

## Introduction

There are several emerging threads from the field of Green Criminology (GC) that provide for a dialogue with, and extension of, our collective analysis of environmental harm, of escalating social conflict on the frontiers of resource extraction and cultivation, and the indivisibility of ecological damage from corporeal rupture for the subjects of this study. The regular transgression of regional, national and international legal instruments supposedly protecting environments and human rights involves the often opaque and complex organisation of, and inter-relation between, local, corporate and state actors whose activities constitute- but are rarely prosecuted as- criminal behaviour. GC has shifted a focus beyond the immediacy of environmental crime to consider the broader motivations for and outcomes of environmental disruption and this invites a closer interrogation of the social relations and tensions that underpin a seemingly uncontrollable territorial advance of environmental degradation, and an intensification in conflict in culturally and bio-diverse regions.

This paper builds upon the class oriented and southern perspectives on green crime to contextualise and analyse resistance by riverine, quilombolo<sup>1</sup>, indigenous and agrarian communities in the globally important Amazon and Cerrado biomes of Brazil. These have been the target of violent land invasions and massive scale hydro energetic, mining and agribusiness projects, yet the communities have organised in ways that merit attention due to the different spaces and scales of contestation with relative success.

Indeed, it is the very fact of their resistance that illuminates how resource capture and degradation is practiced via local and armed opportunism, transnational financial speculation, state and World Bank-sponsored land and water privatisation. The often opaque interlinkages between localised land grabs, corporate strategies and statehood decision-making apparatus have profound consequences for forest and river destruction, and preclude a privileging of one scale over another in the analysis of green crime. Furthermore, empirical attention to the collective resistance against further environmental harm in territorial and commodity frontiers highlight the important tensions within state-capital relations. This in turn provokes a broader conception of labour towards an analysis that engages more robustly

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<sup>1</sup> The descendants of rebelling and freed slaves who established their own distinct communities and territories.

with distinct episteme of those whose existence is threatened by further resource appropriation.

As acknowledged more recently by green criminology scholars, this episteme is markedly absent from conventional social sciences (Escobar, 2004; Porto-Gonçalves and Leff, 2014; Weis, 2019), including criminology (see Goyes and South, 2017) and here we contend that it is underpinned by an inseparability of corporeal rupture from ecological disruption.

Consequently, the resistance of these communities to corporate advance makes visible the antagonism between their ancestral, metabolic human-nature interactions and the logic and productive relations underpinning further commodification of the biodiverse regions in which they live.

This paper focuses on the contemporary conflicts over land, valleys, rivers and fresh water in three sites: the Volta Grande of Xingu River, and the Upper Tapajos Basin (both in the Amazonian state of Pará), and Salto in Piauí State in the Matopiba region of Brazil's Cerrado. Amidst a marked escalation in violence and dispossession over the last decade the paper asks, in what ways does the corporeal rupture of rural *labour* threaten further ecosystemic degradation?

In the second question, the paper critically explores labour-state-capital relations through the lens of the above conflicts. Departing from a tendency in the literature to treat these components as homogenous entities, the paper asks, what do the social tensions within and across state institutions, regulatory bodies and judiciaries at local, regional scales tell us about the likelihood of -or limits to- further green crime?

Finally, the paper follows a praxis that aspires to engage with the distinctive knowledge production in these territories and takes an active position in relation to ongoing human rights and environmental abuses. The third question; therefore, asks, how does the actual contestation of green crimes inform an effective framework for analysis towards the restoration of more equitable human-nature relations?

To answer these questions, the paper is structured as follows. In the first place, it finds that an interrogation of metabolic nature-human relations and their linkage to the field of GC provide fertile ground to present and analyse the three case studies that are subsequently introduced. The methods whereby the data was collected, collated and shared are outlined, before the

case studies are considered in turn. Finally, a discussion of what the analysis of these three case studies contributes to the field of GC is presented.

## Green criminology and metabolic rift

In a recent review of Green Criminology, Lynch (2020: 51) asserts that, “green crimes are defined in administrative, regulatory, and civil laws, as well as criminal laws, and at various levels of governance”. This acknowledgement that the ‘definition’ of GC is traced across these various corridors and scales offers an important counterbalance to what has been considered the rather elitist frameworks for addressing ecological limits and harm (e.g. Pielke, 2013; Steffen et al., 2015). A closer inspection by GC scholars of the unevenness of environmental harm and enforcement across dimensions of race, class and ethnic composition is welcome (Stretesky 2008; Stretesky, Long & Lynch. 2013), yet gender is conspicuous by its absence from these discussions. This is despite the evident disproportionality of ecological harm experienced by women, and their role in local to transnational responses (Saleh, 2009), a factor that is reinforced by the cases that follow.

The political economy approach favoured by the earliest advocates of GC adopts the treadmill of production theory of Schnaiberg (1980) to capture the relentless accumulation drive of capital, that either makes extractive ‘withdrawals’ from environmental systems or polluting ‘additions’, thus leading to environmental ‘disorganisation’ (Long et al. 2014; Lynch, 2020). This political economy approach thus emphasises the trajectory of capital-state-labour relations towards further and inevitable ecological harm; and, following important interventions from Goyes (2016) and others in relation to southern experiences (Weis, 2019), GC has been more attentive to the ‘victimisation’ of and violent aggression against environmental activists and indigenous groups (Lynch et al., 2018). There remain theoretical blind spots; however, in that treatment of these agrarian and indigenous subjects of territorial resistance tend to stray from the broader class analysis of political economy theory (see Mendonça, 2018). Linked to this appears the difficulty of conceptualising the inherent links between human rights transgressions and environmental harm, despite these two dimensions being central to manifestations of resistance and advocacy. It appears that Long et al. (2014), for example, follow a rather static, normative reading of labour in the work of Obach (2004) whereby, “the state, labor, and capital all assert that economic growth

is critical for social well-being”. This may help explain why the transformatory potential of labour is dimmed by Long et al. (2014) as their spotlight shifts to the agency of a (questionably) ‘autonomous’ and seemingly homogenous state. From there springs a surprising conclusion that, “criminologists must focus on the broad problem of planetary boundaries as opposed to compliance with some particular regulation” (Long et al., 2014: 4).

Given the scale and diversity of ecological concerns, there are pressing reasons why a power-attentive GC would be drawn this direction: the weight of corporate crimes bear little relation to individual transgressions (Lynch, 2020); localised regulation such as environmental impact assessments are, for many critics, merely an instrument to accommodate and justify further capital accumulation, while the prosecution of green crimes seem to do little to change behaviour (Marshall and Goldstein, 2006; Gould, Pellow & Schnaiberg 2008; Stretesky, Long & Lynch, 2013). For the authors of this paper, drawing as we are on evidence from geographical locations remote from state governance and regulatory institutions, it seems premature to dismiss the differentiated zones and scales of contention. There are direct connections between the decisions to prosecute -or not- localised green crime and broader ecosystem destruction. The globalised ramifications of the local transgressions suggest that a multi-site and multi-scale analysis of GC as proposed by Lynch (2020) is required, but also one that grapples effectively with distinct readings, meanings and struggles of territories for diverse groups of people, whose struggles offer alternate pathways for social and ecological justice. Indeed a political economy approach to GC that leans towards the class-conscious readings of human-nature metabolic relations (Lynch 1990; 2020), and a belated embrace of southern episteme, invites a firmer consideration of the key and contradictory role of labour *within and against* capital accumulation processes and consequent environmental harm.

In what follows, this broadening of the geographical and epistemological reference points for GC and a broader conceptualisation of labour may contribute to the aspiration that GC can, “become meaningful and to have an impact within and beyond criminology[...] and provide evidence useful to policy makers that might help reduce the ecological stress humans create” (Lynch, 2020: 58). To this end, recent theoretical developments in relation to Marx’s notion of metabolism are revisited and considered in relation to the human-nature relations of green crime and collective opposition to further harm.

In the reference to ‘labour’ as a component of capitalist relations and hence economic growth, Long et al (2014) follow Obach (2004) in confining labour to the distinct wage relation under capitalism, In doing so they skirt past the contradictory position of labour as a source of value for capital, but also as the means of production with the capacity to resist and mediate relations for its own interest. They also foreclose a broader consideration of work/labour and the transformation of nature; and the important distinction between ‘production’ that has an immediate use on one hand and the exploitative and wasteful modes of production under capitalism on the other.

In his study of the labour process, Marx (1975) observed how humans, through ‘work’, historically transformed nature towards their immediate reproductive needs. Under capitalism, however, this direct relationship, or ‘first nature’, is disrupted. In its place, humans are coaxed or coerced to sell their labour for a wage, and for the most part their physical and mental capacities matter only for the value that is bestowed to the owner of the means of production. Under the new logic and the new relations of production (or the ‘social metabolism of capital’ after Mészáros, 1995), there is a metabolic rift whereby humans are deprived of access to, and knowledge of, naturally provided means of social reproduction, while nature’s capacity to reproduce its self is also compromised through the intensive ‘robbery of nature’ (Clark and Foster, 2018) as resources are extracted and polluted upon capital’s advance.

Underpinning the analyses of this metabolic rift and production of a second nature under capital is the articulation of the ‘uncontrollable’ and relentless accumulative strategies of capital (Mészáros, 1995) that inevitably brings it into conflict with the finite condition of the biosphere. Thus, there has been a certain convergence with the planetary boundaries literature (for example Magdoff and Foster, 2010) but with important distinctions, two of which are advanced here.

In the first place, by highlighting humans-as-nature (Napoletano *et al.* 2018), metabolic rift theory deals with the problem of interrogating human interactions with, and degradation of, naturally produced resources while avoiding anthropocentrism. At the same time, it avoids a post-humanism (Moore, 2015) that risks rendering more complex still the navigation and prosecution of green crime. It also refutes a human versus nature duality that would, for example, separate out wildlife species loss from human rights transgressions (Sollund, 2019)

in biomes where both are being threatened. The relationship between illegal deforestation and occurrence of slave-like labour in the Brazilian state of Mato Grosso is a case in point (Torres and Branford, 2018; Portes Virginio et al. 2022). The metabolic rift draws a clear distinction between the strategies of accumulation and commodification, most easily discernible in primary production (Elgnoli and Campling, 2018), and the livelihoods of communities in territories where, for example indigenous, riverine and agrarian communities depend on direct access to soils, rivers and forest for their material and cultural life (Porto-Gonçalves and Leff, 2014; Weis, 2019). It thus avoids the wrongheaded, occidental notions of pristine environments in need of protection and rather explains why many forests are present because of and not in spite of the people within them (Rocha, 2020). Furthermore, by broadening a class analysis to embrace the large scale resistance by these communities whose *raison d'être* is antagonistic to corporate advance, GC can and should shift the emphasis away from a green 'victimhood' that suggests a passivity among those who have been most resistant to actual green crime.

A more explicit acknowledgement of the episteme, the practices, the self-demarcation in distinct territories against accumulation (Porto-Gonçalves and Leff, 2014; Torres and Banford, 2018) reveals that in many cases we only 'know' of green crimes due to organised struggles against them. In remote areas, far from monitoring centres and judicial enquiry, the frontiers between first and second order metabolic relations are played out violently and the corporeal rift is manifest in 1,576 recorded land conflicts in Brazil in 2020, the highest since 1985 (Pastoral Land Commission, 2020). For the subjects of these studies, ecological health is inseparable from the material and immaterial human needs within the distinct territories. For the transgressors, the human occupants and the rights they struggle to uphold are an obstacle to deforestation and water pollution that is integral to mineral, hydroenergy and agricultural enclosure. The occurrence and extent of green crimes hinges on the local and regional balances of power and reflect social relations not just across the community, municipal, state and federal levels, but the relative influence of transnational governance, financial and judicial institutions. Given that legal reinforcement in relation to GC proves to be difficult at whatever scale of analysis, the observations warn against a relegation of one scale for another, but rather an exploration of the tensions within and across the legal and extra-legal processes.

Furthermore, following Lynch (2020), the material below delves into the ‘conflicts’ around what and who produces scientific knowledge, in whose interests they serve, and who influences outcomes. In this regard there is a significant body of work from the southern hemisphere, not just providing further evidence of green harms (Weiss, 2018), but the plural knowledge forms in concert with local environments (see Escobar, 2004; Porto-Gonçalves and Leff, 2014). These offer important counterpoints to the linear frameworks and assumptions of growth, modernity, progress and development.

In keeping with the critical origins of green criminology, and responsive to calls for a praxis that engages with and integrates the episteme and scientific knowledge of actively engaged communities and the academy, the methods by which research that was undertaken and shared across three sites in the Amazon and Cerrado biomes are outlined below.

## Methodology

This paper is primarily based upon fieldwork undertaken in three territories over a four year period, between May 2018 and March 2022. In each of these places; however, relationships between residents, civil society organisation and academics stretch back to 2005, and the article thus reflects the knowledge shared between residents and the research team of community-based, academic and legal practitioners over a considerable period. In addition, an analysis of the legal cases was undertaken between April 2020 and February 2022 to help identify both particular and more common dimensions in the strategies undertaken by communities in the face of green harm. This article thus draws also on the publicly available case material, the archives of civil society organisations supportive of the communities in question, and personal communication with legal advocates involved in the respective cases. A synthesis of the legal proceedings in each case were formally brought together in the online event, *Land Law and Legal Strategies to Defend Rural Communities' Land Rights: Matopiba, Cerrado and the Amazon*, 17 July 2020.

In Montanha-Mangabal, Pará, annual visits were maintained between 2008 and 2017. In 2018, 2019 and 2020, remote communication was maintained by authors in preparation for a further phase of self-demarcation. In July 2021, members of the research team visited the

community following a further land invasion to gather testimony and highlight the territorial rights of the residents, and in February 2022 a further visit conducted further interviews and presented documentation on the outcome of their legal challenge.

In Salto, Piauí, the civil society organisation, Rede Social de Justiça e Direitos Humanos (Network of Social Justice and Human Rights) first conducted fieldwork observations and interviews with the agrarian community following the increased land speculation in 2008. The ten interviews with residents of the Salto communities that inform this paper were conducted in May, 2018, in September, 2019 and the community was engaged through a series of interviews for written and podcast dissemination in May, 2020 and June 2021<sup>2</sup>.

In the Volta Grande region, the civil society organisation Movimento Xingu Vivo Para Sempre (MXVPS) has maintained contact with the fishing and artisanal mining communities of Vila Ressaca and Belo Monte do Pontal since 2008. In 2019, community consultations with 67 people informed a record of further threats and complaints. The most recent field visit was undertaken between 7 and 15 February 2022 when eight residents of Vila Ressaca, PA Ressaca and displaced families of Belo Monte do Pontal were interviewed by authors, along with the Public Prosecutor working on their legal case.

Interviews were conducted in line with ethical norms, data protection<sup>3</sup> and pseudonyms are used for all interviewees for security reasons. In what follows, three case studies are outlined with attention to the legal domain through which capital projects seeks to advance, and communities seek to resist, further resource capture.

## Volta Grande of the Xingu River: hydroelectricity and gold mining

The Volta Grande (Great Loop) of the Xingu River is an area located in the municipalities of Altamira, Vitória do Xingu and Senador José Porfírio in the state of Pará. There has been profound resistance to the Hydro-electricity project (UHE) of Belo Monte since a 2008 meeting

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<sup>2</sup> See <https://social.org.br/livros-2/37-podcasts/246-podcast-aqui-e-o-meu-lugar-resistencia-das-comunidades-rurais-aos-impactos-do-agronegocio>

<sup>3</sup> These are in line with the Economic and Social Research Council funding body and UK data protection legislation.

between the owners, indigenous peoples and social movements ended in confrontation and injury.

These collective concerns were well founded. In 2019, the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA) judged that the mitigation of the impacts of the Dam operation foreseen in the Environmental Impact Assessment (EIA) was insufficient to prevent the marked ecological disruption. In particular, the two key hydrographs provided in the EIA were considered flawed. A technical opinion provided by IBAMA in December 2019<sup>4</sup> concluded that their application would most likely worsen the current environmental situation and provided an alternative Provisional Hydrograph for safer river flows, ecosystem and inhabitant protection.

Contrary to the technical position of its own agency; however, the presidency of IBAMA signed an Environmental Commitment Term in February 2021<sup>5</sup> to allow the application of the hydrograph of consensus during the year 2021, establishing some additional compensatory measures. This contradiction was to the core of an injunction in a Public Civil Action obtained by the Federal Public Ministry on 6 June 2021. The judge determined that the Provisional Hydrograph would be applied, until such times that determined that “safe flows” for the functioning of Belo Monte without compromising the ecosystem and the inhabitants could be assured. This decision was been appealed and, on 26 July 2021, the superior Federal Court in Altamira reversed the decision, overruling the decision of the lower court. As Movement Xingu Vivo (MXV) have pointed out, this is the seventh time the superior court has overturned the lower court decision in favour of the company. It thus validated the Hydrograph (B), and seems to ignore ILO Convention 169, which requires that indigenous and traditional communities are consulted before taking any action that affects their livelihoods.

To compound the fears of the communities of the region, the planned installation of the gold mining project of Canadian mining company, Belo Sun, is located in the Directly Affected Area (ADA) and in the Area of Direct Influence (AID) of the Belo Monte UHE. The open-pit mine plans an extraction of 73.7 tonnes of gold in 12 years of operation, becoming the largest of its type in Brazil and with an estimated cost of approximately US\$ 1,076,724,000.00. Two 220m deep pits are planned (Ouro Verde and Grota Seca).

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<sup>4</sup> No. 133/2019/IBAMA/COHID

<sup>5</sup> TCA nº 3/2021-GABIN

The works are less than 15km from Belo Monte main dam, 9.5 Km from IT Paquiçamba, 13km from TI Arara of the Volta Grande, 30 km from the isolated indigenous territories of Ituna / Itata, and Trinchiera/Bacajá. The region is also known for the artisanal mining operation of the Mixed Cooperative of Garimpeiros da Ressaca, Itatá, Galo, Ouro Verde and Ilha da Fazenda (Coomgrif). In 2015, a group of these artisanal miners were locked in a work site because they refused to be expelled from the area. The expulsion of families from settlements of Vila Ressaca, Galo and Ouro Verde was subsequently deemed to be illegal in the Civil Action taken by the Public Defender of the State of Pará, as the company had purchased the lands without the participation of the National Institute for Colonization and Agrarian Reform (INCRA). This participation is mandatory considering that the installation of the project would take place in an agrarian settlement where private sales are forbidden. In the agrarian reform settlement of Ressaca PA, 1,439 hectares are central to this dispute with at least 29 families affected in the municipality of Senador José Porfírio. As the son of a family who had lost their lands pointed out, the company took advantage of the illiteracy of his parents, and the fact that many families do not possess land documents. The company acquired land in the settlement and also dozens of houses in the adjacent village (Vila Ressaca).

Here too, the EIS has been criticised for methodological deficiencies that underestimated contamination risks by cyanide and heavy metals (lead, cadmium, copper, mercury and arsenic) used in the gold processing process, especially in the event of an environmental disaster. It is little comfort to the inhabitants that the dam for the mine was designed by the same company (VOGBR), responsible for the notorious Fundão Dam that collapsed in 2018 (Carmo et al., 2017), and the same Civil Engineer signed the report of the two projects. Furthermore, the Belo sun dam has a waste capacity of 35.43 million cubic meters of waste, dwarfing the 2.65 million cubic meters of the aforementioned dam.

Given the proximity of tailings dam, the processing plant and the containment lakes to the bed of the Xingu River, and waste rock piles that are estimated at 1000m and 1500m, respectively, the contamination of the river and the TIs has been deemed inevitable, while the tailings could reach the Amazon River and the Ocean in a large spill. An expert feasibility study and technical opinion funded by Amazonwatch concluded that the project, “should be rejected by Brazilian regulatory authorities without further consideration”<sup>6</sup>.

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<sup>6</sup>[https://www.socioambiental.org/sites/blog.socioambiental.org/files/nsa/arquivos/oficio\\_rede\\_xingu\\_e\\_mxv\\_ps\\_-\\_parecer\\_tecnico\\_dr.\\_steven\\_h.\\_emerman.pdf](https://www.socioambiental.org/sites/blog.socioambiental.org/files/nsa/arquivos/oficio_rede_xingu_e_mxv_ps_-_parecer_tecnico_dr._steven_h._emerman.pdf)

The initial EIA of Belo Sun of 2012, rather incredibly, did not deal with possible effects on indigenous peoples, to the extent so that the word 'indigenous' appears only once in the entire document. The company's claim was that there was no impact on the indigenous community because they existed on a radius of more than 10km from the project site. The absurdity was gradually corrected through lawsuits and, in 2013, the Federal Public Ministry considered that the EIA was deficient in relation to the indigenous component and suspended the Preliminary License; and in 2014, the environmental licensing process was transferred from the corporation to IBAMA following a further Civil Action. Both decisions have been appealed by the company who retains the possibility of validating its Preliminary License and Installation License should the consultation and Study of the 'Indigenous Component' be considered adequate by the authorities (not necessarily by the inhabitants).

As a result of sustained community campaigns and effective advocacy for these by civil society organisations, the case of Belo Sun reached in United Nations and, in 2016, the Special Rapporteur on the rights of indigenous peoples expressed her concern about the possibility of cumulative effects between the two megaprojects, and about the lack of consultation with possibly affected indigenous communities<sup>7</sup>.

The aggregated impacts are vividly depicted by Larissa, 42. Her family were born and raised in the riverine community of Belo Monte do Pontal and were displaced by the Belo Monte dam. With fishing livelihoods destroyed, they were forced to leave the riverbanks to occupy adjacent land and begin life as cultivators, only to be confronted there by the plans for an open pit gold mine:

I'm a fisherwoman. They are destroying our territory. They want to take from us our river, our food, our home [...]. They want us to stay quiet, and leave. But I don't have another place for me and my family. Our place is here where I was born and where we learned, learned to respect nature, the animals. Traditional peoples suffer a great injustice. They want to expel us, but this place is part of us".

In 2018, the NGO Conectas made a representation before the UN, denouncing violent threats suffered by members of the Xingu Vivo Movement and of the artisanal miners opposing the

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<sup>7</sup> Report by the Special Rapporteur on the rights of indigenous peoples regarding their mission to Brazil, August 8, 2016, A/HRC/33/42/Add.1, available at: [http://unsr.vtaulicorpuz.org/wp-content/uploads/2014/06/images\\_docs\\_country\\_2\\_016-brazil-a-hrc-33-42-add-1-sp.pdf](http://unsr.vtaulicorpuz.org/wp-content/uploads/2014/06/images_docs_country_2_016-brazil-a-hrc-33-42-add-1-sp.pdf)

Mining project<sup>8</sup>. In August 2021, a resident of Vila Ressaca in his early sixties, Toni, explained how the aggression has not receded:

I was born and raised in the community of Vila Ressaca. We are suffering constant threat from Belo Sun, through the security guards hired by them,...they say they want nothing to do with us, but their presence us a threat to us from day to day...The courts, the law says they can't be in our area, our area of planting of reforestation, they are walking over our rights. Here we feel intimidated, they guys are armed, really well armed, while we work just with our machete and our hoe. We feel really bad with this.

Given the federal status of the river, and also of the designated agrarian reform land, the protests of these communities reached the Federal Public Ministry and were a factor in the suspension of the operating license of the company. At the time of writing, both the company and residents anxiously await the outcome of this judgement.

### Montanha-Mangabal: land grabbing and hydrodam construction

The territory of the communities of Montanha-Mangabal borders the lands along the Transamazônia highway, in the municipality of Itaituba, west of the state of Pará, between the Montanha and José Rodrigues rivers. It covers 54,443 hectares, comprising more than 101 families, known as *beiradeiros*, whose existence dates back to their migration from Northeastern Brazil to work as rubber tappers during the mid-19th century rubber boom. Through the (commonly, very violent) incorporation of indigenous women to life on the rubber plantations, a matrix of knowledge was also incorporated that allowed them to adapt to the conditions imposed by the forest, when the latex trade ceased. The territory lies along the 70 kilometres of the west bank of the Alto Rio Tapajós, south of the Amazon National Park and is subject to what the Federal Public Ministry identified as the second largest illegally grabbed area in Pará.

Many families were expelled from a part of their territory due to the creation of the Amazon National Park and construction of the BR163 highway in the 1970s. These major works, and

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<sup>8</sup> See <https://ox.socioambiental.org/sites/default/files/ficha-tecnica//node/218/edit/2018-06/Publico%20-%20Amea%C3%A7a%20a%20Defenders%20e%20Defenders%20-%20Xingu%20Vivo%20e%20Cooperativa%20dos%20Garimpeiros%20%281%29.pdf>

the intensified land grabbing that accompanied their implementation evicted many whose sustainable, extractive practices had helped preserve the forest for nine generations, long before the 'official' records of companies and prospectors. Following a period of relative acquiescence, in the last two decades they have been subject to legal saga accompanying what is considered the most grandiose and sophisticated land fraud of the many in the Amazon region.

The main stages can be summarised as follows. On 20 December 1974, a judicial decision issued via the Torrens Register<sup>9</sup> guaranteed the possession of over 1,138,000 hectares in the Tapajós region, including the territory of Montanha-Mangabal by the company from the distant state of Paraná, Indústria e Comércio de Madeiras LB Marochi, Ltda. (Indussolo). The area, equivalent in area to the states of São Paulo and Rio de Janeiro combined, covers the entire Montanha-Mangabal territory and in 1999, the company sent its employees to inform the community that the land now belonged to the company, initiating a prolonged period of insecurity for the beiradeiros in the region. By 2005, the community sought to avail of the new legal instruments (via Law No. 9.985) to ensure the right to land linked to the sustainable use of natural resources. They claimed the creation of the extractive reserve (RESEX), for their agro-extractivist settlement project (PAE).

This community action was paralleled by a formal request (official no. 995/2005 of the Attorney of the Republic in the Municipality of Santarém) for the location of the original process that caused the registration of the areas in the name of the Indussolo company. Despite the searches of notary offices and in the archives this was never found. On concluding his investigation into the propriety of the land claim, the Federal Public Prosecutor asserted: i) significant gaps in the chain of property ownership, and the inclusion of public lands, conservation units and agroecological possessions of historically consolidated traditional populations that contravene the criteria for Torrens registered lands; ii) indication of fraud, as private ownership had been claimed for what were public domains; the matriculation of the Torrens Registry was lost, and the area of the described property was

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<sup>9</sup> Torrens register refers to land transfer system, whereby the state transfers ownership of land by the binding registration of a transfer of title.

altered in order to reach incongruous proportions; iii) gross incompetence on the part of the original ruling.

In response to the Public Civil Action (n. 2006.39.02.000512-0), the Deputy Federal Judge granted an injunction in March, 2006, that recognized the occupation of Montanha-Mangabal by its residents and made the registration of Indussolo lands untenable. The recognition of their territory as a sustainable, extractive settlement (RESEX) was close to completion when the Strategic Planning Department of the government intervened. In 2008 the agency wrote:

The Tapajós River basin is in the final stages of the hydroelectric inventory studies, [...] the results are indicating the existence of 3 dam alternatives that could present around 10,000 MW of installed capacity, [...] Resex Montanha-Mangabal will cause interference in any of the studied alternatives[...] it is concluded that the protected area should not be created”.

The beiradeiros then received a message from the company-founded Diálogo Tapajós that part of their territory would be flooded by the dam and that they should register to obtain compensation and look for another place to live. They residents would not sign. An alliance between the beiradeiros and once sworn enemies, the Sawré Muybu, led to a territorial self demarcation that prevented the construction of São Luis do Tapajós HPP, the largest dam of the seven planned in the Tapajós Basin Hydroelectric Complex (see Torres and Banford, 2018). A further scheme, the HPP Jatobá HPP; however, recently had feasibility studies accepted by the National Electric Energy Agency (ANEEL) and is planned for the centre of the Montanha-Mangabal area. In September 26, 2013, the beiradeiros released a consultation protocol to be followed by the federal government for all decisions that are related to its territory in accordance with ILO Convention 169 and endorsed by the Public Ministry. As a result of consistent pressure from the community, Montanha-Mangabal Agroextractive Settlement Project (PAE), was eventually created in 2013 by INCRA. The designation, however, was not followed by the formal demarcation of the territory as INCRA is mandated to do. As a result, the PAE was subject to illegal attacks such as land grabbing, mining, loggers and others, before and after its official recognition, as outlined by a member of the community association:

That's why we [...] defend the territory because we depend on it to survive. These intense attacks of mining and logging, these illegal acts not only impact the environment, they impact people's lives. For us traditional and dependent residents of this forest, it is part of our life, from there we take our food. The mining activities directly harm people, animals, nature and our way of life, our livelihood.

The community denounced the owners of illegal gold mines and the mercury poisoning and violent actions that accompany their lucrative, mechanised activity including exploitation of the river, the Igarapé do Rato, inside the Itaituba National Forest, despite a legal injunction (dating back 15 years) prohibiting this activity. In response, the inhabitants again set out in the self-demarcation of the PAE territory, embarking on a five-day and six-day expedition in September and November 2017 respectively an activity that carries acute risks. During a field visit in July 2021, it was evident from interviewees that new invasions had taken place and land grabbers were encountered in the territory, indicative of the porosity of the boundaries that were still awaiting final recognition in law. As a local leader reflected,

[...]Life has completely changed. Just for defending the preservation of our area, which is our livelihood; defend the natural resources, the forest, our Tapajós River. It should not be, but defending it is life-threatening, life-threatening again and again.

That tension goes some way to explain the tears of relief that appeared on the faces of many on receiving news, in January 2022, that the claim made by the Federal Public Ministry (MPF) on their behalf had been upheld. The resistance of the riverside people had allowed an extensive genealogical research to be carried out, which proved that the community heritage traced eight generations, born and buried in that place. With the support of the MPF, in December 2021, the community won an important legal victory against invaders, obtaining an annulment of all fraudulent land claims on their lands, and the interdiction of 60 thousand hectares of its territory to anyone who was not from the families of Montanha-Mangabal. An interdiction of this type, in an area that was not occupied by indigenous people or quilombolas, was unprecedented in the history of the Brazilian Judiciary.

Salto in Piauí: agribusiness and land speculation

The vast plateaus and humid valleys of Matopiba have long sheltered peasant agriculturalists and descendants of freed slaves and indigenous peoples in this region of the Cerrado's mixed forest and grasslands, one of the globe's most biodiverse biomes. The traditional riverside community Brejeira Salto, located in the rural area of Bom Jesus in Piauí, is located in the epicenter of the Cerrado region that makes up Matopiba, on the border between the states of Maranhão, Tocantins, Piauí and Bahia. Hundreds of traditional, agrarian, indigenous and quilombola communities have lived in the region for hundreds of years.

More recently, the topography and favourable climate have also attracted land speculators, and those intent on cultivating soybean and other commodities. Whereby grain harvests grew on average by 3.5% each year in Brazil between 2001 and 2013, the annual growth was some 20% in Matopiba. Between 1995 and 2012 the area devoted to the cultivation of commodities in Matopiba more than doubled with only four crops (soybean, corn, cotton and rice) occupying 89% of the more than 4 million hectares of crops. Some 58% of the gross production value of the monocrops was in the hands of only 0.5% of the 324,000 agricultural holdings in the region (Network for Social Justice and Human Rights, 2020).

Women have been to the fore of the subsequent resistance, a stance motivated by the oppressive environment brought by those encroaching on the lands. As Reginalda, 37 years of age, states aside stands of corn previously destroyed by invading land speculators,

We've been suffering a lot with this illegal land grabbing thing. We don't have peace, we can't sleep well. Today you're alive and tomorrow you don't know if you'll be there.

The harassment from employees paid by farmers and speculators interested in the lands occupied by the communities is a constant torment report the residents, often surprised by people arriving with GPS devices undertaking geo-referencing, even inside their backyards. The stories of aggression, threats and arson lead not only to local landowners and land grabbers. Seven police reports and a declaration to the Public Ministry (MP) show a series of armed threats and invasions of the homes by those linked to companies such as SLC Agrícola, one of the largest agricultural conglomerates in the country. The paucity of investigation and prosecution for these transgressions belies the changes on this agricultural

frontier whereby the process of forming large farms involves of the purchase of land at low prices, most of the time illegally through land grabbing, and clearing of forest for monocropping.

When the farm is suitably formed towards commodity production, land prices go up demonstrably, with nine fold increases recorded in just 15 years in Piauí (Network of Social Justice and Human Rights, 2020). The incorporation of new areas of soybean production, in turn, serves as the basis for the expectation of enhanced future land prices and thus inflates the portfolio of companies. This is a now well practiced strategy for territorial expansion, hinging on the access of further credit and state subsidies and hiding the initial fraudulent claim to land used by traditional communities. In this regard, the cases of Schneider Logemann Company Agricola S/A (SLC Agricola) and of Harvard University Heritage Fund/Insolo are instructive.

SLC Agricola is the largest soybean producer in Brazil, having as main buyers Cargill, Amaggi and Bunge. In 2012, it constituted an agricultural real estate arm, SLC Land Co., in partnership with the English investment fund, Valiance Ltd., SLC Land Co.'s business consists of acquiring, forming and selling farms. In addition to its own areas (approximately 236,000 ha) and areas of SLC Land Co (approximately 86,000 ha), SLC Agrícola leases other areas and has partnerships with other companies, such as SLC-MIT, in partnership with Mitsui, which controls about 500,000 ha of land.

In a testimony by a Salto resident to the Public Ministry, given on August 22, 2017, the community was invaded in June of that year by four armed men who claimed to represent SLC and a second company, JB. They fixed signs and concrete markings within the community with warnings: “Accredited and protected by law”, signalling ownership of the invaded lands. This ‘green land grabbing’ is occurring when, rather than parcel off a percentage of their own private farm property as an environmental reserve (as required by the legal Forest Code), the companies invade and enclose an adjacent community land, claiming it as theirs and forbidding access to the historical occupants. The company has also been behind deforestation of the Cerrado. In May 2019, SLC had deforested 1,355 hectares of Cerrado forest and, in the first quarter of 2020, the company deforested a total of 5,200

hectares of Cerrado at the farm, Fazenda Parceiro, located in Formosa do Rio Preto in the neighbouring state of Bahia (Chain Reaction, 2020)<sup>10</sup>.

The Harvard University Heritage Fund has about one million hectares of land in the United States, Brazil, Eastern Europe, South Africa, New Zealand and Australia. In 2008, it formed an alliance with the Ioschpe family, that is one of the largest landowners in Matopiba, to create Insolo Agroindustria S/A, (95.8% owned by Harvard) so that Harvard University Heritage Fund could acquire large extensions of arable land in Piauí. Between June 2008 and June 2016, Harvard injected at least \$138 million into Insolo when acquiring at least six farms distributed over 115,000 hectares in Piauí, leading to further habitat clearance. Trees are cleared in the region by the chain practice, whereby the extreme ends of a chain are attached to two tractors to uproot standing forest. Deforestation and well construction by Insolo in the municipality of Baixa Grande do Ribeiro, in Piauí, close to the Salto communities of Morro D'Água and Rio Preto Settlement, caused enormous impact on the water level of rivers, a recounted by a Martha:

A farm next to Galilee, of Insolo, deforested 10 thousand hectares and two marshes dried up. The deforestation it was at the head of the two marshes. Now there's only water in the rainy season. Because before there were no wells on top of the mountains and today each large farm has a well. This causes our waters to dry out. Today we have more or less a track of three kilometres of the marsh that is drying up.

As monocultures replace forest and grasslands on the plateaus, community residents are also impacted by the contamination by pesticides that contaminate the water used for drinking, food production and preparation, while the toxins are the suspected cause of previously rarely known disease. Artur of Salto reported that the water is poisoned during the October rainy season to April:

The water from the mountains goes down into the stream full of agrottoxins. Here we does not have a well or piped water; we just have water from the river and marshes to drink; we drink the poison that falls from the mountains in the river water.

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<sup>10</sup> <https://chainreactionresearch.com/the-chain-slc-agricola-moves-forward-with-clearing-5200-hectares-of-native-vegetation/>

Another resident commented:

My godfather died of cancer of the lung two weeks ago. I think his death has to do with breathing pesticides. Never had I heard of cancer around here and now it's something without end.

Faced with these human and environmental degradations the communities, with notable support from CPT and Rede Social, formed a coordinating group, the People's Collective of Traditional Communities, and elected representatives to meet on a regular basis and organise. The importance of sharing knowledge given the complexity of new land deals was highlighted by a supportive lawyer from the Association of Rural Workers' Lawyers:

[T]he World Bank itself, which is a partner of the state of Piauí, has been financing the state's land agency and sectors of Piauí's judiciary[...] and declared that their programs aim to pacify social conflicts in the countryside. In reality, what we have seen [...] is precisely the intensification of these conflicts, mainly due to the recognition of private ownership of farms that were illegally occupied.

Yet the perseverance has been met with reward, and one of the immediate achievements of this mobilisation was the cancellation of fraudulent land titles held by land grabbers representing over 124,000 hectares, an action successfully taken by a local judge in the state of Piauí. Furthermore, after several meetings in Brazil and in the United States, letters and a petition to its Inspection Panel, the World Bank changed the focus of its project in the region, which was originally designed to privatize community land.

Significantly, the State Legislator Assembly in Piauí approved a new law (number 7.294/2019) determining that indigenous, quilombola and other traditional communities have collective land regularization. In doing so, the state recognized the traditional communities and began a collective land regularisation process. The Land Institute of Piauí undertook anthropological studies in some communities as a first step to land regularisation, while the communities also participated in territorial mapping in their lands. Among these were the traditional riverside communities of Salto de São Jorge e Salto do São Jose that together constitute of Brejeira Salto, and whose female led organisation had been demanding land

regularization since 2017. Following the anthropological study, it was discovered that all the people residing there are the sixth generation of the same original family. The final regularization process was thus completed in June of 2021, with a territory of 2,692.7196 hectares designated. Reflecting on the demarcation and collective land title won by the riverside community, Brejeira Salto, their legal advocate conceded that the titling does not guarantee an end to aggression and invasion, yet pointed to the social and environmental significance:

The titling of the traditional community of Salto, especially since it was a collective and definitive title of traditionally occupied territory in the Cerrado of southern Piauí, is very important to contain the devastation of the Cerrado in the region, and, of course, to guarantee this right to these families who take their livelihood from the land. Above all, it is also important to remember the role of indigenous and traditional communities in the very preservation of the Cerrado biome. So, it is an important achievement.

## Discussion

The cases above present in stark relief the contrast and conflict between the speculative tendencies of capital and the distinct nature-human metabolic relations of communities dependent on direct access to forest, soil and river for their corporeal and cultural reproduction. Through the testimonies of the residents of the three regions in question, it becomes increasingly difficult to neatly separate out environmental harm from human rights transgressions. In considering the rural, forest and riverine subjects as *labour*, whose activities transform nature in ways that have sustained the reproduction of generations, this paper underscores how their resistance to violent incursions (often with acute and fatal personal cost) are based upon their livelihood strategies that in turn help preserve distinct ecosystems. There are many obvious connections between environmental and human harm; pesticide contamination of waterways and perceived human poisoning is just one example narrated above (also see Bombardi, 2019). The implications for individual and collective social reproduction are made clear in the testimonies of those affected, at not least by the women who have taken a lead in protesting these injustices. The three cases illustrate how

the immediate face of violent incursion- a security guard, hired pistol carrier, company agent- are explicitly or inadvertently linked to strategies by institutions such as the World Bank and famed names of finance to bring public lands and resources in to private ownership. That these strategies find partnership and validation by the state is irrefutable, but this should not obfuscate the fact that within government ministries, chambers and courts there are tensions upon which the reduction or advancement of green harm hangs in fine balance. In geographically remote, rural abodes of production, and where threats, fraud and illegality often precede and accompany this corporate advance, knowledge and confrontation of these crimes is dependent on the organised resistance of communities whose territories are impacted.

Understanding the motivations for this resistance, the organising spaces upon which it is founded, and the judicial strategies that have in these cases impeded further environmental harm, is important for confronting green crimes. In the regions of study, Brazil's Amazon and Cerrado, the non-investigation and non-prosecution of environmental destruction, violent cases and murder is prevalent, and the spectre of violence remains with those on these frontiers. Yet, it is clear from these cases that the struggles for human rights and livelihoods in the face of massive power asymmetries at regional and international scale provide for an important brake to further ecological destruction.

In making visible the social relations that underpin these ecological transgressions with often extreme corporeal costs, the paper emphasises in the inter-scalar character of green crime that precludes prioritising one scale over another in green criminology analysis. It also underscores the remarkable resistance of peoples whose intra-generational existence is tied to and immediately dependent on biodiverse territories. By broadening conceptions of labour to understand how the 'work' of these communities in relation with nature is antagonistic to capital advance, strengthens the utility of the metabolic rift as a frame for further analysis of green criminology beyond these exemplars.

## Conclusion

The metabolic rift conceptualises how capitalism uproots humans from their first order relations with nature, and how, through technological advance it successively commodifies nature with damaging and wasteful consequences. The testimonies presented here demonstrate that there is a distinct corporeal rift found on the frontiers of massive scale agro, hydro and mineral industries that are often preceded by lower scale, violent land grabs. The deforestation, water capture, and pollution produce immediate harm to ecosystems that have been negotiated, transformed and defended by the human residents over generations. Material and spiritual life is disrupted; there is little alternative but to fight or flee. The ultimate corporeal rift occurs in the threat and loss of life of those confronting the logic and mechanisations of capital advance, as escalating deaths on these frontiers demonstrate. The lack of prosecution on crimes of arson, death threats and assassination is not encouraging. Yet in these hidden and rural corners of green crime, collective land titling has circumvented the individual parcelling of land and the environmental degradation that accompanies land speculation and resource commodification.

Amidst the community consultations and public assemblies, collectively created protocols and consensus meetings with civil society organisations, there is the articulation of ancestral knowledge and of non-market values placed on biodiverse territories. The testimonies presented insist on dovetailing human rights with those of the environment, and in doing so offer pathways and invite new praxis towards a future that is both socially and ecologically committed.

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