre with 12%. In: MapBiomas. “Annual Mapping of Urbanized Areas in Brazil” <https://mapbiomas-br-site.s3.amazonaws.com/MapBiomas_Area_Urbanizada_2022_03_11.pdf> [↑](#footnote-ref-135)
136. Brianezi, Sorrentino, “A Modernização Ecológica Conquistando Hegemonia nos Discursos Ambientais,” 64. [↑](#footnote-ref-136)
137. FGV, “Zona Franca de Manaus.” <https://eesp.fgv.br/sites/eesp.fgv.br/files/estudos_fgv_zonafranca_manaus_abril_2019v2.pdf> [↑](#footnote-ref-137)
138. <https://www.youtube.com/watch?v=6pVB7elvBHI> [↑](#footnote-ref-138)
139. “Brasil é Terra Indígena,” CUMULUS TV, Accessed October 2022, <https://www.youtube.com/watch?v=r__lQBk7KjU> [↑](#footnote-ref-139)
140. Ferreira da Silva, “A Question of Power.” [↑](#footnote-ref-140)
141. Cadena, “Indigenous Cosmopolitics in the Andes,” 344. [↑](#footnote-ref-141)
142. Appadurai, *Modernity at Large*, 32. [↑](#footnote-ref-142)
143. Franco “Bifo” Berardi. *The Uprising: On Poetry and Finance* [↑](#footnote-ref-143)
144. Tsing, *Friction: An etnography of Global Connection*, 102. [↑](#footnote-ref-144)
145. See Latour, “When Has Critique Run out of Steam? Matters of Fact and Matters of Concern.” [↑](#footnote-ref-145)
146. Tsing, *Friction*,112. [↑](#footnote-ref-146)
147. The Amazon Institute of Man and the Environment is a non-profit research institute based in the State of Pará, created in 1990. The institute’s motto is: "The trees are our lungs, the rivers our blood, the air is our breath, and the Earth, our body." [↑](#footnote-ref-147)
148. Petrobras opened new requests to prospect for oil near the mouth of the Amazon River’s mouth in May, 2023 <https://www.camara.leg.br/noticias/967744-ibama-vai-examinar-novo-pedido-da-petrobras-para-prospectar-petroleo-perto-da-foz-do-rio-amazonas> [↑](#footnote-ref-148)
149. Latour, “Visualization and Cognition,” 20. [↑](#footnote-ref-149)
150. Latour, “Visualization and Cognition,” 8. [↑](#footnote-ref-150)
151. Latour, “Visualization and Cognition,” 15. [↑](#footnote-ref-151)
152. For more about the cultural and scientific aspect of climate simulations see Konior, “Modelling Realism: Digital Media, Climate Simulations and Climate Fictions.” [↑](#footnote-ref-152)
153. Coen, “Big Is a Thing of the Past,” 316. [↑](#footnote-ref-153)
154. Coen, “Big Is a Thing of the Past,” 312. [↑](#footnote-ref-154)
155. Tsing, *Friction*. [↑](#footnote-ref-155)
156. For more about the panel see: “World without Amazon: Safeguarding Earth’s Largest Rainforest,” Princeton University: <https://www.princeton.edu/news/2019/10/23/world-without-amazon-safeguarding-earths-largest-rainforest-focus-princeton> [↑](#footnote-ref-156)
157. See google search: <https://www.google.com/search?q=%E2%80%98Color+based+on+Nature%E2%80%99+Irma+Boom&tbm=isch&ved=2ahUKEwjyo6DP0I7-AhXnJGIAHUDqA_0Q2-cCegQIABAA&oq=%E2%80%98Color+based+on+Nature%E2%80%99+Irma+Boom&gs_lcp=CgNpbWcQA1CYBVjzFmDvGGgAcAB4AIABZIgBmAOSAQM0LjGYAQCgAQGqAQtnd3Mtd2l6LWltZ8ABAQ&sclient=img&ei=nEErZPLlJefJiLMPwNSP6A8&bih=691&biw=1440&rlz=1C5CHFA_enUS986US986> [↑](#footnote-ref-157)
158. See Paul Kockelman, *The Anthropology of Intensity: Language, Culture, and Environment* [↑](#footnote-ref-158)
159. “IPCC Sixth Assessment Report,” Intergovernmental Panel on Climate Change, accessed August 20, 2022<https://www.ipcc.ch/site/assets/uploads/2019/11/SRCCL-Full-Report-Compiled-191128.pdf> [↑](#footnote-ref-159)
160. Nixon, *Slow Violence and the Environmentalism of the Poor*, 30. [↑](#footnote-ref-160)
161. The construction of the Belo Monte hydroelectric plant is one example. Brazilian journalist Eliane Brum describes the transformation of ribeirinhos (traditional dwellers of the river’s margins) into urban poor after their forced expulsion for the construction of the dam. See her interview with Bruno Torturra, “Living the End at the Center of the World.” <https://www.youtube.com/watch?v=ghIL7ExjaxQ&t=74s> [↑](#footnote-ref-161)
162. Seymour, Busch, *Why Forests? Why Now? The Science, Economics and Politics of Tropical Forest and Climate Change.* [↑](#footnote-ref-162)
163. See the Amazonia 2030 Manifesto at: <https://amazonia2030.org.br/manifesto/> [↑](#footnote-ref-163)
164. Amazônia 2030, “Oportunidades Financeiras para o Brasil com a Redução do Desmatamento na Amazônia,” <https://amazonia2030.org.br/oportunidades-financeiras-para-obrasil-com-a-reducao-dodesmatamento-na-amazonia/> [↑](#footnote-ref-164)
165. For what I mean by “broad consciousness” see for example <https://www.worldbank.org/en/news/feature/2019/05/22/why-the-amazons-biodiversity-is-critical-for-the-globe> , <https://www.imf.org/external/pubs/ft/fandd/2017/03/seymour.htm> , <https://sdgs.un.org/goals> [↑](#footnote-ref-165)
166. Among many others, see: “SP dawns with gray fog and residents report smell of burning; experts point out connection with deforestation in the Amazon,” G1, October 9, 2022. <https://g1.globo.com/sp/sao-paulo/noticia/2022/09/09/sp-amanhece-com-nevoeiro-cinza-e-moradores-relatam-cheiro-de-queimado-companhia-ambiental-apura-as-causas.ghtml> Accessed April 20, 2023. [↑](#footnote-ref-166)
167. Scott, *Seeing Like a State*. [↑](#footnote-ref-167)
168. Scott, *Seeing Like a State.* [↑](#footnote-ref-168)
169. IPCC, “Fourth Assessment Report: Climate Change 2007. Chapter 8: How Models are Constructed?” [↑](#footnote-ref-169)
170. Graeber, Utopia of Rules. [↑](#footnote-ref-170)
171. Graeber, Utopia of Rules. [↑](#footnote-ref-171)
172. Siegert, Bernhard and Geoffrey Winthrop-Young. “Cultural Techniques: Grids, Filters, Doors, and Other Articulations of the Real.” [↑](#footnote-ref-172)
173. See Latour, “Anti-zoom.” [↑](#footnote-ref-173)
174. For the complete panel, see: “Amazonian Leapfrogging - A World without the Amazon (Session 2),” Brazil Lab at Princeton University. Accessed August, 2022. <https://www.youtube.com/watch?v=Ac65PlMqhLY&t=1161s> [↑](#footnote-ref-174)
175. For otherwise unseen phenomena see for example Shrivastava, M. et al. “Urban pollution greatly enhances formation of natural aerosols over the amazon rainforest,” 1–12. [↑](#footnote-ref-175)
176. Yusoff, Gabrys, “Climate Change and the Imagination.” [↑](#footnote-ref-176)
177. Exhibition at Fondation Cartier pour l’Art Contemporain in Paris, curated by Virilio and Raymond Depardon. [↑](#footnote-ref-177)
178. Virilio, Diller Scofidio + Renfro, Hansen, Kurgan, Rubin, Pietrusko, Smith, *EXIT*, In Foundation Cartier pour l’art contemporain, Accessed Decemeber, 2022, <https://www.youtube.com/watch?v=kyMbF2uuSIw> . [↑](#footnote-ref-178)
179. Virilio, Diller Scofidio + Renfro, Hansen, Kurgan, Rubin, Pietrusko, Smith, *EXIT* In Foundation Cartier pour l’art contemporain. [↑](#footnote-ref-179)
180. Bratton*, What We Do is Secrete*, 188. [↑](#footnote-ref-180)
181. Bratton*, What We Do is Secrete*, 188. [↑](#footnote-ref-181)
182. Bratton*, What We Do is Secrete*, 190. [↑](#footnote-ref-182)
183. Bratton, *What We Do is Secrete*, 189. [↑](#footnote-ref-183)
184. Tresch, *Technological World-Pictures*, 92. [↑](#footnote-ref-184)
185. Kurgan, *Close Up at a Distance.* [↑](#footnote-ref-185)
186. Tsign, *Friction.* [↑](#footnote-ref-186)
187. I am referencing Mitchell, Can the Mosquito Speak? In: *Rules of Experts* and Spivak, “Can the Subaltern Speak?” [↑](#footnote-ref-187)
188. When discussing climatic models Bogna Konior presents this question as: “how can we represent climate change adequately so that we act appropriately?” Konior, Modeling Realism: Digital Media, Climate Simulations and Climate Fictions, 63. [↑](#footnote-ref-188)
189. Gómez-Barris, *Extractive Zone*, 92. [↑](#footnote-ref-189)
190. Marisol de la Cadena, “Uncommoning Nature” in: Harvey, Krohn-Hansen, and Nustad, Anthropos and the Material, 49. [↑](#footnote-ref-190)
191. Coen, “Big Is a Thing of the Past.” [↑](#footnote-ref-191)
192. Giuliana Bruno, “In the Air.” [↑](#footnote-ref-192)
193. This is the case of recent simulations such as the VR “Tree.” The project immerses viewers into the lifetime of a tree in Amazonia, from a seedling to a full-grown rain forest tree. <https://docubase.mit.edu/project/tree/> [↑](#footnote-ref-193)
194. Haraway, “Situated Knowledges,” 585. [↑](#footnote-ref-194)
195. Latour, *We Have Never Been Modern.* [↑](#footnote-ref-195)
196. Peters, *Marvelous Clouds*, 176. [↑](#footnote-ref-196)
197. I draw this point from Peters argumentation countering Walter Benjamin’s and Georg Lukacs’ nostalgic assertions about the modern loss of an ecstatic reliance of the sky. In: Peters, *Marvelous Clouds*. [↑](#footnote-ref-197)
198. For more about the hipernormalization of globalized capitalism and its relation with the image of the haze or clouds, see Wisnik, *Dentro do Nevoeiro*. [↑](#footnote-ref-198)
199. Kurgan, *Close Up at a Distance,* 17. [↑](#footnote-ref-199)
200. Kurgan, *Close Up at a Distance.* 35. [↑](#footnote-ref-200)
201. Kurgan, *Close Up at a Distance,* 18. [↑](#footnote-ref-201)
202. See <https://planetarypraxis.org/> or <https://vimeo.com/154524510> and others at <https://www.jennifergabrys.net/> [↑](#footnote-ref-202)
203. Jennifer Gabrys, “Becoming Planetary.” [↑](#footnote-ref-203)
204. In David Graeber, *Utopia of Rules.* [↑](#footnote-ref-204)