Journal of Political Ecology

Volume 28. Issue 1. 2021

Special Section

Political Ecologies of Extinction

edited by Bram Büscher

Political ecologies of extinction: from endpoint to inflection-point.
Introduction to the Special Section

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Abstract
Amidst the many socio-ecological crises facing the world today, the biodiversity crisis is considered one of the most foundational. Many scientists believe we have entered yet another mass extinction event in the history of the planet, though the first one triggered by the impacts of the combined, uneven actions of one species. This introductory article frames this crisis through political ecology and explores what political ecologies of extinction could look like and focus on in the 21st century. Building on emerging literatures and the contributions to a Special Section, it concurs that extinction is much more than the endpoint of a long and rocky road of the decline of a species. It is a dynamic, historical process that conjoins political, geographical, socio-ecological, and other factors. Most of all, a political ecology of extinction highlights the intertwined forces of political economy, power and ecology within which I argue a special focus should be on how biological diversity and our understanding of it has changed over time, especially the last two centuries. The capitalist intensification of pressures on biological diversity combined with changing perceptions of the value of diversity during this time have led to a moment where extinction moves decisively from a biological endpoint to a political inflection-point. How to relate these two 'points' to historical and contemporary, local and global forces of political economy and power is central to political ecologies of extinction, as exemplified by the articles in this Special Section.

Keywords: extinction, political ecology, biodiversity, capitalism, power

Résumé
La crise de la biodiversité est considérée comme fondamentale. De nombreux scientifiques pensent que nous sommes entrés dans un nouvel événement d'extinction massive, le premier déclenché par les impacts humains. Cet article d'introduction explore les écologies politiques de l'extinction au 21ème siècle. En m'appuyant sur les articles de cette section, je soutiens que l'extinction est un processus dynamique et historique qui associe des facteurs politiques, géographiques, socio-écologiques et autres. Par-dessus tout, il entrelace l'économie politique, le pouvoir et l'écologie. L'intensification capitaliste des pressions sur la diversité biologique et notre compréhension de celle-ci ont changé, surtout au cours des deux derniers siècles. L'évolution des perceptions de la valeur de la biodiversité signifie que l'extinction implique un point d'inflexion politique, et pas seulement un point final biologique. Les écologies politiques de l'extinction relient ces deux "points" aux forces et aux pouvoirs locaux et mondiaux.

Mots clés: extinction, écologie politique, biodiversité, capitalisme, pouvoir

Resumen
La crisis de la biodiversidad se considera fundacional. Muchos científicos creen que hemos entrado en otro evento de extinción masiva, el primero provocado por el impacto humano. Este artículo introductorio explora las ecologías políticas de la extinción en el siglo XXI. Basándome en los artículos de la Sección Especial, sostengo que la extinción es un proceso dinámico e histórico que conjuga factores políticos, geográficos, socioecológicos y otros. Sobre todo, entrelaza la economía política, el poder y la ecología. La intensificación capitalista de las presiones

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sobre la diversidad biológica y nuestra comprensión de la misma ha cambiado, especialmente en los dos últimos siglos. Los cambios en la percepción del valor de la biodiversidad hacen que la extinción implique un punto de inflexión político, no sólo un punto final biológico. Las ecologías políticas de la extinción relacionan estos dos "puntos" con las fuerzas locales y globales, y con el poder.
Palabras clave: extinción, ecología política, biodiversidad, capitalismo, poder

1. Introduction: from endpoint to inflection-point

There is nothing straightforward about extinction. Its dominant meaning as the endpoint of the life of a species may sound relatively uncomplicated, but is far from it either in practice or in theory. Most practically, so-called 'rediscoverers' seek to show that many proclaimed extinctions may be wrong or based on faulty assumptions (Watson and Davis, 2017). But defining, disproving, or finding proof for a 'species endpoint' is only scratching the surface when it comes to thinking about extinction. As Rose and colleagues (2017: 2) argue, "there is no singular phenomenon of extinction; rather, extinction is experienced, resisted, measured, enunciated, performed and narrated in a variety of ways to which we must attend." Emerging literatures are doing just this.

For one, these literatures note that extinctions are a hard thing to swallow in more ways than we can often imagine. Even thinking and writing about them is difficult. Jones, Rigby and Williams (2020: 388) start their article on the topic by saying "we do not want to be here" and that their "thinking and writing" about extinction comes with "the deepest sadness, anger, and bewilderment." Acute-yet-enigmatic senses of loss, absence and grief accompany thinking and writing about extinction, and this goes for most if not all who try – across disciplinary boundaries, within or beyond academia (Van Dooren, 2014; Barnosky, 2014; Rose *et al*, 2017). This is also the reason why McCorristine and Adams (2020: 101) argue that there is a "spectral quality of debates about extinction." At the same time, according to Jørgensen (2019), these emotions also render any efforts to prevent or undo (spatial and other) extinctions extremely complex. All this means that the idea of extinction as endpoint is rather shallow and unsatisfactory, even if its material realities should not be eschewed in our analyses.

This is a point also made by Theriault *et al*. (2020: 899). They argue that a "framing of extinction-as-species-death" is worrying but also that it "emerges from a societal context in which life forms are divided into discrete categories, their interactions reduced to 'behavior', and moral agency denied, except in the case of a particular ideal of *homo sapiens* rooted in post-Enlightenment Euro-American thought." They, and others, argue that non-western, Indigenous ways of understanding the 'destruction of life forms' relates to 'broken protocols' amongst all living beings and that the focus must be on 'living protocols' that remake and reinvent relations between all forms of life (see also Mitchell, 2016; Rose *et al.*, 2017). From these perspectives, extinction moves from the universal to the 'pluriversal', with specific attention to contingent and discordant ways of living and dying across actor-networks, geographies, temporalities and geo-biophysical formations (Garlick and Symons, 2020). Even the latter, like glaciers, can be said to go 'geologically extinct' (Schmidt, 2021).

Because "extinction is a process and moment of loss that compels thought about the moral relationships among humans, nonhuman species, and habitats, as well as among social groups with varying degrees of power and autonomy" (Sodikoff, 2012: 10), its study and contemplation lends itself well to more-than-human, multispecies, post-human and related social-theoretical approaches that emphasize entanglements, relationalities and plurality (see, e.g., Rose *et al*, 2017; Salazar Parreñas, 2018; Guasco, 2020; Garlick and Symons, 2020; Bersaglio and Margulies, 2021). These analyses also aim to move beyond simplistic understandings of extinction as singular events, to emphasize extinction as comprising processes-within-context over time, and how these relate to different subjectivities and positionalities. This field of 'extinction studies', most prominently based in environmental humanities but with important links to geography, anthropology and other social science disciplines, is small but growing rapidly (see Van Dooren, 2017: 5).

To a good degree, political ecology is central to these emergent literatures on extinction. After all, as Greenberg and Park noted in *JPE* in 1994, political ecology is the "historical outgrowth of the central questions asked by the social sciences about the relations between human society, viewed in its bio-cultural-political complexity, and a significantly humanized nature. It develops the common ground where various disciplines intersect" (1994: 1). This common ground across divergent approaches and theoretical emphases demonstrates why political ecology is a critically important field in understanding and confronting the multiple, overlapping socio-ecological crises that beset the world today (Bryant, 2015; Harcourt and Nelson, 2015). As argued earlier (Büscher, 2021), I believe that that across divergent approaches and theoretical differences, one element of this

common ground is the need to understand, confront and transcend the capitalist political economy, something that is clearly visible in the emerging literatures on extinction (Theriault *et al*, 2020; Bersaglio and Margulies, 2020).

However, the links among political economy, power and extinction are not nearly as well developed as other aspects in these literatures. If indeed the current mass extinction event is the outcome of the uneven historical development of capitalism, then surely this should have triggered more heated debates and scientific research. To date, however, only a few serious attempts at addressing and unravelling this connection have been made (Dawson, 2016; McBrien, 2016).[2] Many focus on the 'story of conservation' in response to extinction threats, like Adams' (2004) foundational work, while others show how these have recently turned more violent (Marijnen and Verweijen, 2016; Büscher and Ramutsindela, 2016; Duffy *et al.*, 2019). Ashley Dawson (2016, backflap) has been most explicit, arguing that "extinction cannot be understood in isolation from a critique of our economic system." His short book broke new ground by exploring this connection but it lacks empirical research and broader theoretical engagement. Moreover, and despite his attention to rewilding, Dawson pays little attention to different dimensions of unevenness in the political economy of biological diversity more broadly, particularly how actual species dynamics may go up or down for myriad reasons under different political economic contexts.

Taking seriously that extinction is more than an endpoint. That it relates to uneven dynamics around biological diversity and that there is a special relationship with the political economy of capitalism, all corroborate the need for elaborating political ecologies of extinction. Indeed, extinction, in this understanding, becomes a sign of the times we are in: it moves from an ecological endpoint to a political economic inflection-point. The next section elaborates this in more detail, after which I will provide some suggestions how this can be used to develop political ecologies of extinction more generally and how the contributions to the Special Section contribute to this.

2. Extinction as inflection-point

Extinction as an inflection-point works as a prism: it centrally illuminates diverse yet overlapping emergencies, what some refer to as the 'era of concatenated global crises' (Biggs *et al.*, 2011). It does so because extinction is, together with the climate, centrally connected to the very functioning of the earth system and its dependence on – and ability to support – a diversity of life (Hannah, 2021: 122-123). In other words, extinction clarifies the enormity and severity of the stakes involved, something that is now also forcefully argued by 'earth system governance' theorists: "the unprecedented heating of our planet or species mass extinction are issues fundamentally important for survival. The traditional framing of these risks as 'environmental' problems has consistently downplayed the issue from an existential threat to something that is a more ordinary policy challenge" (Biermann, 2021: 70). Biermann and many earth system governance theorists, however, do not connect this to the political economy of capitalism, which again leaves an important agenda open for political ecologists.

What I want to suggest here is that extinction as inflection-point is one of the core 'earth system' counterpoints to the political economic inflection-point and prism that is capital. These are, and have long been, dialectically integrated, yet their specific relations have developed over time in ways that demand urgent research and conceptualization. This starts from the history of the 'discovery' of extinction by George Cuvier in the early 19th century, as alluded to by Wrigley (2021). This was the time when the earth system was frantically mapped and studied and when it dawned on western savants that the earth was much older than previously presumed. In the 17th century, "most people in the Western world, whether religious or not, took it for granted that humanity is almost the same age as the Earth" (Rudwick, 2014: 9). It was hardly imaginable that life was dynamic, changing and long-lived rather than static and divinely preordained. Only with mounting geological evidence did it become gradually clearer that the Earth had a very long history, full of diverse forms of life. The acceptance of extinction was critical in this process. As Rudwick summarizes:

> The single most striking feature of this almost unimaginably lengthy history of the Earth – and not just because we ourselves are among its products – was the history of life. That life had had any true history, rather than remaining more or less the same all along, had been utterly uncertain until Cuvier and others in the early 19th century demonstrated the reality of extinction, which showed that the life of earlier periods has been distinctly different from that of the present world. (Rudwick, 2014: 296).

[2] This excludes earlier catastrophist thinkers whe have, generally, not connected *critically* to power and political economy.

The demonstration of extinction triggered massive scientific and popular interest in the origins and evolution of life, including humans, which famously led to the Darwinian revolution and other influential scientific and social developments. At the same time, the way extinction was recognized and subsequently taken up in emerging Western discussions and imaginaries was closely tied to the imperial, capitalist political economy then in full upswing. In his book *Catastrophic Thinking*, historian David Sepkoski traces the development of thinking about extinction from the Victorian age to contemporary times. He argues that in Victorian times extinction was seen as "(1) slow and gradual, (2) reciprocally balanced by the replenishment of new species, and (3) in some sense progressive. That is, by reflecting the 'fair' outcome of natural competition, it contributed to the robustness of living ecosystems by weeding out 'unfit' individuals or species" (Sepkoski, 2020: 9). In short, extinction was not viewed negatively *per se*, but as part of a broader, progressive force that saw some individuals or species inevitably lose out *vis-à-vis* others. This was also, infamously, used to justify imperialism and the mass murder and enslavement of many Indigenous and other peoples around the world (Powell, 2016; Theriault *et al.*, 2020).

Sepkoski argues that this view has changed drastically: according to him biological and cultural diversity are now viewed as innately good. A new understanding of extinction emerged, "in which (1) extinction is seen as a potentially catastrophic and irreversible process, (2) extinction is characterized explicitly in terms of its effect on diversity, and (3) survival is no longer conceptualized as 'fair game' in which extinction penalizes only those individuals and species who 'deserve it'" (Sepkoski, 2020: 10). Sepkoski shows that this transformation was highly complex and that the two understandings have been challenged in myriad ways. In building his narrative, he focuses on the cultural value of diversity in 'thinking catastrophically' about extinction. Much less explicit for him is how this relates to political-economic transformations and changing ideas about order, knowledge and power.

Nonetheless, Sepkoski's work shows that extinction was an important inflection point in the 19th century and that it has again become so more recently, though based on different conceptualizations and understandings (see Barrow, 2009). Given this transformation it is, again, not illogical to see why especially post/more-than human theories are so popular: precisely because extinction is an inflection-point rather than an endpoint, and because it highlights critically important political needs to acknowledge deep historical wrongs and to find different ways forward in the relation between humans and the rest of nature, beyond imperialism, colonialism and capitalism.

Having said this, a focus on extinction as inflection-point can never completely transcend or disregard extinction as (material, biological) endpoint. After all, the latter is why many scientists now believe we have entered the sixth extinction event in the history of the planet (Barnosky *et al.*, 2011; Tucket *et al.*, 2018). More importantly, the material realities of extinction are frightening. If we take the conclusion of the influential report of the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019) at face value, then the mere possibility that over a million species are at risk of extinction alone requires drastic and rapid societal and economic transformation. This is why, combined with the climate crisis, new social movements have declared an emergency and call on citizens to rebel in order to counter the crisis (Extinction Rebellion, 2019).

Hence, I return to my earlier point that extinction and the biodiversity crisis, together with the climate crisis (IPBES-IPCC, 2021), are the earth system counterpoints to the broader crises of capital in the 21st century. At the same time, climate and extinction differ across many dimensions, including precisely how they relate to broader dynamics of political economy and power. For one, as Turnhout and Purvis (2021: 11) show, scientists have long tried to find a simple metric that can elucidate the biodiversity crisis in the way CO_2 functions for climate change. Extinction rates are often believed to be this metric. But given that extinction is "hard to demonstrate" and since it is the very final stage in an often long and rocky downward process, "action will often come too late and the target will not be very responsive to policy interventions." Turnhout and Purvis conclude that "choosing species extinction rate as the focus for a single biodiversity target therefore seems unwise." This further emphasises the need to move the debate from biological endpoints to a political inflection point that combines the physical, ecological and material with the socio-cultural, political-economic and an other-than-western epistemological. Political ecology is well positioned to not just push but also lead these debates.

3. Political ecologies of extinction in times of exception and enmity

Clearly, many literatures in political ecology and related fields already touch on the concerns outlined above. But as I argue, in relation to histories and contemporary politics and political economy of extinction there is still much to be done. Indeed, there is such a rich field of research to be set up around the question of extinction that this Special Section only scratches the surface. Important areas for further research that the articles in this Special Section point at, amongst others, are the connections between extraction and conservation in relation to

extinction (Le Billon, 2021; Nel, 2021; Meszaros Martin and Pedraza, 2021), the relation between new digital technologies and studying, knowing and understanding extinction processes (Kiggel, 2021), the relations between extinction, de-extinction and a broader cryo-politics of life (Wrigley, 2021), the relation between psycho-analytic dynamics and extinction (Koot, 2021), how biopower affects extinction and responses to it (Thakholi, 2021) and how extinction fears can in fact be profitable and conducive to, rather than an indictment of, contemporary capitalism (Büscher, 2021).

More generally, as Deutsch (2021) highlights, the links between extinction and contemporary politics of authoritarianism need urgent further investigation.[3] Clearly, this is a broader issue that intersects with many of the aforementioned topics and is already an important subject within political ecology (Neimark *et al*., 2019). Yet, authoritarian currents are but one element of a broader political climate in the 21st century characterized by what Achille Mbembe (2019) refers to as the new 'politics of enmity' that is leading to a multiplication of antagonistic exceptions and exceptional circumstances. This politics of enmity, the seeking of separation and new forms of apartheid, is not merely detrimental to democracy, he argues, but creates a necropolitics that builds "new and unique forms of social existence in which vast populations are subjected to living conditions that confer upon them the status of the *living dead*" (Mbembe, 2019: 92). Death and terror, in other words, become caught in the tensions between biopolitical and necropolitical intensifications whereby "death itself increasingly tends to become spectral" (Mbembe, 2019: 38).

Building on extinction literatures, however, it seems critically important to extend Mbembe's analysis beyond 'forms of social existence' to 'new forms of socioecological existence' that connect the material-spectral death worlds of humans to those of nonhumans, and to further theorize their connections and intersections. To further this process, the Special Section places special emphasis on understanding and developing political ecologies in times of exception and enmity.

For example, and following the severity of the global biodiversity crisis, authors highlight how we are seeing an increasing number of high-pressure situations around the world where urgent action is required to safeguard important species or ecosystems from extinction. These disparate situations seem to be the complex outcome of a generic 'intensification of pressures' emanating from the capitalist political economy more generally, combined with a recent surge in large-scale resource extraction and wildlife crime, more specifically (Muradian *et al.*, 2012). These forces have in turn elicited new types of conservation responses, leading to myriad 'spaces of exception' where violence, illegality and uncertainty drastically alter environmental governance.

This dynamic has stimulated a rapidly growing and dynamic literature in political ecology on the militarization of conservation and 'green violence' more generally (Lunstrum, 2014; Duffy *et al*., 2015; Marijnen and Verweijen, 2016; Büscher and Ramutsindela, 2016; Büscher and Fletcher, 2018; Duffy *et al.*, 2019; Massé, 2019; Ramutsindela *et al.*, 2022). The Special Section builds on this literature by further developing the links between forms of exceptional, violent conservation action and how they are connected to broader dynamics around biological diversity and extinction within the contemporary political climate of enmity, as conceptualized by Mbembe (2019) and others (see Le Billon and Duffy, 2018).

At the same time and conversely, we need to direct the broader spectral necropolitics of enmity and exception back to material geographies and histories of extinction and actual, lived human-nonhuman interactions in order to understand how broader forms of power and political economy resonate differently and unevenly across time and space. This means we need to connect the 'spectral' qualities of extinction debates (McCorrestine and Adams, 2020) to the more mundane, every day and material aspects of extinction processes. This requires asking how and why certain discourses of loss, absence and the possibilities of (preventing) extinction are connected to structures of power in particular places, which can often place conservation and other 'against extinction' (Adams, 2004) actions in a very different light.

To give one illustration, Jones *et al.* (2020) may certainly be right that successful action to prevent extinction means that there "is a form of hope stemming from the fact that complete extinction of the species will not happen. That is why preventing extinction is so important. It keeps possibility alive" (Jones *et al.*, 2020: 393). At the same time, this Special Section argues we need to continuously ask precisely how extinction is prevented,

[3] For the climate crisis, some important inroads have been made here, see, for example, Malm and the Zetkin collective (2021).

and what the power dynamics are behind this.[4] The articles by Koot, Thakholi and Nel, for example, show that the drive to prevent the extinction of the rhino in South Africa may bring hope to some, but also despair and misery to many others, while the article by Büscher adds that, in this process, privately managed rhinos have actually increased in number rather than declined, despite the drastic discourses on the immanence of the extinction of the species. In sum, therefore: it remains critical to return continuously to the complex questions of power and political economy behind extinction and extinction discourses, imaginations, and related spectral politics.

4. The contributions

The articles in this Special Section all address different aspects of the extinction crisis in times of exception and enmity. Special emphasis is placed, *inter alia*, on the links between extinction, conservation and extraction, the way different conservation spaces (such as the Mata Atlantica in Brazil or the Kruger National Park in South Africa) experience more militant forms of conservation against the threats of poaching and extinction, the ways in which power and knowledge intersect to frame extinction, enmity and exception, the relationship between tourism and extinction, and new developments around de-extinction. All articles share a focus on analysing these topics with explicit reference to a broader political economic context of enmity that creates exceptions and crises, and therefore result in highly dynamic and swiftly changing political ecologies.

Lerato Thakholi (2021), in her article on the biopolitics of private conservation in South Africa, focuses on the responses to rhino poaching, many of which are driven by the desire to halt the extinction of the species. Employing a biopolitical lens, she brings into focus how power works in valuing different types of lives differently, in the quest to avoid extinction. In particular, she illuminates the plight of black conservation laborers and how their and also poachers' lives are less valued in practice than rhino lives. This is because active engagement to save rhino is juxtaposed against active non-intervention into the lives of black laborers. She also shows that there is a contradiction in how biopolitics works out across rhinos and laborers, namely that every individual rhino is deemed important for the health of the population, while every individual laborer should just be happy to have some income at all, given how the (surplus) population of potential labor is very large and of little concern to conservation.

Hannah Meszaros Martin and Oscar Pedraza (2021) focus our attention on the highly contradictory political economic situation in Colombia. Here, on the one hand, the conservation of endangered biodiversity is used to create a securitized corridor to control large tracts of land and monitor it for illegal activity, especially coca production. On the other hand, so argue Meszaros Martin and Pedraza, this conservation is a "form of necropolitics" as it also enables its opposite, namely large-scale development projects focused on coal mining and other forms of extraction. Coal, coca and conservation intersect in the Colombian political economic "context of the peace accords" (p. 722) to further intensify both environmental protection *and* destruction, with extinction caught in the middle. The extinction of certain plants (coca) is actively sought while the promotion of its supposed opposite, a form of conservation that, ironically, also enables coal mining, creates the extinction of certain forms of rural life.

Adrian Nel (2021) focuses on the South African province of KwaZulu Natal to show how neoliberal conservation strategies in the region have been extended through a focus on a 'biodiversity economy.' This economic framing, writes Nel, is supposed to further biodiversity conservation, safeguard targeted species such as the rhino against extinction, and provide jobs for marginalized rural residents. The overall result, however, seems very disappointing and hardly worth the massive effort put into developing the biodiversity economy. Indeed, the costs of the intervention he focuses on in the article seem excessive, and local struggles and enmity have intensified. Nel calls this a "pyrrhic strategy", where the costs of biodiversity conservation are not at all proportionate to its gains. In fact, he argues that the opposite results: the 'hegemonic' biodiversity framing, akin to a biopolitical mode of governance that Thakholi (2021) also identifies, creates "spaces of exception and sacrifice zones" (p. 754) that fuel further enmity.

Bram Büscher (2021) provides an overview of extinction dynamics in Africa, showing that although the general picture for wildlife preservation across the continent is rather negative, it is also uneven. In some regions, charismatic wildlife species have actually seen a numerical increase over the last decades due to the commodification of public and, especially, private forms of conservation and associated industries like wildlife

[4] In the process, different forms of power are at play, as laid out well by Svarstad *et al.* (2018) in this journal (see also Cavanagh, 2018).

tourism. General species decline, and pockets of species growth, are part of broader political economic dynamics around the continent and how these impact conservation and wildlife. While according to Büscher the "intensification of uneven wildlife geographies in Africa" (p. 762) may not necessarily lead to dire predictions of the imminent extinction of certain charismatic wildlife species, he argues it may lead to something worse: the obscene profiteering from the overall decline of wildlife across the continent by those actors best able to capture and exploit remaining abundant pockets of wildlife.

Charlotte Wrigley (2021) presents a detailed study of wooly mammoth hunting in Siberia to highlight two important ways in which extinct animals and their frozen remains become part of broader political economies. The first is through their tusks, which are sold to markets in China and elsewhere for ornamental use. Here, extinct animal remains become part of a complicated, existing political economy of ivory that links with extinction fears of the mammoth's modern-day relatives. The second is through the selling of their genetic material to explore possibilities of mammoth de-extinction. Here, the mammoth becomes part of a political economy that has the potential reconstitution of life as we know it as its ultimate target. This, Wrigley argues, is not just the potential return of the mammoth as a living creature but, more profoundly, as "a tool through which to extend mastery and control over life" more generally (p. 795). Wrigley joins others to formulate a severe critique of this long-standing delusion of control and, in fact, concludes that what is really at stake in mammoth de-extinction is the possibility of human extinction and anxieties to prevent this.

Stasja Koot (2021) introduces the term 'environmentourism' to understand how tourism activities get (re)configured around their (potential) impact on the environment, in this case the conservation of rhino. Focusing on the rhino-poaching crisis in Southern Africa, Koot zooms in on how wealthy tourists are enabled to become part of activities to 'save the rhino' from extinction, and so experience the thrill of being at the forefront of conservation. This is a special thrill, one that oscillates between the enjoyment of doing something 'good' for an animal, while also enjoying the fact that one is part of a darker sort of activity, namely dealing with animals "at the brink of extinction" (p. 806). Koot employs the psychoanalytic term *jouissance* to denote how this double-edged type of enjoyment taps "into fantasies of the white savior of African nature, and show how exorbitant luxury goes hand in hand with feelings of disgust and horror about poached rhinos" (p. 807).

Sierra Deutsch (2021) takes us to Brazil, arguably the most biodiverse country in the world as well as a key battleground in the global extinction crisis, to explain how environmental protection is impacted by contemporary Brazilian politics and political economy. Situated within a broader analysis of neoliberal authoritarianism, she focuses on Jair Bolsonaro's regime and how it has been undermining and dismantling environmental protection since he came to power in 2018. Cutting through the firehouse strategy of setting so many fires that people get distracted, she shows in detail how the Bolsonaro regime uses particular strategies to undermine environmental protection in order to stimulate further opportunities for capital accumulation. The Brazilian political economy, Deutsch argues, becomes embedded in systemic enmity and forms of exception, which in turn worsens our chance to meaningfully challenge the extinction crisis.

Thomas Kiggell (2021) also looks at Brazil but focuses on the use of new technologies in the monitoring of wildlife for conservation in the Atlantic Forest. He shows that, despite Bolsonaro's undermining of environmental efforts, much research on wildlife and conservation still takes place in Brazil, including the collection of ever-more quantities of data in order to monitor wildlife movements and dynamics. This enhances the possibilities for a more intense biopolitical governance of conservation, with several significant effects, as Kiggell shows. One of these is the often-greater distancing from local field realities above and beyond data-driven interactions, while another is how this distance could translate into arguments for more coercive conservation measures. These concerns become even more real with the extinction crisis, which in the fragmented Atlantic Forest biome takes on a strong form of defaunation. In a sense, then, Kiggell argues, this could become a biopolitics of 'monitoring extinction' itself.

Finally, **Philippe Le Billon** (2021) offers a combined analysis of conservation and extraction and argues that these seemingly opposing processes have remarkably similar conceptions of nature and biodiversity. Building on case studies in Brazil and in South Africa, he argues that "by fixing some of the crises of extraction, conservation enables its reproduction, or in other words helps to sustain extraction" (p. 872), which in turn creates spaces of "double exception." Through this term, Le Billon helps us to understand the complex interconnections between conservation and extraction in practice and how they generally support broader processes of capital accumulation rather than challenge these in any fundamental way. Indeed, both processes can, in tandem, have further negative impacts on communities, creating spaces of enmity above and beyond spaces of 'double exception.'

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The biopolitics of private conservation: jeopardizing labor and rhino to optimize capital?

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Abstract

The conservation of biodiversity has increasingly been analyzed as biopolitical. That is, conservation initiatives such as breeding programs and protected areas seek to optimize some nonhuman life forms while exposing others to harm or degradation. Biopolitical conservation studies have looked at the implications of how human and non-human lives have been valued differently. Wildlife has received more attention than the lives of conservation laborers in studies of private conservation. The article builds on Foucault's conceptualization of biopolitics to dissect the responses of the eco-tourism and wildlife breeding industries to rhino poaching in the Lowveld, South Africa. There are two central arguments. First, their responses hinge on creating new and re-instating old avenues of capital accumulation that ironically prioritize the optimization of the wildlife economy over the lives of rhino. Second, I show that private conservation disproportionately exposes black laborers to harm while attempting to protect rhino from poachers, a function of how conservation labor has been governed since the onset of poaching in 2008. I conclude that private conservationists in South Africa make value judgments to construct a hierarchy of life with whiteness at its apex, rhinos following closely behind, with laborers, and finally poachers at the bottom.

Key words; Conservation labor, biopolitics, rhino horn, wildlife economy, South Africa

Résumé

La conservation de la biodiversité est de plus en plus analysée comme un phénomène biopolitique. En d'autres termes, les initiatives de conservation telles que les programmes d'élevage d'animaux sauvages et les zones protégées cherchent à optimiser certaines formes de vie non humaines tout en exposant les autres à des dommages ou à la dégradation. Les études de conservation biopolitique ont examiné les implications de la manière dont les vies humaines et non humaines ont été évaluées différemment. Dans les études sur la conservation privée, la vie sauvage a reçu plus d'attention que la vie des travailleurs de la conservation. Cet article s'appuie sur la conceptualisation de la biopolitique de Foucault pour disséquer les réponses des industries de l'écotourisme et de l'élevage d'animaux sauvages au braconnage des rhinocéros dans le Lowveld, en Afrique du Sud. Il y a deux arguments centraux. Premièrement, leurs réponses s'articulent autour de la création de nouvelles voies d'accumulation du capital qui, ironiquement, donnent la priorité à l'optimisation de l'économie de la faune sauvage sur la vie des rhinocéros. Deuxièmement, je montre que la conservation privée expose de manière disproportionnée les travailleurs noirs au danger tout en essayant de protéger les rhinocéros des braconniers, une fonction de la manière dont le travail de conservation a été régi depuis le début du braconnage en 2008. Je conclus que les défenseurs privés de la nature en Afrique du Sud portent des jugements de valeur pour construire une hiérarchie de la vie avec les Blancs à son sommet, les rhinocéros suivant de près, les travailleurs et enfin les braconniers au bas de l'échelle.

Mots clés: Travail de conservation, biopolitique, corne de rhinocéros, économie de la faune sauvage, Afrique du Sud.

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Resumen

La conservación de la biodiversidad se ha analizado cada vez más como "biopolítica". Es decir, las iniciativas de conservación, como los programas de cría y las áreas protegidas, tratan de optimizar algunas formas de vida no humanas, mientras exponen a otras a daños o degradación. Los estudios sobre conservación biopolítica han analizado las implicaciones de cómo se han valorado de forma diferente las vidas humanas y las no humanas. La vida silvestre ha recibido más atención que las vidas de los trabajadores de la conservación en los estudios sobre la conservación privada. El artículo se basa en la conceptualización de Foucault sobre la biopolítica para diseccionar las respuestas de las industrias del ecoturismo y la cría de animales salvajes a la caza furtiva de rinocerontes en el Lowveld (Sudáfrica). Hay dos argumentos centrales. En primer lugar, las respuestas de estas industrias giran en torno a la creación de nuevas (y el restablecimiento de las antiguas) vías de acumulación de capital. Irónicamente, éstas priorizan la optimización de la economía de la fauna salvaje sobre la vida de los rinocerontes. En segundo lugar, muestro que la conservación privada expone de forma desproporcionada a los trabajadores negros a sufrir daños al intentar proteger a los rinocerontes de los cazadores furtivos. Esto es una función de cómo se ha gobernado el trabajo de conservación desde el inicio de la caza furtiva en 2008. Llego a la conclusión de que los conservacionistas privados de Sudáfrica emiten juicios de valor para construir una jerarquía de la vida, con la blancura en su cúspide, los rinocerontes siguiéndoles de cerca, con los trabajadores y, finalmente, los cazadores furtivos en la parte inferior.

Palabras clave: Trabajo de conservación, biopolítica, cuerno de rinoceronte, economía de la vida salvaje, Sudáfrica

1. Introduction

In South Africa, wildlife extinction fears over the last decade centered mainly on the Rhinoceros. This is exemplified by the chairperson of the Private Rhino Owners Association (PROA) in South Africa who stated in 2016 that:

> …it is now time to stop talking and carry out bold actions to save one of the most iconic species in the world. If not, the negative impact on our image as a country – the loss of a species and no longer being home to the Big Five – is beyond comprehension.[2]

These fears are compounded by the fact that some genetically unique rhino populations in Africa have already gone extinct (Moodley *et al*., 2017). Consequently, violent interventions conceptualized as 'war' on poaching have resulted. These have been referred to as 'conservation' (Duffy 2016), 'green militarization' (Lunstrum, 2014), 'green violence' (Büscher and Ramutsindela, 2016), and more broadly as 'green wars' (Büscher and Fletcher, 2019). The aim has been to secure nature reserves, keep poachers out, and maintain viable rhino populations. These life and death decisions about which species to wage 'war' for, are always value-laden (Biermann and Anderson, 2017). As a result of this, conservation of biodiversity has been conceptualized as biopolitical (Cavanagh, 2014; Fletcher, 2010) because it exercises "power to make live and let die" (Foucault, 2003: 241) at a population level. By using a biopolitical lens, the article contributes to these analyses by investigating how interventions to protect rhino mask a hierarchy of life inherent in conservation efforts.

Cavanagh (2014: 273) identifies three main axes along which biopower has been exercised. These are

> …between differently 'racialized' populations of humans; second, between asymmetrically valued populations of humans and nonhumans; and, third, between humans, our vital support systems, and various types of emergent biosecurity threats.

[2] https://www.rhinoalive.com/wp-content/uploads/2016/06/PelhamJones2.pdf last accessed 10 May 2021

In conservation research, there have been a plethora of studies primarily exploring the second axis. These includes Lunstrum (2018: 1023), who argues that capital-enabled green militarization in Southern Africa shores up state power over landscapes and "flags a biopolitics in which the state is better able to intervene in and act in the name of life and death, that is of protecting rhino life even if this means taking the life of the poacher." Likewise, Cavanagh and Benjaminsen (2015) explore the various ways farmers on Mount Elgon in Uganda resist the biopolitical implications of conservation efforts that infringe on their food security. Protected areas are thus spaces where value judgments are made about which life forms to foster, and which to ignore and which to exterminate, to 'optimize' life on ecosystem and population levels (Biermann and Anderson, 2017).

This article focuses on the biopolitics of conservation along the first two axes that Cavanagh (2014) identifies because they have been the most prevalent in rhino conservation. It does so by dissecting how biopower is employed in conservation because despite the proliferating literature, few studies explore "the different ways in which biopower can be exercised" (Fletcher *et al*., 2019: 1070). The exercise of biopower is, following Fletcher (2010) and Agrawal (2005), often identified as 'environmentality', understood as a mode of environmental governance that can be deployed in the application of biopower. Fletcher distinguishes four such environmentalities – *truth*, *sovereign*, *disciplinary* and *neoliberal*. This article focuses on the latter two because they are most illuminating for the analysis. Disciplinary environmentality entails the internalization of ethical social norms which individuals adapt to (Fletcher, 2010). Neoliberal environmentality, on the other hand, is informed by neoliberal market logics including "increasing involvement of private sector actors, displacement of public policy by market mechanisms, uptake of environmental valuation methodologies, and commercialization and privatization of resource management institutions" (Bakker, 2005: 542). The wildlife economy discussed here exemplifies these modes of governance through the normalization of privatization, commercialization and commodification of natures, including rhino (horn).

Two central foci drive the discussion. **First**, the article discusses interventions that have been initiated to protect rhino from extinction. Rhino poaching in South Africa increased significantly between 2008-2015, making it the biggest conservation issue in the country, accompanied by a suite of interventions to ensure their survival. These include, besides the above-mentioned 'green militarization' of parks, the legalization of domestic trade in rhino horn, dehorning and the relocation of rhino from South Africa to Botswana. The argument in favor of these interventions is simple: conservation organizations believe they need to employ every tool in their arsenal, including violent force if necessary, to save rhino (and other species) from extinction. I analyze these interventions as biopolitical because they are meant to make rhinos live. However, this article argues that interventions to protect rhino from extinction ironically prioritize the profitability of the wildlife economy through the creation of commodities such as horn and the creation of luxury tourism (Koot, 2021).

Second, it analyses the disciplinary and neoliberal environmentalities governing conservation labor that arise out of, and are reinforced by, this focus on the profitability of the wildlife economy and its fight against rhino poaching. To dissect this, I borrow from Lorenzini (2021: 43) who reminds us that biopolitics "is a politics that structurally relies on the establishment of hierarchies in the value of lives, producing and multiplying vulnerability as a means of governing people", including through labor (Negri, 2008). Through job incentives, polygraphing of labor and interventions such as environmental education, I show how private nature reserves govern their labor force in the interest of protecting rhino and wildlife. Furthermore, by discussing the socioeconomic conditions in laborer's homes, I highlight the 'let die' conditions that black conservation workers are exposed to. This includes infrequent access to drinkable water and infrastructural decay all of which are necessary for survival. I argue that through non-intervention, black conservation labor is disproportionately exposed to harm.

Comparing rhino to conservation labor might seem crude, perhaps. But the point is to show the complex value judgements inherent in conservation. The article thus seeks to problematize what has essentially become the norm in South African conservation spaces. That is: by intervening in (protecting) rhino life and not intervening in the lives of black labor, conservation renders rhino lives more valuable than black lives. There is, however, a notable contradiction here, because the value most important in practice is

not intrinsic, but the financial value of rhino. Ironically, this focus on financial value has the – perhaps inadvertent – effect of prioritizing the profitability of private capital through new commodities and consumption over the actual lives of rhino. I will conclude that this contradiction exposes not just an implicit hierarchy of life from whites via rhinos to conservation labor, but also a capitalist conservation industry at odds with itself (See Büscher *et al*., 2021).

The analysis is based on 15 months of ethnographic research on the private conservation sector, with a particular focus on three events that I attended in South Africa between 2016-2019. First, the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) hosted by South Africa between 24 September-5 October 2016. This was the 'rhino CITES', as the South African government used the opportunity to highlight the then ongoing rhino-poaching crisis. Given that rhino poaching was such a big issue, many actors in the 'rhino space' attended the event to present their positions. The event was attended by over 3,500 people from across the world. The second event was Wildlife Ranching SA (WRSA) annual conference on 23-24 March 2018. WRSA represents the interests of over 2,000 commercial wildlife ranching stakeholders involved in game breeding, tourism, hunting and game products. This makes it one of the biggest of its kind in South Africa. The event was titled *Expand your Game*, pointing to the fact that the sector was looking to expand and diversify its product offering. The last event was a game auction on 9 June 2018 hosted by Bloodline Africa, an "auction group, consisting of eight different breeders"[3] from different parts of South Africa. Bloodline Africa hosts an annual auction that brings together stakeholders and investors interested and involved mainly in wildlife breeding. In 2018, the event was attended by over 300 stakeholders with 98 lots of 276 animals on auction. Conference brochures and presentations were collected, and I took notes which I later analyzed. Altogether, these event ethnographies gave me insights into the private wildlife economies responses to rhino poaching. In addition to the events, I conducted interviews with 70 people working in the conservation sector such as NGOs, breeders, and general workers in the Lowveld, South Africa.

In what follows, I first outline the conceptual framework which brings together biopolitics and environmentalities. Following this, I discuss various interventions against rhino poaching and the multiple environmentalities governing conservation labor. I conclude by arguing that private conservationists in South Africa make value judgments to construct a hierarchy of life with whiteness at its apex, rhinos following closely behind, with black laborers and finally poachers at the bottom.

2. Biopolitics and environmentality

As mentioned, biopolitics entails continuous value "judgements about what forms of life need to be supported and what forms not" (Büscher, 2018: 150). It is power exercised over populations (Fletcher *et al*., 2019) such that – in conservation – "individual lives acquire meaning only when they advance the long-term well-being of the broader population or are essential to sustaining key biological processes, especially evolution" (Biermann and Mansfield, 2014: 264). While Foucault (2003, 2008) conceptualized biopower in relation to the governance of people, there has recently been a mushrooming of scholarship applying this lens to non-human lives, including for the conservation of biodiversity (Cavanagh and Benjaminsen, 2015).

Conservation of biodiversity is biopolitical because it is preoccupied with "*making nature live*" [emphasis in original] (Bierman and Mansfield, 2014: 258). This happens "through habitat protection and the maintenance of viable population numbers of species in the wild, as well as through technologically assisted reproduction, the cryogenic storage of DNA, and the cloning of endangered or even extinct nonhuman species" (Heatherington, 2012: 53). Political ecologists have mobilized Foucault's conceptualization of biopower to study these interventions at various scales and in different constellations within and between human and non-human lives (Cavanagh, 2018). In their review, Biermann and Anderson (2017) aggregate biopolitical conservation along four lines: endangered species management, conservation breeding and genetics, protected areas, and rewilding. They suggest that there is no universal conservation biopolitics, but that there are different, interrelated and competing techniques bearing down on lives in both complementary

[3] https://www.bloodlineafrica.com/about-us last accessed May 2021.

and contradictory ways. Of interest here is how interventions against rhino poaching obscure the value judgements informing which life forms are exposed to vulnerabilities and which ones are allowed to flourish.

Conservationists, the state and scientists, but also private capital, regularly make decisions about which human and non-human lives to prioritize and which to let die (Biermann and Mansfield, 2014). The life-or-death decisions that result are value laden and increasingly infused with market logics – so developing a *neoliberal biopolitics* that is more interested in supporting economic growth than life *per se* (Fletcher, 2010). Crucial within any biopolitics, including of the neoliberal kind, is the collection of scientific knowledge about species. This knowledge, Chernala (2012) argues, is often used not for altruistic reasons but to improve the *use-value* of species to humankind. In the wildlife economy, this is exemplified by wildlife breeders who rely on bio-information to breed animals with bigger horns or color variants for maximum profits. Breeding thus "involves the biopolitical management of lineages, reproductive practices, and bodily and genetic forms" (Biermann and Anderson, 2017: 5).

In the analysis of conservation as biopolitics, the focus has thus far mainly been on nonhuman lives. Studies that have explored human lives have tended to look at communities living next to newly established protected areas or indeed at poachers (Lunstrum, 2018). The people who work in these landscapes are often left out of these analyses. To start thinking through this, I take inspiration from recently published work related to labor during the COVID-19 pandemic. Commenting on how frontline workers and the working poor have been treated during the pandemic, Rose (2021: 215) states that "the question of who will be made live and who will be let die falls along existing lines of social and political inequality, at multiple geographic scales." Following from this, the differential exposure to vulnerabilities because of rhino poaching is likely to be distributed along pre-existing racialized divisions of labor in conservation. This is because biopolitical power creates a hierarchy in 'the human order', often along racial lines (Lorenzini, 2021).

To analyze how biopower is exercised over wildlife and conservation labor, it is useful to introduce the term environmentality, which above I defined as a mode of environmental governance that can be deployed in the exercise of biopower. Fletcher (2010, 2017) follows Foucault, to distinguish the four different environmentalities outlines above. Disciplinary and neoliberal environmentalities highlight the contradictions inherent in the governance of rhinos and conservation labor. According to Fletcher (2010: 173),

> While a disciplinary environmentality operates principally through the internalization of social norms and ethical standards to which individuals conform due to fears of deviance and immorality, and which they thus exercise both over themselves and one another, a neoliberal governmentality seeks merely to create external incentive structures within which individuals, understood as self-interested rational actors, can be motivated to exhibit appropriate behaviors through manipulation of incentives.

Neoliberal environmentality in conservation is a mode of governance dominant in what has been termed neoliberal conservation, which is characterized by uneven development, privatization, and the commodification of natures which cumulatively function to expand capitalism's reach through natures (Büscher and Arsel, 2012; Castree, 2003, 2008). The wildlife economy in South Africa has been characterized by neoliberalization, so it is logical that the responses to poaching will also be governed by similar principles.

The importance of using the environmentalities approach is that it renders explicit how value decisions are made in practice and with what objective in mind. Hence, it allows us to understand biopolitics in practice, which I will employ to analyze rhino conservation and how modes of environmental governance in response to the threat of poaching creates an implicit (and often very explicit) hierarchy of life.

3. Rhino conservation versus the wildlife economy?

To suggest that responses against wildlife crime are biopolitical is just the beginning of an analysis to unearth the multiple values informing these interventions. Others have outlined the history of the development of the private wildlife economy (Carruthers, 2008) and rhino conservation (Emslie and Brooks, 1999). What I will do here is to explore the various interventions and the rationalities they present. To do so, it is important to briefly contextualize wildlife ownership in South Africa. Due to policy provisions, wildlife can be owned privately in South Africa (see Snijders 2015). Though numbers are difficult to ascertain, it is estimated that 49% of white rhinos (Ceratotherium simum) are privately owned (Emslie *et al*., 2019) and traded through live sales, trophy hunting, ecotourism, and game products (Crookes and Blignaut, 2015). Thus, when poaching numbers started skyrocketing in South Africa in 2008, private rhino owners were also affected. These farmers and owners are part of the broader private wildlife economy which includes breeding, hunting, nature-based tourism, and game meat production, amongst others. Below, I discuss responses from the nature-based tourism sector and wildlife farmers. While opinions about the best intervention are diverse, there has been a general trend towards eco-tourism commodities and the (re)commodification of rhino horn as a solution.

"*CITES has highly endangered rhino*"

These are the words of a private rhino owner and breeder who also stated that "if legalization of trade would happen, I would have nearly unlimited money to protect my rhino".[4] These statements were in 2017, and this breeder also expressed discontentment with the Department of Environment's stance on the legalization of trade in rhino. A few decades back in 1977, the Convention for International Trade in Endangered Species (CITES) listed black and white rhinos in its Appendix I, which prohibited the trade in rhino and their parts globally (Biggs *et al*., 2013). This was in response to years of poaching that had decimated rhino populations in the wild. Through the Natal Parks board rhino relocation program, however, rhino numbers increased significantly ('t sas-Rolfes, 1990). Accordingly, in 1994 white rhino were moved to Appendix II of CITES, which enabled the export of trophies and the trading of some animals. However, when poaching increased dramatically a decade later, the Minister of Environment in South Africa placed a moratorium on the domestic trade in rhino horn in 2009. Despite the moratorium, poaching numbers continued to soar such that by 2014 more than 1,000 rhinos were being poached annually in South Africa (though those numbers started declining again from 2016 onwards).

Citing the failure of the 1977 CITES ban, private rhino owners in South Africa launched a campaign to legalize trade in rhino horn. They argued that the CITES trade ban had inadvertently increased illegal trade. In fact, rhino populations continued to plummet despite CITES and the 2009 moratorium (Hübschle, 2016). Rhino owners argue that "a legal trade in rhino horn (in which not a single animal would need to be killed) would enable the government to free up substantial funding for many other conservation priorities as rhinos would have a *real* value and pay for their security".[5] The overall sentiment, as expressed above, was that by legally and physically separating rhino from their horns, a rhino would literally pay for its place in the ecosystem. Thus, the South African Private Rhino Owners Association (PROA) organized an international campaign to influence CITES to allow for trade that gained the support of countries like Swaziland. This campaign failed, and the international ban remained. However, in 2017, the South African moratorium on domestic trade in rhino horn was lifted and rhino horn was legally re-commodified nationally.

Proponents of legal trade recognized that certain conditions such as curbing laundering and corruption would need to be met, in order to make legal wildlife trade viable (Biggs *et al*., 2013). However, these conditions were not met before South Africa legalized domestic trade. Commenting on the South African constitutional court's decision to legalize trade in 2017, Collins *et al*. (2020) suggest that the decision fell short because it was not informed by a transdisciplinary understanding of the crisis. Furthermore, echoing the International Rhino Coalition's (2014) findings, they argue that this could increase the extinction rate of

[4] Interview, Rhino breeder, 6 September 2017.

[5] *Wildlife Ranching* magazine, Rhino Supplement https://www.rhinoalive.com/wp-content/uploads/2016/06/RS_Mavuso-Msimang-DPS.pdf. Last accessed 25 May 2021.

rhinos because legal horn could be laundered into an illegal international market. Hübschle (2017) shows that this is already happening within the private sector because some horn from legal hunts and pseudo-hunts enters the illegal market. She states that:

> …to the rogue wildlife professional (used as an umbrella term here), the contestation of the [CITES] ban also relates to the valuation of rhino horn as a highly profitable commodity. *The intrinsic value of the rhino as a wild animal worthy of protection for the common good is secondary in this instance*. In borrowing from the conservation discourse that portrays private ownership of rhinos as a conservation strategy, the rogue wildlife professional legitimizes his or her illegal economic activities in terms of contributing to conservation. (Hübschle 2016: 292, emphasis added)

Thus, while proponents of legal trade suggest that it will augment security costs and in turn help protect rhino from extinction, it seems that the monetary returns from legal trade prioritize the financial value for the private rhino owners over the intrinsic value of rhino themselves. This is affirmed by Eikelboom *et al*. (2020) who suggest that legalizing trade in horn would have adverse implications for wild rhinos but would benefit private rhino owners through increased revenue. Furthermore, while not advocating for or against trade, Taylor *et al*., (2017) suggest that legal trade could incentivize more farmers towards financially lucrative intensive breeding, and they suggest an implication of this might be a decline in wild rhino populations. Having said that, private rhino owners have incurred significant security costs. Furthermore, between 2007-2018, there was a 67% drop in the value of white rhino (Emslie *et al*., 2019). A common adage at the time became 'a rhino is worth more dead than alive.'

In addition, 28% of private rhino owners surveyed by Clements *et al*. (2020) sold a percentage of their rhino. Yet, in an article aptly titled "a new investment frontier", the chairperson of PROA states that "investors in search of new investment frontiers are now in a position to consider the previously illegal and therefore inaccessible market of rhino-horn".[6] The speculative nature with which the domestic trade in rhino horn has been approached coupled with the fact that much of the institutional shortcomings have not been dealt with, and that there is virtually no consumption of rhino in South Africa, suggests that the legalization of domestic trade in rhino horn serves to amplify private capital, not rhino populations in the wild.

Related to the legalization of domestic trade in rhino is dehorning. Initially hailed as a deterrent the method has since come under fire mainly from rangers, who note that "dehorning does not stop poachers, whatever they get out of the stump might be enough for them"[7]. Furthermore, a warden explains "if poachers track a dehorned rhino, they will kill it just so that they don't have to track it the next day".[8] However, some reserves continue to dehorn suggesting that as a deterrent, the method does work. Either way, a harvested horn is a valuable commodity.

Rhino relocation

In addition to the legalization of domestic trade in rhino horn, there has been a whole host of interventions from the nature-based tourism sector aimed at curbing poaching. One such example is the private sector-organized rhino relocation program from South Africa to Botswana which was meant to expand the rhino range and protect them within Botswana's controversial shoot-to-kill landscape (which has since been abolished). Analyzing this initiative, which has involved the likes of Hollywood's Uma Thurman, Koot (2021, 4) argues that these types of initiatives "are based on a reductionist articulation of the rhino poaching crisis, de-politicizing it from its socio-economic and historical context while legitimizing privatized, luxurious tourism and pushing exorbitant consumerism as a solution for social and environmental

[6] https://www.rhinoalive.com/wp-content/uploads/2018/06/Rhino-files-SP.pdf last accessed 25 May 2021

[7] Interview, Ranger Hoedspruit, 23 March 2018.

[8] Interview, Warden Hoedspruit, 30 May 2018.

crises." In addition to fostering forms of consumption, a veteran ranger noted that these policies tend to aggravate poachers more than anything else[9], although industry opinions differ widely on this issue.

There are two points to make from this. First, as with the legalization of domestic trade in rhino horn, the relocation program purports to be in the interest of rhino populations. However, as Koot (2021) notes, these initiatives further the economic interests of the private wildlife economy by legitimizing conspicuous consumption. Second, this affirms Fletcher's (2010) observation that states, and capital can employ multiple environmentalities to 'save', in this case, rhino populations. That is, Botswana's former shoot to kill policy was the epitome of sovereign power, the power to take life. Yet simultaneously, it facilitates a neoliberal environmentality, focused on capital growth within the wildlife economy.

In addition, there have been a plethora of activities including 'running for rhino', 'golfing for rhino', 'dancing for rhino', and a whole host of rhino-related products, all with the aim of intervening in the rhino-poaching crisis by collecting money for anti-poaching initiatives. While these interventions arguably do not harm rhino physically, they certainly have capitalized on the crisis. Whereas rhino farmers and the nature-based tourism industries' interventions have been widely different, they are both based on a neoliberal logic that prioritizes the demands and needs of the private wildlife economy over the intrinsic value of rhino. To see how this compares to how black conservation laborers are governed, I zoom into the Lowveld landscape which is the center of one of the biggest wildlife economies in South Africa. The area has nature-based tourism and wildlife farming, and both have participated in some of these interventions.

4. Environmentality and collective labor

The Lowveld landscape is spatially and socio-economically unequal with some sections, especially in the north, dotted by a mosaic of private nature reserves around a small-town called Hoedspruit in the Maruleng municipality. In the south, there is Acornhoek in Bushbuckridge municipality, which is a former apartheid homeland. Here, there are many social issues such as high unemployment, lack of water and poor health facilities, while it is also home to many conservation laborers.

Some conservation laborers live on the private nature reserves for 21 days and in return get 7 days off. Others still commute from Bushbuckridge to the private nature reserves every day. The respondents quoted below worked in anti-poaching, housekeeping and maintenance, and some were rangers. This section compares how black lives, especially laborers and their families, and wildlife, in particular rhino, have been valued. This might appear crude, yet when an antipoaching agent in an interview states that "for the landowner, the lion or rhino or whatever wildlife is more valuable because that's how they make their money" there is an urgent reason to flesh out how this materializes in these landscapes. The agent further observed that "for my employer, they value my life because again that is how they make their money, through my work".[10] This comment captures the value judgments central to the conservation of biodiversity. These judgments are concealed by interventions such as those discussed in the previous section. To underscore this, I will illustrate and elaborate on the disciplinary and neoliberal environmentalities governing conservation laborers.

Neoliberal environmentality (jobs as incentives)

When probed about the implications of rhino poaching, some conservation laborers stated that "the poaching is an issue because guests from far away expect to see the rhino. When we lose the Big Five, we will also lose jobs".[11] In this sense, laborers suggest that the survival of rhino is directly tied to their employment. Whether the extinction of rhino would crash the South African tourism sector is questionable. However, there is a clear incentive for laborers to ensure that rhino and wildlife more generally are protected because their livelihoods currently depend on them. Public officials in Bushbuckridge and Maruleng also noted the employment opportunities that private nature reserves offer in areas with 64.6% and 51.2%

[9] Interview, Ranger Hoedspruit, 21 March 2018.

[10] Interview, anti-poaching agent, Acornhoek, 14 May 2018.

[11] Interview, laborer, Acornhoek, 4 March 2018.

unemployment rates respectively (StatsSA, 2021). Because conservation laborers come from communities with such high unemployment rates, they would be intimately acquainted with the effects of unemployment. In fact, when pressed upon the most urgent issues in their communities, conservation laborers often mentioned unemployment, suggesting that high unemployment figures were more than just numbers to them. As a guide explained, "poaching affects us because if all the animals are killed then we are out of jobs".[12] Jobs as incentives are prolific in conservation development, however, as Wieckardt *et al*. (2020) show, these employment opportunities can exacerbate social stratification in communities by employing people who are already well-positioned to secure work as guides, for example.

In the Lowveld, 'jobs as benefits' comes directly from private nature reserves whose owners and managers frequently cite job creation for locals as a benefit. In addition, many often note the socioeconomic challenges in neighboring communities. One reserve stated that:

> …the majority of our staff come from the surrounding local communities, so we see it as our duty to do our best to make a positive contribution, especially with the needs that are continually evident within such a rural setting.[13]

Some of these jobs are permanent while others are temporary bush clearing or construction jobs. As another reserve notes:

> The proposed extension [...] will benefit the local communities in terms of employment opportunities and job creation. It is estimated that approximately 65 jobs will be created during the construction phase and 18 jobs during the operational phase. Skills development and training will also be a benefit. 100% of this labour will be sourced from previously disadvantaged individuals from the local communities.[14]

With unemployment rates so high, nature reserves do create jobs. However, talk about local 'participation' and 'benefits' often mask the fact that *conservation also needs labor*, and that this labor is crucial for private capital (Neimark *et al*., 2020; Thakholi, 2021). That said, it is important to dissect what these jobs entail. As the previous quote suggests, some of these jobs are temporary, while permanent jobs are characterized by poor labor conditions. For instance, I met general workers in a game reserve earning as little as US$190 per month, a salary which many respondents were dissatisfied with. This was compounded by difficult working conditions including unpaid overtime, sub-par accommodation, and racism in the workplace.

Furthermore, for many, the prospects of getting a promotion are limited as evidenced by some older laborers who had been working in housekeeping and maintenance for over ten years. Consequently, when a laborer states that "the best promotion I can get from this position is to become a poacher".[15] it is a reminder that conservation does not have a monopoly over the neoliberal biopolitics of rhino conservation. As Hübschle (2016) notes, a ranger can be offered ten times more than their salary to simply point at the location of rhino. Notwithstanding what is clearly a lucrative deal, and despite unfavorable working conditions, many workers do not become informants, otherwise rhino would be far worse off. The simple issue here is that private conservation uses the promise of jobs and other technologies to conserve rhino.

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[12] Interview, guide, 19 February 2017.

[13] https://www.thornybush.com/ last accessed 1 June 2021.

[14] http://www.nuleafsa.co.za/wp-content/uploads/2018/09/Draft-BAR-Kapama.pdf last accessed 1 June 2021.

[15] Interview, security, 16 February 2017.

Disciplinary environmentality

In addition to external incentive structures meant to motivate conservation laborers to protect wildlife, private nature reserves use various technologies on workers "to ensure that all the workers are clean"[16] as one ranger elucidated. That is: to ensure that there are no poachers within the organization. These include layered voice analysis for new employees and occasional polygraphing. The latter was implemented after multiple cases of nature reserve employees from casual laborers to management being implicated in poaching. Thus, polygraphing was set in place by private game reserves to 'weed out' employees who have participated in or have knowledge of poachers. There are at least two companies in Hoedspruit offering the service (Figure 1). Most conservation laborers, including housekeeping, maintenance, rangers and anti-poaching agents were subjected to a polygraph test at least twice.

Figure 1: Advertisement for a polygraphing company operating from Hoedspruit. Sourced from their Facebook page.[17]

Labor law in South Africa allows for the use of polygraphing by an employer with the written consent of an employee. However, the results alone cannot be used as grounds for dismissal[18] because they are not conclusive. Despite this, a trainer noted that some rangers had been fired for suspicion of selling information about rhino because "it doesn't necessarily mean that they [a laborer] sent the text, but if they have knowledge of anyone else who did, like a family member, they will fail the test".[19] Polygraphing, as an employee mentioned "has made the working conditions very hard because we are always stressed. You do not know when you are going to get fired".[20] This technology has created an environment where workers

[16] Interview, Ranger, 23 March 2018.

[17] https://www.facebook.com/626995510696122/photos/a.2420473414681647/3167282570000724/?type=3&theater Last accessed 5 June 2021.

[18] https://www.ccma.org.za/Advice/Information-Sheet. Last accessed 25 May 2021.

[19] Interview, 22 November 2018, Hoedspruit.

[20] Interview, 4 March 2018, Acornhoek.

internalize a sense of insecurity and fear of dismissal which in turn forces them to police not just themselves but the people around them as well.

Many laborers claimed that some colleagues had been fired based on their test results. This was vehemently denied by a manager in a private nature reserve who mentioned that the questions posed were direct and if an employee failed the test, they were investigated further. What is undeniable is that polygraphing is a disciplinary technology that is used to ensure that rhinos are not poached, while conversely threatening black workers with the social reproductive risks associated with unemployment. This technology works on the individual worker who, upon failing the test, can be fired. However, the real target as the ranger above stated, is the labor force more generally. That is, the polygraph tests are used on individual labor to ensure that the collective labor force is vitalized in the service of protecting rhino and enabling neoliberal conservation. The biopolitical nature of polygraphs is captured by Complete Polygraph Solutions (Figure 1) who state that:

> …once someone is employed, it is advisable for employer's to periodically test their employees. This serves a dual purpose. On the one hand the employees are made aware that their actions are monitored on a regular basis, resulting in hesitance to commit any undesirable acts.[21]

There is an inherent contradiction here, which Labban's (2014) analysis on the sovereign power of capitalism helps to untangle. He notes that layoffs in oil companies show the contradiction of capital, "which exposes certain workers to death at the same time that it seeks to improve the workers' chances of life through safety boards, routines and regulations intended to eliminate hazards, prevent accidents and enforce safety standards" (Labban, 2014: 491). Thus, while the consequences of unemployment expose some to harm, workers that pass the test through working in an environment saturated with mistrust can continue to protect rhino and meet their social reproductive needs. The biopower of private conservation is therefore expressed in the ability to subject some laborers to unemployment in order to improve the collective force, save rhino life and uphold the (profitability of the) wildlife economy more generally. However, polygraph tests are new and have been ushered in under exceptional circumstances. As Lorenzini (2021:42) notes, by focusing on extraordinary circumstances, like COVID-19, "we risk overlooking the fact that disciplinary and biopolitical power mainly functions in an automatic, invisible, and perfectly ordinary way—and that it is most dangerous precisely when we do not notice it." For this reason, I turn to ordinary scenarios that reveal how laborers internalize environmental protection.

The conservation laborers I spoke to hold a range of ideas about environmental protection. However, a sentiment that was echoed many times was that "wild animals should be protected because future generations have to see them".[22] This way of framing environmental governance is not endemic to private nature reserves in the Lowveld but has become the norm globally. Thus, by suggesting the importance of rhino for future generations, conservation laborers demonstrate the internalized environmental values that have become commonplace in conservation. This is not to suggest that laborers do not value wildlife. Rather, and given that very few people from laborers' homes have ever set foot in a private nature reserve, it begs the obvious question: for which future generations should wildlife be preserved? Upon further probing it became apparent that laborers' conceptions of environmental problems did not immediately feature wildlife. Rather, laborers identified lack of access to water, unemployment and bad roads as the most pressing issues in their immediate environments. I will return to this shortly.

A description of the plethora of environmental initiatives that private nature reserves host in neighboring villages might help contextualize why a conservation laborer would frame their response in that manner. At least six private nature reserves along the border of the Kruger National Park close to the communities organize various environmental programs. These include vegetable gardens, conservation

[21] https://apotgiete0.wixsite.com/polygraph/contact . Last accessed 23 May 2021.

[22] Interview, 4 March 2018, Acornhoek.

awareness, environmental education, health programs, and soccer tournaments. These initiatives target youth, the elderly, school children, and orphans. One nature reserve that hosts an annual workshop for the children of its employees' notes "by *establishing* a love for nature and conservation from as early an age as possible, *we inspire* these children and their families to *adopt a way of life* that protects their environment"[23] [italics added]. Problematic language aside, the reserve has hosted 25,500 participants to these workshops. Under an aptly titled section called 'Incentives' it lists gifts such as school uniforms and Christmas presents for the local communities. This is just one organization amongst others that run programs in villages that emphasize instilling a supposedly absent love for the environment in local residents. By *adopting* this dominant view of the environment, conservation shapes the conduct of laborers and their families.

Private nature reserves run these programs to create Agrawal's conceptualization of "environmental subjects – people who care about the environment" (2005: 162). In addition to these programs, Pastor Mpho, a local priest in Acornhoek was invited to a workshop in a private reserve, where pastors were told to preach about poaching problems. Following this, Pastor Mpho started to preach anti-poaching to his 25 congregants. Considering all these environmental programs are meant to 'establish a love for nature', some conservation laborers are bound to internalize a particular way of thinking about the environment. Hence, environmental education is exemplary of a disciplinary environmentality (Fletcher, 2010).

Letting die

Nature reserves combine disciplinary and neoliberal environmentalities to govern laborers such that they are both incentivized to protect rhino and have internalize moral standards about environmental protection. Both serve to maintain a labor force that is vitalized in service of wildlife, and neighboring communities that are amenable to *in situ* preservation. However, by looking within and beyond the fence into communities where workers come from, the 'let die' of conservation is revealed. To work this out, I follow Marcatelli & Büscher's (2019, 761) reminder that "'letting die' is not about 'killing' people – as some mistakenly understand the concept – but about the *disinvesting or non-intervening* in particular groups of people (or 'forms of life') so that these have structurally less chance of making a living or more chance of seeing their livelihood wither." The 'non-intervening' implicates conservation organizations, local municipalities, and the Department of Environment. The latter has spearheaded some interventions discussed in the previous section. However, the Department rarely if ever makes mention of the working conditions of conservation laborers. If anything, the Department of Environment also champions 'jobs as benefits' without questioning the quality of jobs the sector offers to locals.

In addition, due to the racialized division of labor in conservation, black laborers in general are disproportionately exposed to life-eroding circumstances such as subpar housing but also death itself. This is evidenced by one reserve in the Lowveld where low-wage, predominantly black workers are expected to walk a 2km stretch from the main gate to the reception in an area which has large mammals and predators. Though the reserve has plenty of game drive cars, twice a day, day staff walk the stretch of road to and from the bus. On one occasion a female laborer would have been attacked by a leopard had a car not driven by.[24] Similarly, in another game reserve, a security guard lamented that:

> …sometimes we carry guns, other times we don't [...] we are not even allowed to shoot at an animal if it charges at you, even if it's about to kill you are not allowed to shoot it. You have to find other ways to escape. Only poachers can be killed, not animals.[25]

In view of the findings of the previous section where I pointed to the monetary value of wildlife, it is perhaps unsurprising that private landowners would rather have an employee sustain some injuries as opposed to losing their expensive commodity. This quote also shows the sovereign and neoliberal environmentalities of

[23] https://www.ecochildren.co.za/our-projects/eco-education

[24] Personal fieldnotes, 20 February 2017.

[25] Interview, security, 18 February 2017, Hoedspruit.

conservation which works on poachers and laborers respectively. From this, it is evident that racism and biopower are inextricably linked because the former orders human groups based on differential exposure to vulnerability (Lorenzini, 2021).

The vulnerabilities are also observed by laborers who mentioned unemployment, lack of water and bad roads as some of the most pressing issues in their villages. As mentioned, the unemployment rates are very high in Bushbuckridge, well above the (already high) national average. Furthermore, conservation laborers and the communities they come from barely have consistent access to clean drinkable water. Only 8.3% of residents have piped water in their residence (StatsSA, 2021), the rest depend on communal taps which have an infrequent supply of water. Observing a business opportunity, some wealthier families have dug boreholes and now sell water to community members. Others, who own pickup trucks, run a water delivery service where community members can pay per trip. Water is essential for human reproduction; failure to provide it exposes communities to vulnerability (Marcatelli and Büscher, 2019).

The third concern that workers mentioned were bad roads. Having driven the Acornhoek main road multiple times, I can attest to the gaping potholes, patches of tar and mud flows when it rains. The non-intervention in infrastructure has far-reaching implications for the community at large. Good infrastructure, including road networks is known to attract investors who would in turn provide jobs. Furthermore, at present, businesses and homes along the road tend to flood due to poor or non-existent stormwater drainages. The material implications of the municipality's failure to provide this service are far-reaching. Yet across the fence in nature reserves, multiple interventions are set in place to ensure that rhinos are protected, including intervening in the collective labor force.

5. Conclusion: making landscapes live

In light of the above considerations, I argue that private conservation adheres to a hierarchy of life in which rhino are rendered more important than black conservation labor. This hierarchy is informed by market principles because, though rhinos are fiercely protected, the interventions discussed give precedence to the monetary returns of the private wildlife economy over the intrinsic value of rhino themselves. Similarly, the interventions in laborers lives create a workforce that can render just enough labor to keep the wildlife economy functioning while simultaneously disallowing life in the former apartheid homelands. This is short-sighted and indicative of capitalism's contradictions, including undermining the material base of accumulation itself (Harvey, 2014).

The disproportionate investment in rhino life compared to other wildlife underscores why claims of intrinsic value are questionable. If all wildlife has intrinsic value, proponents of conservation would also be waging wars for pangolins (Phataginus and Smutsia in Africa), the most trafficked mammal in the world. Many conservation organizations are working to conserve pangolins but the interventions pale in comparison to the spectacle that rhino poaching has elicited. The attention on rhino is captured by a ranger who notes "a large part of the emphasis in rhino is because it is part of the megafauna that drives the tourism industry. If this was a duiker in Congo, do you think people would be going out armed with bulletproof vests to protect it?." The spectacularization of rhino conservation, in which 'humanity must come together' "belies the profound acts of differentiation—both among non-human species, between human populations, and within particular non-human species" (Biermann and Anderson, 2017: 5).

Furthermore, in Southern Africa, it has been argued that whites fashioned a deep connection with 'African' environments which allowed them to disengage from their black neighbors (Hughes, 2010). So, in some sense it is not a surprise that conservation institutions value rhino as a commodity more than black lives. What this article has shown, however, is that these interventions mask the value judgments that culminate in differential exposure to vulnerabilities. That is, *the choice* to intervene in rhino life even if to extract more profit from it, is also value laden. In the same vein *the choice* not to intervene in black lives — beyond creating environmental subjects— is also value-laden. As shown, private conservation is prepared to wage wars to protect rhino, and to lobby international celebrities and countries, but fails to simply remunerate black laborers enough to meet their social reproductive needs while simultaneously depending on the unpaid social reproductive activities occurring in villages (Thakholi, 2021). Fundamentally this shows that the

wildlife economy in South Africa is a microcosm of a capitalist order that has always depended on and reinforced human difference consistently along racial lines (Mbembe, 2017). Conservation of biodiversity takes this a step further by also creating a hierarchy in which wildlife is valued more than black workers.

While this analysis concentrated on human and non-human life forms, at an abstract level, interventions in some life forms, occupying certain geographical areas will necessarily make those landscapes viable for certain forms of life. Similarly, 'non-intervention' in other life forms occupying other places will render life more difficult, if not untenable in those landscapes (see Hawthorne, 2019). This is consistent with McIntyre and Nast (2011: 1466) who argue that the emergence of capitalism, from the separation of producers from their means of subsistence, was inscribed with "racially *ontologized* hierarchies of space, which permitted the hyper exploitation of certain (colorized) bodies and lands, but not others" [italics in original]. Thus, the spatial implications of the biopolitics of private conservation, that is, valuing wildlife while exposing black conservation labor to harm, are twofold. First, promoting wildlife through interventions such as those discussed in this article reinforces private nature reserves as viable landscapes supporting the lives of reserve owners, tourists, flora and fauna. Secondly, non-intervention in communities adjacent to private nature reserves, results in these landscapes unable to support viable lives and livelihoods. Biopolitics is thus spatial, as this article has shown. Sectors that are not as visually striking as extractive industries also make value judgements about life, and these decisions ultimately manifest in space.

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Extinction in transition: coca, coal, and the production of enmity in Colombia's post-peace accords environment

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Abstract

At the Paris Climate Summit in 2015, then Colombian president Juan Manuel Santos proposed constructing a multi-national biodiversity corridor that would extend from the Andes to the Brazilian Atlantic coast. Santos highlighted increased militarization of the territory as one advantage of the corridor. In this model, ecological conservation becomes a matter of national/natural security, in the form of counterinsurgency to counter illegal economies. Climate change and ecological disaster mean the forest needs the military power of the State to save it from destruction. We argue that such conservation entails a form of necropolitics lying in wait; because to conserve one part is to condemn the other – framed as the enemy – to certain destruction, as land is simultaneously designated for large-scale development projects. Conservation, in effect, becomes tied to a form of extinction. Our article examines two increasingly militarized frontiers that work through conservation in Colombia. The first is where the Andes meets the Amazon rainforest, an area that has seen an increase in deforestation following the 2016 Peace Agreement with the FARC. Deforestation is often attributed to the cultivation of coca (used to produce cocaine), and the solution posited by the government is to eradicate the plant. We argue that eradication of illicit crops is a form of enforced extinction that militarizes the forest, targeting both human and non-human inhabitants. The second frontier concerns coal mining on the Caribbean coast, where mass environmental devastation induced by the industry has led to a forced reorganization of life in the region. The military guards the sites of extraction and those who oppose coal mining become targets for elimination. We bring these two cases – coal and coca – into dialogue, to trace the extinction-driven expansion of extractive economies, a process intertwined with armed conflict, narcotrafficking, and now, with transitional politics.

Keywords: Necropolitics, transitional justice, conservation, militarization, Colombia, counterinsurgency

Résumé

Lors du sommet de Paris sur le climat en 2015, Juan Manuel Santos, alors président colombien, a proposé de construire un corridor de biodiversité multinational qui s'étendrait des Andes à la côte atlantique brésilienne. Santos a mis en avant la militarisation accrue du territoire comme l'un des avantages de ce corridor. Dans ce modèle, la conservation écologique devient une question de sécurité nationale/naturelle, sous forme de contre-insurrection pour lutter contre les économies illégales. Le changement climatique et le désastre écologique signifient que la forêt a besoin de la puissance militaire de l'État pour la sauver de la destruction. Nous

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soutenons qu'une telle conservation implique une forme de nécropolitique à l'affût. La conservation d'un élément en condamne un autre - présenté comme l'ennemi – à une destruction certaine, puisque des terres sont simultanément désignées pour des projets de développement à grande échelle. La conservation, en effet, devient liée à une forme d'extinction. Notre article examine deux frontières de plus en plus militarisées qui fonctionnent à travers la conservation en Colombie. La première est celle où les Andes rencontrent la forêt amazonienne, une zone qui a connu une augmentation de la déforestation suite à l'accord de paix de 2016 avec les FARC. La déforestation est souvent attribuée à la culture de la coca (utilisée pour produire de la cocaïne), et la solution proposée par le gouvernement est d'éradiquer cette plante. Nous soutenons que l'éradication des cultures illicites est une forme d'extinction forcée qui militarise la forêt, en ciblant les habitants humains et non humains. La deuxième frontière concerne l'exploitation du charbon sur la côte caraïbe, où la dévastation environnementale massive induite par l'industrie a conduit à une réorganisation forcée de la vie dans la région. L'armée garde les sites d'extraction et ceux qui s'opposent à l'exploitation du charbon deviennent des cibles à éliminer. Nous faisons dialoguer ces deux cas – le charbon et la coca – afin de retracer l'expansion des économies extractives due à l'extinction, un processus entrelacé avec les conflits armés, le narcotrafic et, maintenant, avec les politiques de transition.

Mots-clés: Nécropolitique, justice transitionnelle, conservation, militarisation, Colombie, contre-insurrection

Resumen

En la conferencia sobre el cambio climático de 2015, el entonces presidente de Colombia, Juan Manuel Santos, propuso la construcción de un corredor de biodiversidad multinacional que se extendería desde los Andes hasta la costa atlántica de Brasil. Como una de las ventajas de este corredor, Santos resaltó la militarización del territorio. En ese modelo, la conservación toma la forma de la contrainsurgencia. En tiempos de cambio climático y desastres ecológicos, la selva requiere el poder militar del estado para salvarla de su destrucción, que es usualmente presentada como responsabilidad de las economías ilegales. La conservación ecológica se vuelve entonces un asunto de seguridad nacional/natural. Argumentamos que esa conservación implica una forma de la necropolítica que descansa al acecho; conservar un lugar condena a otro -definido como enemigo- a ser destruído, pues mientras un lugar es protegido otros se vuelven objeto de grandes proyectos extractivos y de desarrollo. La conservación por lo tanto se encuentra ligada a la extinción. Este artículo examina dos fronteras militarizadas que operan a través de la conservación en Colombia. La primera se encuentra en el lugar en el que se conectan los Andes y la selva Amazónica, un área que ha vivido una creciente deforestación desde la firma de los acuerdos de paz en 2016 entre el estado y las FARC. La deforestación es generalmente atribuída al cultivo de coca (que se usa para prooducir cocaína), por lo que la solución gubernamental es erradicar la planta. Argumentamos que la erradicación de plantas ilicitas es una forma de extinción forzada que lleva a la militarizacíón de la selva y a convertir en objetivos militares tanto a humanos como a no humanos. La segunda frontera se refiere a la extracción de carbón en la costa caribe del país, donde la devastación ambiental masiva, producto de la industria extractiva ha llevado a la reorganización de la vida de la región. Las fuerzas militares del estado protegen las minas y su infraestructura, haciendo que quienes se oponen al carbón se conviertan en objetivos de eliminación o neutralización. En el artículo realizamos un díalogo entre ambos casos -coca y carbón- para analizar la expansión de las economías extractivas impulsadas por la extinción, un proceso que además se mezcla con la guerra, el narcotráfico y ahora, las políticas de la transición.

Palabras clave: Necropolítica, justicia transicional, conservación, militarización, Colombia, contrainsurgencia, extractivismo, coca, coal.

1. Introduction: the context of the peace accords

In 2016, the government of Juan Manuel Santos signed the peace accords with the Fuerzas Armadas Revolucionarias de Colombia (FARC), the oldest guerrilla movement on the continent. In accordance with international tradition, the Colombian government established a Transitional Justice System.[2] However, in a referendum held that same year, a vote against the result of the peace accords prevailed, and with it, the

[2] The *Sistema Integral de Verdad, Justicia y Reparación y no Repeticiòn* (SIVJRR) has three main institutions: a Truth Commission, an Alternative Justice System (JEP) and a Search Unit of Disappeared People (Unidad de Busqueda).

legitimacy of the transitional system was put in question, as well as many of the agreements designed to end a war that has lasted more than half a century.

This was not Colombia's only peace process. Eleven years earlier, in 2005, the government of Alvaro Uribe Vélez initiated a much-criticized peace process with paramilitary groups united under the name of Autodefensas Unidas de Colombia (AUC). It was during this peace agreement that Colombia began a discussion about transitional justice scenarios, victimhood, reparations and non-repetition.

Transitional justice is generally defined in a teleological manner, organized as a progressive sequence, beginning from a moment of chaos and war, followed by a transition and its subsequent resolution into liberal democracy and a strong market economy (Bowsher 2018; Castillejo 2017; Grandin 2011; Rothberg 2012). In the case of Colombia, transitional justice processes have not followed this sequence. The 2005 process did not end the war, as paramilitarism was not fully dismantled and guerrilla groups like the FARC and the Ejército de Liberación Nacional (ELN) remained active. Likewise, the 2016 peace accords did not include the ELN, and today, different irregular armies are thriving across the country.[3] Hence the promises, institutions, discourses and practices of transitional justice coexist with different iterations of war, leading to overlapping transitional justice processes and multiple formations of armed violence.

Nevertheless, the idea of strengthening market economies, including via transnational investment, remained solid throughout both peace processes. Santos made it clear from the outset of the peace negotiations with the FARC that Colombia's 'economic model' was to be left out of the discussion. By excluding the 'economic model', Santos meant two things: first, that the existing neoliberal arrangements, foreign investments and market relations were to remain intact; and second, that Colombia's extractivist industries and the use of nature as a resource for capitalist accumulation was not up for debate.[4]

In this article, we focus on what these scenarios mean for relations between environmental conservation and militarization. Central to this analysis is a discussion of violence and conceptions of nature. We argue that the peace processes' narrow definition of violence – anthropocentric in conception – renders environmental violence in the context of war invisible. This definition of violence is at the center of the practices and discourses in which a future of 'peace' is conceived. The negation of environmental violence in turn informs processes of justice, reparations and reconciliation, leaving those who might have experienced these forms of violence without recognition or legal recourse. Additionally, within conceptions of nature and transitional justice we witness the Colombian state continuously reifying nature as an economic resource, reinforced by processes of militarization and public policymaking that decide what is worthy of conservation and what should be left to die and go extinct, a process we conceptualize as 'necropolitics' (Mbembe 2003).

To articulate these points, we bring together two economic activities not usually viewed together. One is the coal industry, located in northern Colombia, near the Caribbean coast. Coal mining represents a mostly legal, large-scale regulated economy which in the first trimester of 2019 accounted for 68% of the mining sector and represented 1.18% of Colombian GDP.[5] The other is the illicit cultivation of coca (Erythroxylum coca), used to produce cocaine. While coca cultivation has been relatively widespread throughout the country – present in twenty-two departments out of thirty-two – historically coca has been highly concentrated in the south, along the border with Ecuador.[6]

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[3] The demobilization of AUC did not mean paramilitarism disappeared, since multiple groups remained active throughout the country. Likewise, the demobilization of FARC was not complete and dissident factions continued in armed confrontation. Although these groups are not the same as their predecessors, they have increased their power and have contributed to the escalation of war.

[4] See Hannah Meszaros Martin (2016), 'How to make peace with the forest: Development and war in Colombia', *Open Democracy* https://www. opendemocracy.net/ hannah-meszaros-martin/ how-to-make-peace-with- forest-development-and- war-in-colombia [accessed 28 Dec. 2021].

[5] Análisis del Comportamiento del PIB Minero Primer Semestre 2019, Ministerio de Minas y Energía de Colombia: https://www.minenergia.gov.co/documents/10192/24089918/PIB+I+triemestre+2019.pdf/79b1f2d2-c16d-48df-91d1-55bf7ec13cb3 [accesed 28 Dec. 2021]

[6] While cultivation density and prevalence can fluctuate over time, and in very rare circumstances there can be no production at all, cultivation in each department has remained relatively stable. In general, the number of departments with

Coca and coal are seen as substantially different worlds in Colombia. In this article, we create a counterpoint (Ortiz 1995) between these two human-environmental arrangements, as they produce specific state formations, modes of violence, and ways to assert life and death in a context of political transition marked by uncertainty.

We argue that coal and coca work in a necessary tandem of extinction and conservation. The coal industry has irrevocably transformed the landscape through historical environmental and political violence, resulting in a geography in which certain human and non-human modes of life are continuously at risk of expulsion and extinction. In the case of coca, we look at how the eradication of this outlawed plant shapes and informs patterns of extinction and salvation in the Amazon. For governmental institutions, practices and discourses, the cultivation of coca is presented not only as a threat to the survival of delicate ecosystems, but also as a threat to the very concept of peace. Coca's enforced extinction via eradication is justified in order to supposedly 'conserve' the rapidly disappearing forest – a disappearance which is considered a threat to national security.

In the counterpoint between coal and coca, we witness a direct link between forms of destruction and conservation. With coca, there is an idea that conservation via eradication of the plant would uphold peace, and with coal, that more extraction (entailing an eradication of other forms of life to make way for mining and associated infrastructure) would also secure a more peaceful future. In these two examples, eradication is tied to the idea of conservation and produces a very specific condition: the militarization of nature and the production of enmity. What mediates these two seemingly opposite forces, we argue, is increased militarization on the ground, which escalates violence and continues the conflict that supposedly ended in 2016.

We begin the article with a discussion of the concept of necropolitics and its mediation between conservation and extinction, or life and death. We then outline how we understand the terms nature and violence, and why they are central to discussions of transitional justice and its broader effects. Then we turn to an examination of each case study: coca and coal. We highlight which aspects of each have gone unrecognized and been negated in the definitions and discussions of violence throughout the Colombian war. We tell the story of how each economy unfolded in the environment, and how this environment became the medium and mode through which violence was perpetuated.

2. The necropolitics of human and nonhuman life

Our conceptualization of necropolitics is twofold. First, as the enmity that shapes and informs modes of environmental violence. Perceptions of the enemy and the environment are merged here, and by being bound together, following the figure of *Homo Sacer* (Agamben 1995), produce a subject that can be killed with impunity.[7] This method of constructing violence as sewn into the very pathways of the natural world was visible during the Cold War (Hamblin 2013). When Cold War planners designed violence intended to eliminate the enemy as a categorical entirety – in that case 'communism' – they included the environments in which this enemy lived (and where it reproduced itself). Our second conceptualization of necropolitics is one *that lies in wait* in patterns of conservation and resource extraction, shaping the future of extinction in diverse and fragile ecosystems.

In his elaboration of necropolitics, Mbembe argues that the sovereign's right to wage war is followed by the right to kill. This notion of war goes beyond the boundaries of physical confrontational violence, extending itself to the routinized practices that administrate life, namely, the biopolitical dimension of the exercise of power (Foucault 2003). Foucault extends this idea to oppose the longstanding assumption that war is embodied by disorder and savagery, whereas peace is defined through order and the proper administration of social relations. For Foucault, "law is not pacification, for beneath the law, war continues to rage in all mechanisms of power, even the most regular. War is the motor behind the institutions of power" (2003, 50).

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coca fluctuates between 21-25. http://www.odc.gov.co/sidco/oferta/cultivos-ilicitos/departamento-municipio [accessed Dec. 28 2021]

[7] Agamben uses the figure of the *Homo Sacer*, which he argues is the representation of bare life – the exception that is derived from exclusion – to establish the preconditions of sovereignty.

Following Mbembe, the state – defined as a sovereign power within specific geographical limits – can suspend the judicial order in areas considered as disordered and savage, to enforce its rule through violence "in the service of civilization." Mbembe gives the example of European rule over colonial territory to demonstrate this form of governance and violence. The sovereign rule of the colonizer is a constant state of exception, beyond a formal condition of war. In this account, the creation of enmity is crucial, as the enemy becomes the repository of that which is defined as a threat to particular modes of life, and thus not only establishes what needs to be killed, but also what needs to be protected: "to be deprived of an enemy means being deprived of the kind of relation of hatred that authorizes the giving of a free rein to all sorts of otherwise forbidden desires" (Mbembe 2019, 48).

However, when Agamben and Mbembe describe 'the enemy', they are strictly referring to humans. Here, we extend the category of 'the enemy' and the possibility of being 'killed with impunity' beyond the human to potentially encompass the Earth as a whole (Martin 2019). If biopolitical power expands its reach to include plants, animals and bacteria, these lifeforms are in turn exposed to the necropolitical, the power that determines the destruction, and ultimately the death of its subjects.

Many scholars have highlighted the uses of counterinsurgency practices and discourses for conservation purposes (Bhan & Trisal 2017; Dutta 2020). These analyses highlight how military operations are articulated through the protection of the environment – often referred to as green militarization (Lunstrum 2014). These novel practices of military deployment are oriented towards the strong assertion of sovereign state power and the protection of endangered forms of life (Annecke & Masubelele 2016; Büscher & Fletcher 2018; Marijnen 2017). Scholars have shown how the protection of nature is tied to the securitization and surveillance objectives of nation-states, which in turn create forms of enmity that are instrumental to the militarization of the landscape (Fletcher 2018; Peluso & Vandergeest 2011; Lunstrum 2015). This article expands these analyses in two ways: first, by considering the ways in which the notion of the enemy includes not only humans, but also specific forms of nature and socionatural arrangements; second, by examining the necropolitical practices and discourses that these definitions of enmity create amid transitional justice, and the practices of conservation and extinction they render possible.

As transitional justice seeks to define the past of violence and the future of peace, the assemblages of coca and coal produce different expectations of the future through the notion of enmity. Therefore, different practices of conservation and extinction are articulated around coal and coca. In the case of coal, the idea of the enemy was historically composed around those who were considered to 'oppose' the industry, namely *campesino* organizations, unions, and indigenous communities. Later, with the introduction of transitional justice, these same groups were posited as a threat to a future of stability, and to the legal regulation of natural resource extraction and the projects of conservation and land recovery conducted by mining corporations.

Coca, however, has always been framed as an enemy of the state. This did not change during the peace negotiations. In fact, throughout the negotiations, illicit crops – coca, poppy and marijuana – were continuously framed as an 'enemy of peace.' As the opposite of 'illicit', 'peace' was defined according to the successful realization of legal forms of economic development that would drive Colombia away from a past which was violent *because* of the dominance of illegal industries. On the other side of the coin, government institutions, politicians and mining conglomerates perpetuate the idea that coal extraction is an exemplary legal, regulated and accountable activity. Thus, the coal industry is presented publicly as the future to aspire towards for extractivist industries.

Coca and coal are placed on opposite ends of the legal spectrum in the practices, discourses and institutions of the state. The coal industry is dislocated from the present condition of war and transitional scenarios, situating its conflicts in the past within the linearity of the historization of armed violence. Simultaneously, coal extraction is deemed an exemplary use-of-nature-as-resource in a 'peaceful' future with a legally regulated stable market economy situated in liberal frameworks of operation. On the other hand, coca increasingly defines the present condition of war in the country; the plant that continues to fuel violence and illegality. For transitional politics, coca is the anti-future, a form of life that must be eradicated, and even made extinct, in order for the country to enter into 'peace' and thrive with legality, a stable democracy and strong markets.

Finally, we highlight the interactions that coal and coca have had with the war that went unrecognized as violence and thus, fall outside the transitional justice system. When coca and coal materialize themselves through (the lived experience of) violence, they do so via the environments they occupy. In both cases, we witness forms of enforced extinction, which are the result of the eradication of forms of life that are seen to be exterior (or contradictory) to the logics of the accumulation of capital.

3. Expulsions of nature and violence

Studies of transitional justice scenarios often take for granted the formation of notions of violence, environment and nature, in order to study and evaluate the practical uses of the environment in the aftermath of war (Conka & Dabelko 2002; Mathew, Brown & Jensen 2009; Ide 2019). Similarly, transitional justice institutions mostly fail to recognize the active role of the environment in war or disregard its role in a future beyond war.

When nature appears in the discussions of the longstanding war in Colombia, it is fundamentally defined by its subordination: it exists to serve the material desires of humanity. The environment therefore appears as a raw material to be transformed into a commodity through labor, existing in relation to war when it can be explicitly tied to the instrumental interests of economic activity.[8]

Our understanding of violence takes a relational approach that places the human-in-nature (Moore 2015). Definitions of environmental violence sometimes envision a human act inflicted upon a passive and objectified nature. What we are suggesting is not to qualify the 'type' of violence, as this comes with its own set of problems, and can reinforce the dualisms we seek to break down. We are looking instead at *violence-via-environment*, when violence is not only conducted environmentally, but the environment itself becomes the mode and medium of violence.

Colombia's longstanding war has been defined as 'armed conflict.' This definition is an attempt to situate the historicity of war within standard frameworks of war regulations, especially International Humanitarian Law (Valencia 1990; Human Rights Watch 1998; Bradley 2013). In that regard, violence is equated with armed conflict, and it is armed conflict as such that transitional justice institutions, discourses and practices consider most important.

We argue that this equivalence results in a notion of armed conflict that limits the understanding of violence. In turn, the violence of war, considered as a human activity, marginalizes forms of understanding war that go beyond the objectification of the environment, including the role of violence-via-environment. Following Tyner, we argue that violence should be historically situated, the result of practices and social relations. This allows us to understand how modes of violence are hierarchically organized, legitimized or obscured, and to pay attention to what becomes defined as violence and through what kinds of processes (Tyner 2016: 201). We argue that the framing of war as armed conflict produced a definition of violence that was legible within international legal frameworks, placing that definition within the realm of the human and excluding environmental practices of violence.

4. Coca

The burning forest

In February 2018, President Santos declared that the Chiribiquete National Park, located in the department of Guaviare, was to be expanded by 1.5 million hectares and turned into a UNESCO World

[8] This isn't to say that environmental destruction is not a discussion in the context of the Colombian war, though it is often limited to effects such as the explosion of oil pipelines by the guerrillas or the destruction in the forest left by military bombardments. For a discussion of land as resource in the conflict, see "El acceso a la tierra ha sido el eje del conflicto" (The access to land is the axis of the conflict", *Revista Semana*, November 25 2010 https://www.semana.com/nacion/articulo/el-acceso-tierra-ha-sido-eje-del-conflicto-armado/125048-3/ [accessed May 19 2021] and "La tierra, epicentro del conflicto armado en Colombia", *Diario el Pais*, December 21 2012: https://elpais.com/internacional/2012/12/21/actualidad/1356128746_461292.html [accessed May 19 2021]

Heritage site. It must surely have appeared a bad omen when, as Santos travelled to the inaugural ceremony held in the National Park, he flew over a sea of smoke. The forests of Amazonia were on fire.

The expansion of the national park was part of a multi-national biodiversity corridor – a proposal for a series of islands of preserved 'nature' that would extend from the Colombian Andes through southern Venezuela, ending on the Brazilian Atlantic coast (Figure 1). The original proposal came from Martin von Hildebrand, who established the Amazon Gaia Foundation. The idea was that the corridor (also called the Path of the Anaconda) would preserve a contiguous line of forest and habitats from the Andes to the Atlantic. At 130 million hectares, the corridor would be the largest ecological conservation project in the world. Santos proposed the corridor at the Paris Climate Summit in 2015 – in his words – a gesture from Colombia to keep 'the lungs of the earth' breathing a little longer.[9] This corridor, however, would not only allow for the movement and circulation of those who dwell within those spaces, it would also enable – in Santos' vision – for an enhanced presence of the 'state'; in particular, of the military. President Santos explicitly highlighted this kind of militarized conservation as one of the advantages of the corridor, which would in turn keep out illicit practices like the cultivation of coca.

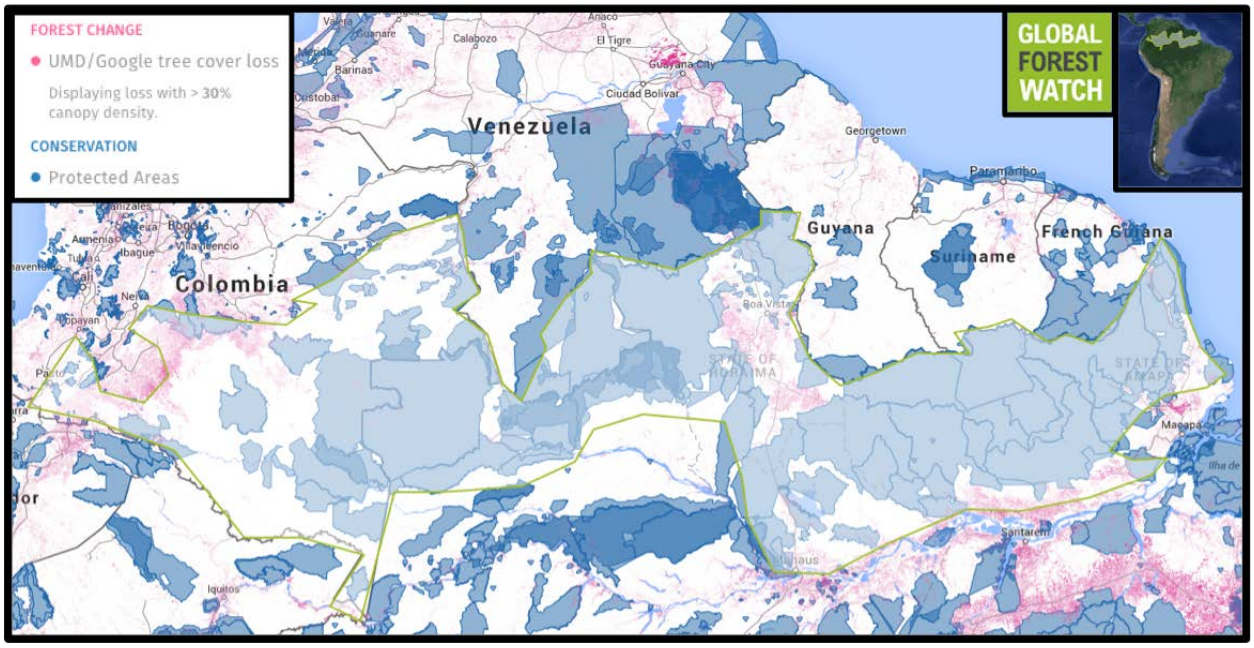

Figure 1: The proposed conservation corridor. Image source: Global Forest Watch

Chiribiquete is in an area known as the 'Andes-Amazon-transition belt', a biodiversity hotspot. The transitional belt also represents the area with the highest density of coca cultivation in the country (UNODC 2003-2013). It has been a traditional stronghold of the FARC and, as a result, the focus of many counterinsurgency campaigns. Santos' flight from Bogotá to the National Park in the post-peace agreement period of 2018 could therefore also be read as a symbolic journey: the state travelling to the previously unreachable, uncontrollable, chaotic center of the war; a gesture of the state enacting its sovereignty. Travelling to the heart of the wild, where the enemies of the state dwell under the forest cover.

[9] President Santos has been awarded both the Nobel Peace Prize (2016) and the Kew (Gardens) International Medal, for work protecting biodiversity (2017).

That forest, however, was on fire. Not only was Amazonia burning, it was also being cut down. From the beginning of 2017, as the FARC left its territory in the transition belt and demobilized, the region began to experience some of the most intensive deforestation in the country.

It has been noted by multiple scholars that in Colombia, the dynamics of ecological destruction in relation to war and events of violence are not straightforward (Rodríguez *et al*. 2017). War cannot only be read as an ecocidal force, but also as one that preserves and even, in the case of the FARC, aims to actively conserve the forest (Ruiz Serna 2003).

In the lead-up to the signing of the accords, environmental groups were concerned that after the demobilization of the FARC much of the Colombian countryside would become vulnerable to extractive industries and – perhaps counterintuitively – to *de-regulation* upon entering the jurisdiction of the state. Falling out of what has been termed 'gunpoint conservation' (Álvarez 2003), these environments would be exposed to the dynamics of economies that operate on a scale often inaccessible to clandestine activities. 'Gunpoint conservation', as practiced by the FARC, amounted to a dual form of conservation that protected vast areas of land from large-scale development. On the one hand, the FARC had implemented a 'planned' form of conservation through various forms of environmental management they imposed on the territories they controlled (Ruiz Serna 2003). These environmental regulations significantly deterred territorial expansion of large-scale industry and small-scale land use.[10] The other form of environmental management, 'unplanned' or unintended conservation, was most evident in the production of no-go zones that kept out large industries, developers, and multinational investors.

It is important to emphasize that the preservation of forest ecosystems also ensured a degree of camouflage crucial for the movement of materials, weapons, drugs, and people. Equating the forest with illegal practice and insurgency – a product of US Cold War counterinsurgency logic – made it permissible to destroy these environments in the name of national security.[11] This was precisely the context in which aerial fumigation, as a method of eradication, was imposed on the country.[12]

In the months following the FARC's departure, the predictions and fears of environmentalists were realized: former FARC areas started to experience augmented deforestation almost immediately.[13] As the demobilized guerrilla moved out, these territories opened to large-scale – *legal* – industries. Since the demobilization of the FARC, forest disturbance has increased by 187 per cent, impacting protected areas and the Amazon in general (Murillo-Sandoval *et al*. 2020). Under these conditions, it would seem that guerrilla law offered these environments more protection than subsequent Colombian environmental law. In this paradigm of competing forces of destruction and salvation, it is important to note that both realities have existed at once: war both simultaneously destroys and preserves nature.

As we outlined in the Introduction, coca cultivation has historically been scapegoated as the driver for the mass destruction of the forest. The very existence of the coca plant is posited as a direct threat to the most delicate and unique ecosystems of the country, especially the Amazon. Coca – and the *campesinos* who cultivate it – are blamed for deforestation and the expansion of what is called the 'agricultural frontier', the pollution of waterways via the disposal of chemicals used in the processing of coca leaves for cocaine, and the destruction of protected areas such as National Parks and reserves.

While these forms of destruction and pollution are present, they are used as a scapegoat, overshadowing another dynamic that is far more ecologically devastating. This is the production of enmity itself: both of coca and those who grow it. Here the idea of the enemy precludes and justifies practices of eradication as well as the processes of land transformation, development and extraction that precede it. The politics of eradication is

[10] These included controls on forest clearing for agriculture and cattle ranching, hunting, timber extraction, fishing in mangroves and coca cultivation.

[11] Aerial fumigation was introduced in 1984, in the same moment when insurgency and narcotics were being fused together, as seen in the introduction of the term 'narcoguerrilla' coined by US Ambassador to Colombia, Lewis A. Tambs.

[12] The method was officially authorized that same year, 1984, under the pressure of the United States.

[13] There were many articles in the press and longer analyses written at the time: see for example Juanita Vélez and Natalia Arenas, 'El Impacto ambiental de la salida de las Farc', *La Silla Vacia* (5 July 2017) http://lasillavacia. com/historia/el-impacto- ambiental-de-la-salida-de- las-farc-61592, [accessed 27 March 2018].

a key component when understanding the ways in which the framing of coca as an enemy of the state has impacted the overall patterns of violence and destruction in the region. Through the criminalization of the coca plant, there is a simultaneous criminalization of those who cultivate it *and* the ecosystems in which it grows. Those condemned within this paradigm can be targeted for elimination; their very existence is considered a threat to the 'security' of the State.

Framing the enemy: The plant that kills

In the case of coca, the plant itself is treated as the source of poison: the poison that pollutes our ecosystems, just as it pollutes and poisons our bodies and minds. This ideology can be seen quite clearly in the government's advertisement campaign '*la mata que mata*' ('the plant that kills').[14] In Spanish, the mirroring of language is very telling, rendering the plant itself (*mata*) synonymous with the act of killing (*mata*). An animated television advert broadcasted as part of the campaign featured a monstrous *mata* (which looks vaguely like marijuana) with evil yellow eyes, menacing teeth and a snake tongue. A hand comes and pulls the little menace out of the ground and the scene shifts to lightness. While this is happening, a young girl's voice tells us that, "if you stop cultivating the plants that kill, the land mines will disappear, the rivers of blood will dry up, the rain of bullets will cease and the dark nights will end, then the people can return to the countryside and grow more healthy crops." The equation of violence with the features of the natural world in the girl's speech gives us clues as to how the violence of the Colombian conflict has long been naturalized in the popular imagination. It is a violence that seems to originate from the Earth itself; *the plants that kill* have the power to animate the world they touch, transforming it into a landscape of death. In the video, the land, water and sky have been altered into a state of war, with the promise that, if the plant is eliminated, nature will return to a peaceful state.

According to this imaginary, the 'plants-that-kill' and the humans who consume, live, and die with them, are bound together, producing new categories of criminality. The plants and their cultivators, both framed together outside the nation-state, are the killers of the forest, and are thus the main threat to biodiversity. In this logic, killing this *enemy* would mean saving the forest. This logic, while not new, continues to play a significant role in the perpetuation and justification of eradication campaigns during a time of transitional justice.

Necropolitics emerges in the crux between the plant itself being transformed into the enemy that must be destroyed – the plant seen to be the anti-peace and the anti-future of the state – and the methods of violence designed to eliminate it. The territorialization determined through eradication, especially as it is embodied by aerial fumigation, produces what Mbembe calls 'death-worlds', whereby mass populations – human and non-human – are subjected to the status of the *living-dead* (Mbembe 2003, 40).

Over the decades, eradication has been conducted on two fronts, both from the sky and on the ground. While herbicidal eradication in Colombia can be traced back to the 1970s, the practice of aerial fumigation was formalized in 1994.[15] When the US-funded 'Plan Colombia' was implemented in the early 2000s, counterinsurgency merged with anti-narcotics policy and the transitional belt was subjected to some of the most intensive eradication via aerial fumigation in the country.[16]

Eradication with the herbicide glyphosate has been a driving force of ecological destruction across the various environments of coca cultivation.[17] The destructive nature of eradication operates on multiple levels. First, there is the initial devastation that occurs from the act itself. During aerial fumigation entire swathes of land – containing coca, subsistence crops, forest and homes, were sprayed often multiple times from planes

[14] The campaign was initiated in 2010 by the Dirección Nacional de Estupefacientes (DNE - the National Narcotics Directorate) and included many propaganda advertisements such as this one: *LA MATA QUE MATA NO CULTIVES* https://www.youtube.com/watch?v=mvDz7n_1JvI [accessed January 1 2019].

[15] 1994 was the beginning of PECIG (Program of Eradication of Illicit Crops with Glyphosate)

[16] Plan Colombia, a multi-billion-dollar military and developmental aid package from the United States, was designed during the end of the Clinton administration in the United States in tandem with the Pastrana administration in Colombia.

[17] For a report on this matter see Germán Andrés Quimbayo Ruiz (2008) *Crops for illicit use and ecocide*. Transnational Institute.

flying at heights 100 times above the recommended application distance for the herbicide.[18] Glyphosate is an indiscriminate killer of plant-life and its use in aerial fumigation had immense effects on the surrounding forest. Second, when the soil was rendered sterile from the herbicides, this would force farmers off their land, often displacing them deeper into forested areas. Third, abandoned land was often re-appropriated, and sometimes sold to large landowners who would pursue far more destructive industries, such as petroleum, palm oil, or cattle ranching.

Historically, aerial fumigations often correlated with an increased military presence on the ground. In most instances, there would be a military incursion preceding the fumigation. This was to 'securitize' the area since the guerrillas would often shoot at the planes. The fumigation planes were often accompanied by armed helicopters operated by the military. The presence of the military in turn led to confrontations and further escalations of violence between the army and the civilian population. Ground eradication, or manual eradication, involves a police task force often equipped with backpack tanks filled with herbicides; these task forces are also armed. Violence from police eradicators against *cocaleros* and *campesinos* is common and the peace agreement has not changed this. In October of 2017, for example, six *campesinos* were massacred by the anti-narcotics police in Tumaco during a protest against the manual eradication of their crops.

Eradication as conservation

In the Peace Accords a detailed plan was drawn up to address the issue of illicit crops called the National Comprehensive Crop Substitution Program, which outlined various mechanisms intended to curb their cultivation. The idea was to provide financial support through substitution programs to *campesinos* who were willing to self-eradicate their crops and transition to licit forms of agriculture. This strategy was a movement away from enforced eradication. However, when Ivan Duque, who largely opposed the peace process, was elected president in 2018, this ushered in another era of policies influenced by the far right, including a renewed emphasis on militarized eradication.

Despite the evidence that links eradication to territorial expansion and thus, deforestation, since assuming office the Duque administration has pushed for the reintroduction of aerial fumigations with glyphosate as part of its 'Future Path.' The 'Future Path' argues that coca is the main threat to biodiversity and conservation in the Amazon, describing deforestation as a 'national security problem.' The Economic Development Plan of 2018 called for an even greater military presence to enforce conservation. While in the context of coal mining we witness a form of militarization aimed at protecting resource extraction, under this plan the government created "Strategic Zones of Comprehensive Intervention" (ZEII), which are areas where the military and the police are responsible for *protecting* biodiversity, considering these territories as relevant for the interests of national security.[19] The plan also called for the enforcement of licit agriculture via military and police interventions. These measures guarantee the continued criminalization of *campesinos* and the ecologies in which they cultivate, leaving these communities and their environments in a permanent condition of violence. Between 2016 and 2020, 95 clashes were recorded between *campesinos*, the ESMAD (riot police) and the army when resisting forced eradication.[20]

Duque developed this militarized vision of conservation further with 'Operación Artemisa', launched in April 2019, a military operation allegedly designed to stop deforestation. The operation's first mission was in Chiribiquete. This form of green militarization which underlies plans of conservation has a very specific aim.

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[18] For an in-depth analysis on the misuse of the herbicide during the campaign, see ICJ 2008, *Case concerning aerial herbicide spraying: Ecuador v. Colombia*, Reply of Ecuador v. I (31 January 2011).

[19] "The National Security Council will declare territories that are relevant to national security 'Strategic Zones of Integral Intervention' (ZEII); the protection of water, biodiversity and the environment, strategic assets of the nation, and those that are most affected by crime and illicit economies, in order to protect the population and guarantee unified, coordinated, interagency, sustained and integral action by the State. Such areas will be the subject of comprehensive intervention plans with a minimum duration of five years, to strengthen the social rule of law, and will be a priority for the provision of social services and reinforced measures to protect the civilian population." (Government of Colombia 2018)

[20] See the database of the Observatory for the Restitution and Regulation of Agrarian Property Rights: https://www.observatoriodetierras.org/erradicacion-forzada-politica-que-mata/?doing_wp_cron=1633882235.0942258834838867187500 [accessed Dec. 27 2021]

More conservation means more control of the territory and less room for the 'rivers of blood' and the plants that kill. Coca is not included in the future vision of a peaceful Amazon. After two years of the operation, human rights groups and legal teams denounced the disproportionate targeting by military and police forces of *campesinos* living on the borders and sometimes within natural reserves.[21] The operation has left other more powerful large landowners, who are far more culpable for deforestation, unscathed.[22] Green militarization is also not working for the forest. In 2020, 70 percent of the country's deforestation was concentrated in the Amazon (Figure 2).[23]

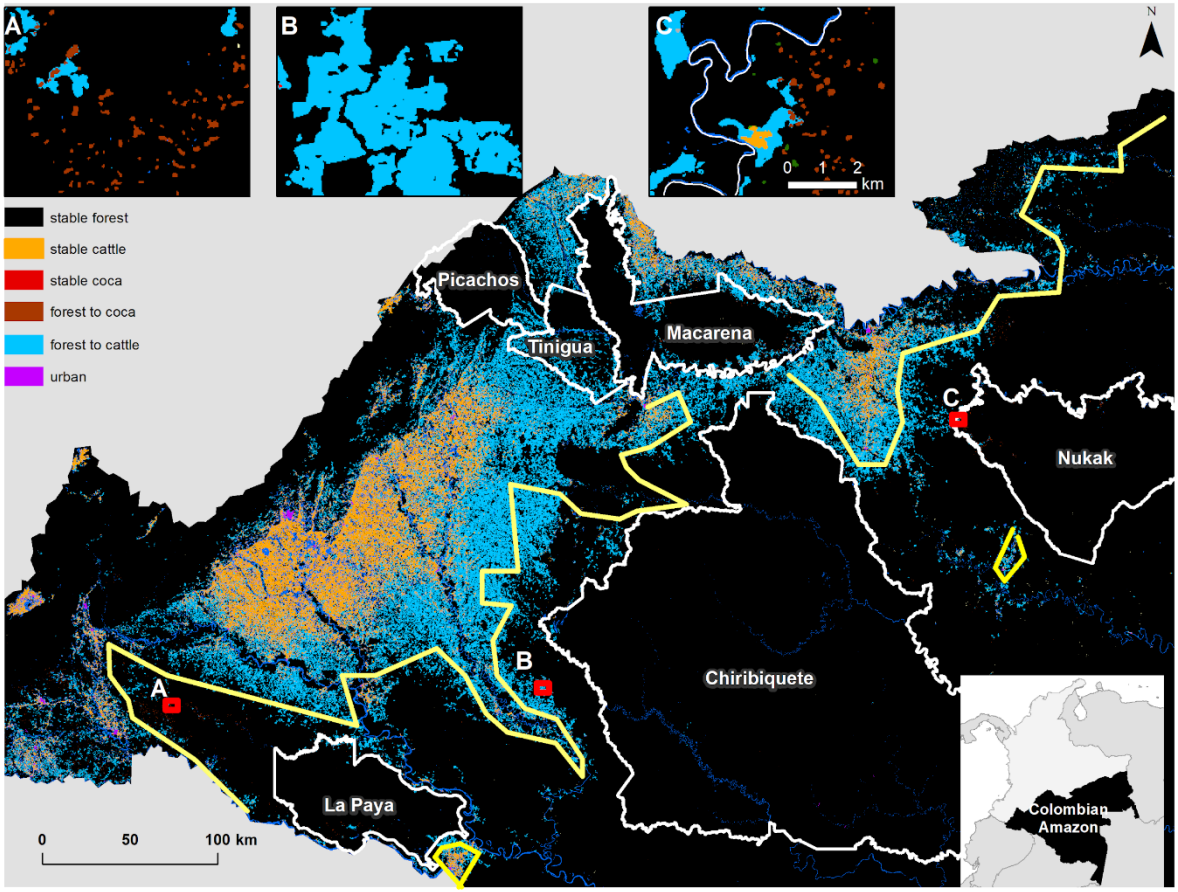

Figure 2: Expansion trends between 1987-2019 showing the dynamics of coca, pasture and forest. Everything inside protected areas (demarcated in white) and outside the yellow line is considered illegal. Image: Paulo Murillo-Sandoval 2020

The accelerated deforestation of the Amazon after the signing of the Peace Accords reveals that the forces of destruction at play in the Colombian *selva* are not only about illegality. It has been noted that deforestation is occurring as an act of speculation. The land that is cleared is not used for a specific purpose,

[21] https://www.justiciaypazcolombia.com/organizaciones-rechazan-atropellos-de-la-fuerza-publica-a-campesinos-del-parque-nacional-natural-tinigua [accessed Dec. 28 2021]

[22] https://www.elespectador.com/ambiente/que-tan-efectiva-ha-sido-la-intervencion-militar-para-detener-la-deforestacion-article [accessed Dec. 28 2021]

[23] https://es.mongabay.com/2021/07/crece-deforestacion-colombia-2020 [accessed Dec. 28 2021]

but to increase its value for potential buyers.[24] In Guaviare, Caquetá and Putumayo, this cleared land is used for cattle pastures, which are often an intermediary economic activity before the land is sold on. This kind of land clearing goes beyond the bounds of the coca economy. It has become evident through the work of Paulo Murillo-Sandoval (2020) for example, who shows that in the post-accord environment, clearing primary forest for cattle ranching has increased exponentially and is now pushing deeper into the Amazon watershed. Murillo Sandoval's remote sensing analysis (Figure 2), concludes that cattle play a more direct role than coca in forest conversion (the clearing of primary forests) and poses a more significant threat to biodiversity and conservation. Some of this conversion is legal, some is not, but the point is not to look at the separation of what practices fall in or outside the law, but rather the continuum between one another.

What we are witnessing today with this extreme form of destruction via deforestation is emblematic of a deeper relationship between so-called licit and illicit economies, representing, to a devastating degree, the extent to which licit economies depend on their illegal counterparts in order to expand and perpetuate themselves. Meanwhile, the criminalization of nonhuman life and its enforced eradication combined with military interventions sits within this continuum of destruction. This also calls into question what many conservationists are demanding in response to this devastating increase in deforestation, which is a greater 'state presence' in these areas. Under the conditions of increased militarization and eradication, what does a greater 'state presence' mean for the future of the Amazon? That answer could perhaps be best captured in the image of Santos flying over the burning forest and another plane which sprays poison over its ruins.

5. Coal

Sedimented histories of death

La Jagua de Ibírico, a town located in the department of Cesár, is the starting point of what is called "the mining corridor" (*corridor minero*). The corridor is an interconnected landscape in which coal circulates from seven open-pit mines in Cesár to the ports along the Caribbean before being shipped to Europe and the United States. The mining corridor is composed of four municipalities articulated around the coal extraction economy, its infrastructure and the administration of mines, jobs and towns.

La Jagua is the starting point of a tour through the corridor conducted by the mining union: SINTRAMINERGETICA in Cesár. We made this trip in November of 2017. The journey is carefully crafted, aimed to demonstrate the myriad of environmental, political and economic effects of coal mining in the region.

We were taken to El Hatillo, a village so close to a mine that the levels of pollution in the air, water and soil have made it impossible to live there (Figure 3). The condition became so dire that the Ministry of Environment and the Constitutional Court ordered the relocation of the village, an action that has yet to be realized.[25] The tour included conversations with community leaders who explained how the coal dust blown from a coal train throughout the corridor has caused severe health issues and damaged their crops. We visited the houses of people living alongside the railway, who claimed that the vibrations of the train produced cracks in the walls of their homes. We passed through arid landscapes and heard stories of how these lands used to be green plots used for small-scale agriculture. Then there are the military posts, hidden from the public eye, which require extreme care, as remaining too long in their proximity is enough to raise suspicion.

Extractivist projects are often enforced through the combination of land grabbing, the intensification of counterinsurgency and the militarization of the landscape (Kikon 2019; Dunlap 2020; Seoane 2013; Engels and Dietz 2017). In this section, we examine the process of the imposition of coal through these three interrelated processes and show how they are related to the production of enmity through bio- and necropolitical practices, violence-via-environment, and finally the links that these practices have to conservation and militarization.

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[24] See for example: https://news.mongabay.com/2018/03/in-colombia-a-national-parks-expansion-announced-as-deforestation-progresses/

[25] https://verdadabierta.com/alerta-comunidad-de-el-hatillo-en-cesar-esta-en-riesgo [accessed Dec. 28 2021]

Managing life and death through coal

Large-scale coal mining was introduced in the department of Cesár in the mid-1980s, when the U.S based company Drummond started its exploration in the region. Coal came with the promises of modernization, progress, connection to international markets and a constant flow of revenue. Huber and McCarthy consider that "industrial capitalism could be defined as a subterranean energy regime [for] most of its energy is extracted from under the ground" (2015, 656). This logic meant that the subterranean qualities of Cesár held the possibility of connecting what was understood as a backward agricultural region to the forefront of global capitalism.

Figure 3: El Hatillo village and surrounding hills created by mining – as seen from a kite camera, 2017. Image by authors and the mining union

In Cesár, coal became that possibility but for the state and regional elites, because it was a way to bring into existence the ideas of modernity and civilization that were often opposed to agricultural relations and associated forms of the organization of life. As a renowned lawyer who has worked extensively in the area said to us during a conversation:

> I don't think that coal just wants to destroy life. What it wants is to make certain lives go extinct in order to put others in place. Coal wants indigenous lives gone, peasants and unions gone, as well as their relations with nature. What they want is to impose the lives of elites and transnational corporations and extract all they can. They want to impose their life and destroy what opposes it.[26]

[26] Conversation in Bogota, May 2018.

In the case of Cesár, the assertion of a sovereign power required rendering certain humans and their produced environments as enemies of the coal industry. The assemblages of coal extraction were deemed worthy of sovereign protection, as they provided a mode of existence that was valued more by the state. This reorganization of life demanded the destruction of existing socionatural arrangements and their material networks to impose those required by the coal industry, extending the notion of enmity beyond humans to environmental assemblages.

Until the late 1960s, the environment was organized around the use of nature for cattle ranching and cotton (CNMH 2016). Most of the cotton plantations were wiped out by disease. Coal emerged as an alternative for the modernization-industrialization of the region (Montoya-Dominguez 2018). From that moment, political organizations began to question the state's support for coal, big landowners and transnational investment, and its disregard for *campesinos* and land redistribution.

Criticism of government actions was taken to be a threat to the stability of the region. The escalation of war and counterinsurgency then created a direct link between guerrilla activity and opposition to the state-sponsored extractivist project. At the same time, *campesinos* and civil society organizations were targeted by paramilitary groups.[27]

It was in 1986 that the Colombian state declared itself "the public utility of mining at all of its stages" through a legal decree (Tierra Digna 2016). This status allowed the state to extend its legal control over mining, supposedly in the national interest. This privileged these subsurface resources over small-scale agricultural activities, and their relationship with nature on the surface. A state of exception prevailed, in which accountability, environmental regulation and protection of life were suspended to favor the coal industry.

Scholars have pointed to the importance of verticality in relation to fossil fuel and mining-related projects (Klinke 2019; Perrault 2013; Martin 2019). Geographies of production, use and the governance of resources occur above and below the Earth's surface (Weizman 2012; Elden 2013, Campbell 2018). The management of the subterranean became a chief concern of the state (Richarson & Weszkalnys 2014). Over time, the surface of the Earth, on (and with) which *campesinos* operate was increasingly seen as outside the public interest. The coal industry required this disregard, devaluation and ultimate destruction of the existing entanglements of life in the tropical dry forest. Such entanglements were expendable and sacrificial.

A deep form of destruction emerged, with the objective of installing the coal industrial complex over and below the entire landscape. In Cesár, coal lies just beneath the surface and is spread throughout vast underground landscapes. The horizontal plane became as important as the vertical one. Open pit mines crack the earth open, digging into it, but they also expand themselves along a horizontal axis.

Amid an ongoing war, the full force of state counterinsurgency practices was brought to bear on *campesinos*, indigenous communities and workers' unions. Through a combination of illegal paramilitary groups, and investment in coal extraction and its protection via the national military, the industry expanded. The future was embodied in coal, paved roads, foreign investment, trains and revenues.

In the process of unearthing coal, there is a material displacement of all that is dug up in the process. The unearthed soil and rock are what remakes the landscape around the mine, reforming the land into a series of unnatural ridges, dug-out canals and mountains of waste. Mbembe explains that:

> Colonial occupation itself was a matter of seizing, delimiting, and asserting control over a physical geographical area – of writing on the ground a new set of social and spatial relations. The writing of new spatial relations (territorialization) was, ultimately, tantamount to the production of boundaries and hierarchies, zones and enclaves; the subversion of existing property arrangements; the classification of people according to different categories; resource extraction; and, finally, the manufacturing of a large reservoir of cultural imaginaries. (Mbembe 2003, 26-27)

[27] By 2016, at least 2,841 victims were demanding the restitution of 195,000 hectares of land (CNMH 2016, 102). Given that "most municipalities coincide with the existence of currently valid mining titles" (CNMH 2016, 106), the correlation suggests that the coal industry is a driving force of displacement and land dispossession for peasant communities.

Established relations between *campesinos* and their surficial agricultural livelihoods were obstacles to the future of the nation's progress. To access underground resources and achieve industrialization and development, humans and the surface environments on which they lived, as well as their practices, became enemy subjects.

Militarization

During our tour in November 2017, the specter of the military and the mines were always present yet unseen. We stopped on the side of the road for a few minutes and were shown a military post barely visible on a hilltop, through the vegetation. These posts are strategically located close to the mines. However, this proximity is entirely hidden from the public. Mines are also often concealed behind giant mounds of earth and spoil heaps, palm oil fields and barbed wire, rendering them invisible and thereby unknowable from the exterior.

Through their concealment in the overturned landscape, the relationship between the mines and the military posts is also lost in the rubble. On November 3rd, 2015, Ivan Cepeda, a left-wing senator who has struggled for decades to unveil the political ties of paramilitarism with Colombian elites, conducted a public hearing in which he linked the contracts made between mining corporations and the Colombian army to a renovated form of private security. These contracts resembled the past practices of paramilitaries, which created an armed infrastructure of security financed by different corporations.[28] In the new form, army battalions were often created exclusively to protect one corporation, suggesting the privatization of the national army paid for by the Colombian public's taxes.[29]

There have been attempts by activists and politicians to access legal documents showing that the landscapes of coal extraction are defined by exception. They are sites where laws are suspended to make way for exceptional forms of exerting power. Based on the argument of "public utility" and the idea of insurgency as an ever-present threat, militarization and secrecy are justified by the state as necessary measures of control.

These rules also privilege tropes of conservation that in turn create enemies of those deemed as threats – as we also saw with coca (Devine 2014; Dwyers, Ingalls and Baird 2016; Woods and Naimark 2020; Ybarra 2016). In the Amazon, the forest is to be conserved: in Cesár, it is 'nature' as it relates to coal mining. In Cesár, the spaces of exception are not bounded by legal demarcations – as for example in National Parks – but by the infrastructure of coal extraction.

Within the mining corridor, where the protection of coal mining infrastructure means protecting the forms of life that coal produces, the state of exception is dispersed and uneven. It is not possible to create a homogenous space of exception along the mining corridor, as the mines form a patchwork landscape, and mining is forced to interact with towns and agricultural communities. There is a partial suspension of law (one that favors coal extraction) only in certain, and not necessarily contiguous areas. Fixed spaces, such as the mines and ports, enjoy an almost complete state of exception. Because of the constant threat of terrorist attacks, companies like Drummond strictly control any unauthorized presence inside their mines or in the surrounding area. Likewise, transporting coal is protected by the Colombian army.

The terrorist threat is easily activated when a particular activity is categorized as a risk to the mining industry. This includes not only stopping for a few minutes on the road – as we did – but also visiting towns, asking questions, taking photographs or making notes in public – as we also did. Open pit mines are special sites of exception to which the public has no access. As explained to us by several environmental activists, union members and lawyers, this creates forms of secrecy that allow the military and mines to operate in obscurity, as well as enabling paramilitary organization and surveillance.

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[28] At least 1,229 contracts between infrastructural or extractive companies and the Colombian army, and twenty battalions specially designed to protect these industries since 1990.

[29] The battalions are called *Special Energy and Roads Battalions (SERB)* Battallones Especiales Energéticos y viales. At least one of these battalions was dedicated explicitly to the protection of Drummond.

Inside the concealed mining sites, Drummond has created special recovery areas set aside as natural reserves to comply with environmental regulations. Activists, environmental organizations and scholars do not have access to these sites; however, Drummond started publishing yearly reports of their activities in 2010, which include their supposed accomplishments in the process of reforestation.

In 2019 Drummond released 100 turtles, a snake, six guacamayas (parrot, Rhynchopsitta pachyrhyncha) and twenty iguanas in their conservation areas. Regional environmental institutions chose Drummond because their "biosensory and rehabilitated areas are strengthened and continually protected. In that way, we guarantee that these species can fulfill their biological purpose and reproduce".[30] The conservation claim made here is articulated around the potential threat that those people surrounding the mine pose. The enemy, from this point of view, lives within the mining corridor and around the mines, embodied in the incapacity of peasants and village inhabitants to protect the environment. As the argument goes, the private spaces of conservation created by Drummond guarantee environment survival.

And yet, in 2013, Drummond dumped at least 600 tons of coal into the sea, and the inhabitants living throughout the mining corridor describe high levels of pollution, the destruction of crops and the progressive degradation of the environment.[31] As Davies (2018) suggests, the destruction of the environment is akin to what Mbembe defines as a 'state of injury', in which humans are kept alive but 'let die' in a progressive manner with little to no accountability. To this argument we add that through degrees of exception present in the mining corridor, forms of human and nonhuman life experience a state of injury that favors the modes of life existing inside the mines, while effectively leaving for dead those wounded in the exterior world. Those left to die are the forms of life considered to be antagonistic to coal extraction. Despite this, the idea that Drummond has established conservation zones inside their mines reinforces the notion that the securitization supported by state armed forces leads to regulated environmental practices, and the flourishing of forms of life supported by coal.

In the contracts signed between Drummond and the Colombian army, the link established between the two parties is framed, first and foremost, in terms of the public utility of the coal industry in all its phases; secondly, in terms of the duty of the Colombian army to uphold its responsibility to protect and secure that which is considered to be of national interest; and thirdly, in terms of the proper management and protection of the environment. Velez-Torres (2018) has shown that since 2003 the Colombian government has privileged securitization as a means "to win the complete control of the territory by the State to ensure the full imperium of law, governability and thus strengthening the rule of law" (Ministerio de Defensa Nacional, 2003: 9 in Velez-Torres 2018: 73). As argued by Velez-Torres, since 2011, "two main forces were seen to threaten national security: one, threats in which illegal actors and environmental catastrophes seem to play an equivalent role; and two, counter-threats, divided between government-related powers (executive, legislative, and judicial) and 'others' (civil society and private industry)." As is also evident in the case of the Amazon, "military control is still the government's main mechanism for granting security." (Velez-Torres 2018: 74).[32]

A common question surrounding the mines is what could occur after coal ceases to be profitable. The imperative to phase out coal in European countries has led to concern in Colombia. As international voices around the effects of coal and CO_2 emissions get louder, it becomes more important for companies like Drummond to show that they have a recovery plan for the devastated environments around the mines. Arguably, this is one of the reasons that led to the creation of conservation zones inside Drummond's mine sites.

One of the main findings of environmental activists has been the lack of clear understanding regarding what existed – ecologically speaking – *before* large-scale mining took over, or what they call an ecological 'baseline' (Tierra Digna 2015). For this reason, it is almost impossible to measure the extent of mining destruction through standardized scientific procedures. This lack of historical data combined with the secrecy surrounding mine sites, makes it difficult to assess the efficacy of Drummond's conservation efforts. The

[30] https://radiomagdalena1420am.com/areas-de-conservacion-de-drummond-ltd-acogieron-a-127-ejemplares-de-distintas-especies-de-fauna-silvestre [archived here]

[31] https://www.semana.com/nacion/articulo/vertimentos-de-carbon-en-santa-marta-juez-falla-en-favor-de-drummond/596983 [accessed Dec. 28 2021]

[32] This can be observed in the Plan de Consolidación Territorial (Plan of Territorial Consolidation).

company argues that it is following the national requirements for sustainability. However, their practices of measuring 'sustainability' represent the only assessment of environmental recovery and conservation in the region. Given this situation, there are no definitive answers about how their efforts may be ecologically sustainable or contribute to conservation.

As we stated previously, by maintaining coal extraction within the definition of public utility, the mineral remains a priority that must be protected for the very stability of the nation (Koch and Perrault 2019; Domjan and Stone 2010; Kohl and Farthing 2012). The industry remains a major part of the project of national development and participation in the global economy, despite international efforts to transition away from fossil fuels. Today, coal is portrayed as a legal and regulated industry, supporting the country in its post-war transition.

Responsible mining is depicted as involving conservation efforts. These are useful for countering the critics of mining pollution, its decades of environmental destruction, and the modalities of armed violence deployed against opposition activists and communities. Given that the history of socionatural violence used to install coal mining in the region is now in the past, it is easier for the industry to argue for the importance of its current biopolitical organization of the landscape and conditions of violence. Of course this violence-via-environment is still denounced by scholars, NGOs and social movements. In their eyes, the military is not protecting an industry that could bring security and peace to the nation, but instead is securing the country's demise by managing the slow death of its environment.

Our tour through the mining corridor had the objective of showing the interconnected modalities of violence that escape the gaze of transitional justice, to the extent that violence-via-environment is not seen as a direct effect of the armed conflict. The mining union (SINTRAMINERGETICA) exposes the limits of violence and alienation of humans from nature. Union activists highlight the layered paradox of transitional justice: coal is defined as a stable project of liberal democracy based on the regulated use of nature as a *resource*. Through this representation of a stable, peaceful future, coal's violent past and present continues to exist outside the frameworks of transitional justice. However, the industry requires the nation to direct its military resources towards its protection, while coal mining degrades and endangers the future of human and non-human life. The question for the union and other opposition forces is also a paradox for transitional justice: what kind of future might exist after war, when the very possibility of life is put in question?

6. Conclusion

Colombia experiences the vivid coexistence of war with the aspiration of peace. In the counterpoint of coca and coal, plants and minerals embody the historical processes that define what modes of life are deemed worthy of living and dying in an imagined future of peace and stability. The tandem of extinction-conservation is explicitly tied to what the Colombian state defines as valuable. Coal is situated as legitimate and legal, projecting the possibilities of specific modes of life that the state has considered as desired objects for a long time. Coca, on the other hand, falls within the space of the outlaw, and as such embodies a threat that goes to the core of the organization of the nation state (Martin 2019). In the case of coal, military infrastructure has developed around the industry to protect resource extraction, which is framed as a matter of national interest. In the case of coca, the military is called upon to supposedly protect the biodiversity (also of national interest) that coca threatens.

The militarization of nature is organized around these concerns for the future of the nation. However, unlike most analyses of war and its violence, we argue that more than human beings should be considered in in our analysis. Enmity, from our point of view, cannot be restricted to an ontological realm, in this case that of the human. Indeed, we consider that expanding enmity to the natural environment not only forces us to rethink the human/nature dualism, but also implies a re-evaluation of violence and the political. In this connection, the militarization of the environment does not occur only as the imposition of human will over a passive nature, but the environment is a mode and mechanism of violence, or what we call violence-via-environment.

In both cases, this militarization leads to further environmental destruction and the escalation of violence. Nevertheless, there are certain. forms of nature that are considered worthy of conservation, while

others are placed at the center of state policies predicated on their extinction, such as the eradication of coca, or the lifeworlds of those opposing coal mining. In that sense, war and conflict simultaneously destroy and preserve the environment. The interplay of conservation and extinction in war is closely related to the formations of enmity and the modalities of violence at play. Aerial fumigation as eradication is a form of violence that operates environmentally, weaponizing nature's pathways – the air, the waterways, and the vascular system of the plant (Martin 2019). If this is not given full consideration, then the violence of war in transitional justice will remain obscure. In the case of coal, we see a clear example of how the State's economic model has augmented the bounds of political violence throughout the war to the extent that mass ecological destruction – and indeed forms of extinction – should also be considered as political.

In present circumstances, if the connections between economic development and political violence are ignored and go unchallenged, they will continue to perpetuate. We argue that in this transitional moment the most crucial task is to articulate the deep connections between the political and environmental, and the continued production of violence.

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Biodiversity Economy and conservation territorialization: a pyrrhic strategy in Kwazulu-Natal

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Abstract

Post-apartheid Kwazulu-Natal is in the midst of ecological and social crises related to land ownership, resource control, minerals extraction, environmental degradation and biodiversity loss. The environs of the Hluhluwe-Imfolozi National Park are a violent environment, where the immediate violence of a poaching and anti-poaching 'war' waged over fears of Rhinoceros extinction, is counter-posed to the slow violence permeating the lives of marginal rural residents affected by the externalities of coal mining. A range of struggles are waged against these challenges, but a hegemonic 'Biodiversity Economy' intervention has arisen, attended by projects aimed at territorializing conservation space and multiple-win scenarios. Based on four years of intermittent research in the area, this article critiques the territorialization of conservation, project outcomes, and commercialization efforts within the Umfozi Biodiversity Economy Node (UBEN). I contend that a biodiversity economy nodal approach extends neoliberal conservation strategies, and functions as a spatial aggregator to reterritorialize conservation land use over space and time. However, the findings suggest that, despite years of energy and investment there have only been limited individual successes in the UBEN, and a range of frustrations, compounded by COVID-19 complications. The analysis also highlights further costs and externalities of the initiative: as the UBEN exacerbates underlying tensions in Kwazulu-Natal's uneven conservation geography, and it aligns with problematic and often unrepresentative traditional authority structures and related accumulation networks. It is also complicit with the production of sacrificial spaces at the conservation-extraction nexus. In this context, I argue the UBEN is pyrrhic; that is, an outcome or goal strived for/achieved at too little reward and too high a cost. The article extends political-ecological critique of neoliberal conservation and the green economy to incorporate the framing and implementation of biodiversity economy nodal approaches – and their uneven and pyrrhic effects – in contested, crisis-ridden conservation contexts.

Keywords: Crisis conservation, biodiversity economy, territorialization, Pyrrhic intervention, sacrifice

Résumé

Le Kwazulu-Natal post-apartheid est au milieu de crises écologiques et sociales liées à la propriété foncière, au contrôle des ressources, à l'extraction de minéraux, à la dégradation de l'environnement et à la perte de biodiversité. En son sein, les environs du parc national de Hluhluwe-Imfolozi sont un environnement violent, où la violence immédiate d'une « guerre » contre le braconnage est menée par crainte de l'extinction des rhinocéros. Il y a aussi la lente violence qui imprègne la vie des résidents ruraux marginaux touchés par les externalités de l'extraction du charbon. Une série de luttes sont menées contre ces défis, mais une intervention hégémonique « Économie de la biodiversité » a vu le jour, accompagnée de projets visant à territorialiser l'espace de conservation et des scénarios à gains multiples. Sur la base de quatre années de recherche intermittente dans la région, cet article critique la territorialisation de la conservation, les résultats du projet et les efforts de commercialisation au sein du Umfozi Biodiversity Economy Node (UBEN). Je soutiens qu'une approche nodale de l'économie de la biodiversité étend les stratégies de conservation néolibérales et fonctionne comme un agrégateur spatial pour reterritorialiser l'utilisation des terres de conservation dans l'espace et le temps. Cependant, les résultats suggèrent que, malgré des années d'énergie et d'investissement, il n'y a eu que

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des succès individuels limités dans l'UBEN, et une série de frustrations, aggravées par les complications du COVID-19. L'analyse met également en évidence les coûts et les externalités supplémentaires de l'initiative : comme l'UBEN exacerbe les tensions sous-jacentes dans la géographie de conservation inégale du Kwazulu-Natal, il s'aligne sur les structures d'autorité traditionnelles problématiques et souvent non représentatives et les réseaux d'accumulation connexes. Il est également complice de la production d'espaces sacrificiels au niveau du lien conservation-extraction. Dans ce contexte, je soutiens que l'UBEN est comme Pyrrhus ; c'est-à-dire un résultat ou un objectif recherché/atteint avec trop peu de récompense et un coût trop élevé. L'article étend la critique politico-écologique de la conservation néolibérale et de l'économie verte. il intègre également le cadrage et la mise en œuvre d'approches nodales de l'économie de la biodiversité - et leurs effets inégaux et pyrrhiques - dans des contextes de conservation contestés et en crise.

Mots clés: Conservation de crise, économie de la biodiversité, territorialisation, intervention à la Pyrrhus, sacrifice

Resumen

Kwazulu-Natal, en la Sudáfrica posterior al apartheid, está inmersa en una crisis ecológica y social relacionada con la propiedad de la tierra, el control de los recursos, la extracción de minerales, la degradación del medio ambiente y la pérdida de biodiversidad. Alrededor del Parque Nacional de Hluhluwe-Imfolozi tiene lugar una violenta "guerra" contra la caza furtiva y la extinción del rinoceronte. Además, las externalidades de la minería del carbón crean una forma de "violencia lenta" que afecta a la vida de los residentes rurales marginales. Contra estos desafíos se libra una serie de luchas. También ha surgido una "Economía de la Biodiversidad" hegemónica, que consiste en proyectos para territorializar la conservación de la vida silvestre. Basándose en cuatro años de investigación intermitente en la zona, este artículo critica la territorialización de la conservación, los resultados de los proyectos y los esfuerzos de comercialización dentro del Nodo de Economía de la Biodiversidad de Umfozi (UBEN). Sostengo que el "enfoque nodal" de la economía de la biodiversidad es una estrategia de conservación neoliberal. Funciona como un agregador espacial para reterritorializar el uso del suelo de conservación, extendiéndolo en el espacio y el tiempo. Sin embargo, a pesar de los años de energía e inversión, los éxitos individuales en la UBEN han sido limitados y se han producido una serie de frustraciones, agravadas por las complicaciones de COVID-19. La UBEN exacerba las tensiones subyacentes en la desigual geografía de la conservación de Kwazulu-Natal, y se alinea con estructuras de autoridad tradicionales problemáticas y a menudo poco representativas y con las redes de acumulación relacionadas. También produce espacios de sacrificio en el nexo de la conservación y la extracción. Sostengo que la UBEN es pírrica; se esfuerza por alcanzar objetivos, pero éstos se están logrando con muy poca recompensa y a un alto coste. El artículo amplía la crítica político-ecológica a la conservación neoliberal y a la economía verde, para incorporar la implementación de una "economía de la biodiversidad" nodal en este contexto de conservación impugnado y en crisis.

Palabras clave: Conservación en crisis, economía de la biodiversidad, territorialización, intervención pírrica, sacrificio

1. Introduction: conservation, conflict and the Biodiversity Economy

Political ecology has been particularly adept at exploring the discourses, policy prescriptions and institutionalized interventions of programs to tackle global environmental problems, and the outcomes of these programs (Adger *et al*., 2001). They can be distanced from local resource users and local dynamics (Adger *et al*., 2001, 681). For example, 'green grabbing' can arise where resource access and uses are altered by 'green economy' interventions (Corson *et al*. 2013). Their credentialing and operation can justify 'accumulation by dispossession' or alter patterns of institutional arrangements, authority and rules (Sikor and Lund, 2009). For Adams and Mulligan (2003, 11), biodiversity management initiatives, one aspect of the green economy, are potentially a "colonial expropriation of nature in a new guise", which reify racialized access and dispossession patterns (Magome and Murombedzi, 2003; Wolmer, 2004: 314). In this vein, critique of the neoliberalization of nature and neoliberal conservation has been a focus of political-ecological enquiry (McCarthy and Prudham, 2004, Büscher *et al*., 2011), to understand the social dynamics of the production of space and nature (Smith, 2010). Of particular focus are 'crisis conservation' interventions, where 'green wars' are fought to safeguard species and ecosystems from degradation and extinction (Büscher *et al*., 2017; Marijnen and Verweijen, 2016). While there is an extensive critique of neoliberal conservation and the green economy within political ecology,

there is less focus on the 'biodiversity economy.' This is because, in practice, the biodiversity economy is less favoured as a framing concept. Nonetheless it is extensively adopted in rhetoric and in practice in South Africa, and worthy of investigation for the novelties it exhibits when deployed in the territorialization of conservation initiatives.

South Africa, the world's third most biodiverse country, faces funding crises, biodiversity loss through land use change, and extinction crises for both flora and (mega)fauna.[2] There is a contested debate about the access to, use of and funding for protected areas for conservation in a postcolonial context (Carnie, 2017; Gewald *et al.*, 2019; SANBI, 2010). Conservation landscapes in South Africa are also power-laden, with the interplay of territory, wealth, commodification and often violent strategies for barring access to marginalized residents (Beinart and Coates, 1995; Ramutsindela and Büscher, 2019; Gewald *et al*., 2020). In this context of ongoing crisis, wildlife and conservation has been subject to new and existing actors with vested interests in transforming conservation landscapes, particularly ecotourism capital. Consistent with an increasing interweaving between conservation and (neoliberal) capitalist policies and values (Brockington *et al*., 2008, 3), and in part as a response to multi-faceted local crises, a National Biodiversity Economic Development Strategy (NBEDS) has coalesced in South Africa. Its purpose is to value ecosystem services and to commercialise and trade in the countries' biodiversity and its components (DEA, 2014). The 'Greater uMfolozi Biodiversity Economy node' (UBEN) is one such spatial intervention in northern Kwazulu-Natal. Using this example, the article questions the outcomes and effects of the biodiversity economy as an entry point for conservation reterritorialization. It also extends the critique of neoliberal conservation in political ecology.

The article draws from key informant interviews and field visits conducted from 2016 to 2020 after development occurred in the UBEN. Research engagement included interviews conducted with various stakeholders, including Azevedo officials ranging from park managers, game rangers, resort managers and current and former Community Conservation Officers. I also interviewed an official from the S.A. Hunters Association; developers of ecotourism initiatives within the biodiversity economy node; and finally, Amakhosi, land claimants, and residents adjacent to conservation areas.

The UBEN is conceptualized as a neoliberal crisis response and commodification strategy which functions as a 'spatial aggregator' to facilitate and amalgamate discrete projects and reterritorialize conservation land use across the landscape. It also acts as a proto-territory to extend conservation territorialization, the financialization of conservation space, and the commodification of wildlife. The findings indicate that despite years of energy and investment, there have only been limited individual successes within the UBEN, and a range of frustrations for many actors, with COVID-19 complications undermining some of the gains even further. Furthermore, the UBEN as an inherent spatial strategy elides underlying tensions in Kwazulu-Natal's uneven conservation geography, exacerbates tensions and enmity in the landscape, and is complicit with the production of sacrificial spaces at the conservation-extraction nexus. Thus the article substantiates two levels of critique, first encapsulated within the concept of the pyrrhic. That is to say the initiative is realized at too little reward, for too much effort and at too great a cost. The article's second broader conclusion and contribution to the literature suggest that the biodiversity economy represents the deepening of neoliberal conservation and extension of green economy logic – both institutionally and territorially – in the present and into the future.

2. Neoliberal conservation and biodiversity economy

Conservation efforts and initiatives are littered with initiatives that have fallen short of their intended outcomes or failed to stand the test of time (Redford *et al*., 2013). Contributions in development studies have detailed how rhetoric and well-intentioned interventionism can fall short because of underlying contradictions in the messy reality of local contexts (Li, 2007; Easterly, 2002; Mwenda and Tengri, 2005). Perceptions of self-evident benefits obfuscate the systemic political economy and ecology underpinning the 'problems' they delimit and can close debate on the legitimacy of interventions and their unequal implications and distributive effects

[2] Major threats to the Kwazulu-Natal flora are identified in terms of the significant number of plant taxa Red-Listed as threatened with extinction – see http://redlist.sanbi.org/stats.php#Provincial%20statistics. While fauna such as Vultures, and most prominently Rhinoceros are recognized to be in an extinction crisis – see http://www.projectrhinokzn.org/about-us/.

(Ferguson, 2004; Li, 2007). There is also a range of studies that critique the 'pyrrhic' nature of intervention – which is to say it is achieved for too little reward or too great a cost (Gould and Lewis, 2016). This is similar to familiar political ecology critiques, of, for example, self-defeating deforestation narratives (Leach and Fairhead, 2000) or problematic green militarization efforts (Duffy, 2014). These examples attune us to the need to cast a critical eye at interventions and environmental crisis responses, even if they are well-intentioned, to gain a more holistic and balanced perspective on their outcomes and implications. This is especially important in the context of the high stakes of contemporary conservation crisis of extinction and biodiversity loss (Büscher, 2013), where responses and plans may have "widespread negative consequences for human populations even as they fail to meet their conservation objectives" (Büscher *et al*., 2017, 407).

There is well-established theorisation and critique in political ecology of neoliberal conservation (Büscher *et al*., 2011, Brockington *et al*., 2008), neoliberal natures (McCarthy and Prudham, 2004) and the green economy (Fairhead *et al*., 2012, Corson *et al*., 2010). In northern Kwazulu-Natal, studies have drawn on conceptions of production of space and nature (Smith, 2010) to consider spatial conflicts over the appropriation of conservation space in the Isimangaliso Wetlands Park (Hansen, 2013), while prominent attention has been given to the spatiality of 'transboundary conservation' (Büscher, 2010; Brockington *et al*., 2008; Ramutsindela, 2004; Wolmer, 2003). These and other sources suggest that contemporary interventions are increasingly directed by forms of green market logic, which have sought to extend market mechanisms to the governance of nature and environmental goods and services (Castree, 2008). Such interventions are built on the premise that natures can only be 'saved' through selling them and through capitalism's expansion (Büscher *et al.*, 2012, 4). The result, as Brockington *et al*. (2008, 4) put it, is that "conservation and capitalism are allying mutually to reshape the world." For Moore (2015), this intensification and extensification (across space) of capitalism has disrupted the metabolism of ecological processes.

To consider how bioeconomy 'takes place', there are three aspects of political-ecological critique to consider that are pertinent to the uneven geographies of conservation in South Africa. Firstly, conservation territorialization in South Africa has been predicated upon the privilege of the few and the subjectification and marginalization of animals and certain groups of people in society, often in the interests of capital (Beinart and Coates 1995; Ramutsindela, 2004; Carruthers, 2008; Gewald *et al*., 2019). Secondly, conservation and extraction can increase enmity in rural landscapes and align with problematic and often unrepresentative traditional authority structures and accumulation networks (Ntsebeza, 2005). Mare (2020) has highlighted the dangers of tradition and traditional authority as a type of formal, structured politics, which enriches a narrowly elite minority while overriding democratic rights, effecting a 'state of exception' for the governance of millions of rural residents on customary land who are rendered as 'subjects.' When decisions about conservation territorialization implicate communal land and livelihoods, these networks are decisive. Finally, conservation interventions themselves might facilitate incidences of sacrificial spaces and spaces of exception, which include violence. This has been evident in the militarization of anti-poaching in response to the 'Rhino crisis' in South Africa (Duffy, 2014; Masse and Lunstrum, 2016), where it is clear that the scale and nature of crises and their responses can facilitate antagonistic and violent biopolitics.

In this uneven terrain, I conceptualize what came to be called 'bioeconomy' at the intersection between green economy and neoliberal conservation. Bioeconomy was initially conceptualized by Georgescu-Roegen (1977) to encompass better the biological origin of economic processes (Biber-Freudenberger *et al*., 2020). In the social sciences, this relation has been well developed – where for instance, Harvey (2003) has argued that cities are the product of 'metabolic circulations' of capital and nature. In practice, there is ongoing scholarly and political discourse on bioeconomy (Biber-Freudenberger *et al*., 2018), what it should effectively look like (Bugge *et al*., 2016), or what type of society it would sustain (Hausknost *et al*., 2017). However, its use is associated with widespread, idealized and expert-led visions and policies of 'green growth' and biotechnology development (Sanz-Hernández *et al*., 2019). Accordingly, the operationalization of bioeconomy has led to 'weak sustainability' outcomes and frameworks, where economic dimensions prevail over environmental ones (Devaney and Henchion, 2017; Puentes-Rodriguez *et al*., 2016). Bioeconomy, then, is a contested concept. It aligns with the key characteristics of a boundary object (Devaney and Henchion, 2017) in serving specific interests of different stakeholders as a generally accepted conceptual umbrella (Hodge *et al*., 2017) and as such there is slippage between what constitutes a biodiversity economy and a green economy. In political ecology

critique, 'green economy', and the 'economy of repair' (Fairhead *et al*., 2012) are seen as transformations of the discourse of global ecology and a recasting of environmental problems to accommodate an ontology of natural capital and biodiversity economy, considered a hijacking of its original intent (Birch, 2006). Drawing on these insights, I conceptualize contemporary biodiversity economy as a spatial aggregator to reterritorialize conservation land use across these spaces, extending logics of capital accumulation and commodification across space and into the future.

From a political ecology perspective, the bioeconomy in South Africa appears to be more than an overarching strategy for growth through natural capital exploitation, bioprospecting and wildlife commodification. With regards to the latter, the South African National Biodiversity Economy Strategy (NBAS) is an endeavour to "transfer the entire wildlife sector into a broader *economy* across the agricultural, ecotourism and conservation domains" (DEA, 2016, 18). To do so, the NBES adopts an inherently spatial approach, intended to rework the conservation footprint and augment the expanding wildlife industry market (growing at 14% per annum; DEA, 2016) across a range of nodes. It purports to do so through job creation and the restoration and development of 2 million ha of communal land for commercial game ranching (with 300,000 head of game under private/community ownership), wildlife sales, bioprospecting, ecotourism, high-end luxury tourism and heritage tourism, and infrastructure development (DEA, 2014). In adopting a nodal approach, the NBES extends earlier phases of conservation territorialization that have been explored in the literature and which involved the private sector, private landowners and traditional authorities into expanded, postcolonial Protected Area networks. These include the incorporation and consolidation of buffer zones, 'conservation corridors', private nature reserves and game farms, and adjacent communal land (Beinart and Coates 1995; Brandt and Spierenburg, 2014; Spierenburg and Brooks, 2014; Kamuti, 2014; Ngubane and Brooks, 2013). Recent conservation territory expansion initiatives like the Biodiversity Stewardship program (Cockburn *et al., 2*019; Wright *et al.*, 2018), and Other Effective Conservation Measures (OECMs), are also part of bioeconomy nodal development. Before turning to the UBEN in particular, however, I present the interactions between crisis, neoliberalization and conservation dynamics in the institutional and land use context of Kwazulu-Natal.

3. Neoliberalization, crisis and conservation dynamics in northern Kwazulu-Natal

To understand the context within which the UBEN operates, conservation dynamics in KZN must be attended to, since contextual factors and crises have intertwined and contributed to neoliberalizing trajectories. The connections between crises and variegated processes of neoliberalization are well established (Klein, 2007), where capitalist restructurings can both precede and respond to environmental degradation. In Kwazulu-Natal, there has been alignment between neoliberalization and crises in land and politics, institutional changes within Ezemvelo KwaZulu-Natal Wildlife (henceforth Ezemvelo), and broader natural capital utilization through the biodiversity economy and extractives. These have precipitated new conservation territorialization through biodiversity stewardship and biodiversity economy nodal approaches.

Firstly, *land and land politics* feature prominently in uncertainty over conservation and are pertinent to conservation territorialization. The land dispensation in KZN was conditioned by a legacy of spatial segregation, premised on 'separate development', indirect rule and migrant labor (Guy 1979). Tribal lands created in terms of the controversial Bantu Authorities Act of 1951 – separating colonial Natal from 'communal' Zululand – are now controlled by the Ingonyama Trust[3], but the land is owned collectively and exhibits dual governance at the local level by municipal councilors, as well as headmen, *izinduna* (chiefs) and *Amakhosi* (kings). Recent legislative changes have further entrenched the authoritarian power of traditional authorities and 'investment and development structures', effectively turning residents into "tenants and undermining use rights" (Claasens and Cousins, 2008). On private land, land restitution and redistribution have been pillars of South Africa's land reform program, ostensibly set to address the injustices of the past and transform the structural basis of racial inequality. Land reform, however, has increased uncertainty over land use change, as redistribution has been extremely slow, lacking in political will, and exhibited a shift from pro-poor to neoliberal approaches focused on business development and top-down central administration (Kepe *et al*., 2005; Hall and

[3] Land is held in trust for the people of the former homeland area, and the Zulu King is the sole trustee.

Williams, 2001). Restitution in game parks and private game farms under land claims have also redrawn relationships (Walker, 2008; Kepe *et al*., 2005), facilitated by creating Communal Property Associations (CPA) and Trusts resulting in community ownership/co-management agreements. The intention is to foster ecotourism or other developments for communal benefit. Still, arrangements are often contested, externally between claimants and other stakeholders, and internally between committee members and beneficiaries (Mtimkhulu and Nel, forthcoming). On unclaimed private land, agricultural land conversions to game farming have allowed the expansion of the wildlife industry over vast stretches of land. Still, they have often been at the detriment of farmworkers, and farm dweller's access to land (Spierenburg and Brooks, 2013; Brandt and Spierenburg, 2014). Thus, in all aspects of the land dispensation, ongoing challenges constitute a crisis of legitimacy and transformation, which directly impact conservation territorialization.

A second dynamic relates to *changes at Ezemvelo KwaZulu-Natal Wildlife (Ezemvelo)*, the provincial conservation parastatal, from leadership and funding crises to crisis responses that include a new focus on commercialization and conservation territorialization initiatives. Significant government funding cuts precipitated a financial crisis (Carnie, 2020a) which led to capacity shortages, retrenchments and underfunding of protected areas, all in an increasingly politicized context. According to an anonymous Ezemvelo official, "There was internal political and financial turmoil, funding became political, and Ezemvelo was decimated in terms of personnel, and biodiversity stewardship suffered" (Interview, Hilton, June 2019). In response to this crisis, there has been an increased focus on commercialization, commodification and "sustainable yield" (Interview, Conservations Outcomes Consultant, October 2018). As the Ezemvelo UBEN coordinator put it, "government sees an opportunity when Ezemvelo is running out of resources – moving conservation beyond sanctuaries and notable zones" (Interview, Durban, April 2019). The intent is to attract new partners and generate new revenue for the entity (*Sunday Tribune*, 2018; Carnie, 2017) and to 'fill the gap' for faltering biodiversity conservation functions (Interview, Conservations Outcomes Consultant, October 2018).

As a specific vehicle to achieve these aims, biodiversity stewardship agreements (BSAs) and associated ecotourism ventures have been described as the most important conservation project in the country and "hugely successful in enacting flexible, protected areas" (Interview, Conservations Outcomes Consultant, October 2018). This situation echoes findings elsewhere, where resource and capacity shortages mean conservationists and managers are increasingly thinking about economic sustainability and long term viability of conservation, and protected nature comes to be seen as a commodity to be sold (McCarthy and Prudham, 2004; Vaccaro *et al*., 2013). However, the provincial Standing Committee on Public Accounts (SCOPA) has criticized Ezemvelo's focus on commercialization initiatives for their potential to "benefit a select few and exclude the majority of the community and as transgressing their conservation mandate" (*News 24*, 2020). A leadership crisis has compounded matters, where the leadership, and Board, were removed after various allegations of irregular expenditure, maladministration and political appointments for loyalists to the former president Jacob Zuma between 2009 and 2018 (Carnie, 2020a, 2020b). To complicate matters further, and despite some provincial emergency funding, Ezemvelo and other conservation bodies and organizations dependent on tourism income were hard hit during the COVID-19 lockdown (Stoddard, 2020; Mohamed, 2020).

In parallel to institutional changes and commercializing trajectory within Ezemvelo described above, there has been an increased focus on natural capital utilization – through the 'biodiversity economy' and extractives, at the conservation-extraction nexus. The wildlife sector has seen significant recent efforts and commercialization and commodification of wildlife, despite criticism at the national level for its bias and evasion of calls to shut down or better regulate the industry (Pinnock, 2019). There has been a parallel intensification of the conservation-extraction nexus in Northern Kwazulu-Natal. This has occurred around illeminite and coal extraction (including on the border of the Hluhluwe-Imfolozi Park (Leonard, 2020) and offshore mining, through private investments and state-led programs for economic development (see Walker, 2008; Aardenburg and Nel, 2019). The results of this intensification are detrimental to conservation efforts, and conservationists are often fatalistic. As a local environmental consultant put it, "there is a weak- spined approach to mining by government and a weak EIA process, in which the Department of Mineral Resources is the permitting authority but also the applicant" (Interview, Pietermaritzburg, November 2019). Counter-intuitively perhaps, the relationship between conservation and mining sees an increasing degree of alignment, as is recognized elsewhere (Le Billon, 2021). In this context, conservation actors face difficulties, both politically

and practically, lobbying against mining development at local and national levels (Interview, Ezemvelo planning officer, Pietermaritzburg, April 2019). Specifically, the conservation-extraction nexus in South Africa is facilitated through *Operation Phakisa (Hurry up)* – a Presidential initiative to tap into natural resources for economic benefit and job creation that is predominantly focused on offshore mining. However, the biodiversity economy also falls under this initiative, including the proliferation of marine and terrestrial protected areas within its nodes. The trends and dynamics in this Section underpin, support and facilitate biodiversity economy node territorialization, institutionalization, and project implementation, to which I turn to next.

4. Win-win, crisis response and conservation reterritorialization through the uMfolozi Biodiversity Economy Node

The Greater uMfolozi Biodiversity Economy Node (UBEN, Figure 1) is promoted an innovative 'win-win' strategy to unlock economic, social and environmental objectives (see Svarstad and Benjaminsen, 2017 for other examples of win-win narratives). It is a nodal intervention to incorporate private land, communal areas, restituted commercial farmland and existing protected areas into an expanded conservation footprint (SAHGCA, 2015). The UBEN was developed by proponents within the S.A. Hunters Association (SAHGCA) and Ezemvelo, who adopted the idea of geographical nodal development from the mining sector (SAHGCA official, Interview, August 2017). In setting out the intervention context for the UBEN, developers assert that they need to be experimental as "currently the Department of Environmental Affairs (DEA) report on biodiversity targets, not economic targets, and within that, we can't show impact" (*idem*). The UBEN also represents a defensive strategy to stave off risks associated with land use change and land reform, mining, rhino losses through poaching, and pressures from ribbon development following road infrastructure upgrades. Specific mention is made in UBEN documentation of shared risk between parties (SAHGCA, 2015), and commercial risk reduction in the prioritization of viable land for the wildlife economy, while partnerships with community trusts or communal property associations are made in order to "take the risk out of the position" (Interview, Mtonjaneni, November 2018). In this sense, the node is as much a crisis response as the neoliberal institutional changes described above.

The perceived imperative to leverage biodiversity resources for profit, and the benefits of risk reduction, has translated into alliances between private capital and willing traditional authorities or land claim settlement trustees, incorporating communal or restituted lands into an expanded conservation complex. According to respondents, initiatives such as Babanango, the IB5, and Mpembeni are attractive to investors because of significant potential returns without having to purchase land or infrastructure. This facilitates the entry of a new scale of dedicated ecotourism capital investment into ecotourism with better investment, board structures and homogenized management processes, all in a context where land ownership would otherwise be far more uncertain (Interview, Project Rhino Team member, Hluhluwe-Imfolozi, November 2017). This is a significant departure from the third generation farmers (such as the mentor involved in the Kwasanguye initiative) who have facilitated agricultural land conversations to game farms (see Kamuti, 2014). While there have been shortcomings of state facilitation of such projects[4], these changes fit with the call of the Provincial Member of the Executive Committee (MEC) for Finance to "shift conservation from biodiversity conservation to ecotourism." However, enthusiasm on the part of project proponents within the UBEN itself is tempered because "if you want to do conservation properly, you need to do it with the community and inks (the chief) – and the way you do it has to be about ownership, respecting their heritage and history" (Interview, Owner, Thula Thula Private Game Reserve, July 2019). This reflection was a 'lesson learnt' after the founder of Thula Thula, the 'elephant whisperer' Lawrence Anthony struggled and failed to navigate the obstacles in the way of establishing similar conservation corridors to Hluhluwe-Imfolozi.

[4] The failings of the Department of Environmental Affairs to contribute money to the BEN for fencing, and for training, as well as the stalling of land claim settlements on the part of the Department of Rural Development and Land Affairs have disappointed of all stakeholders.

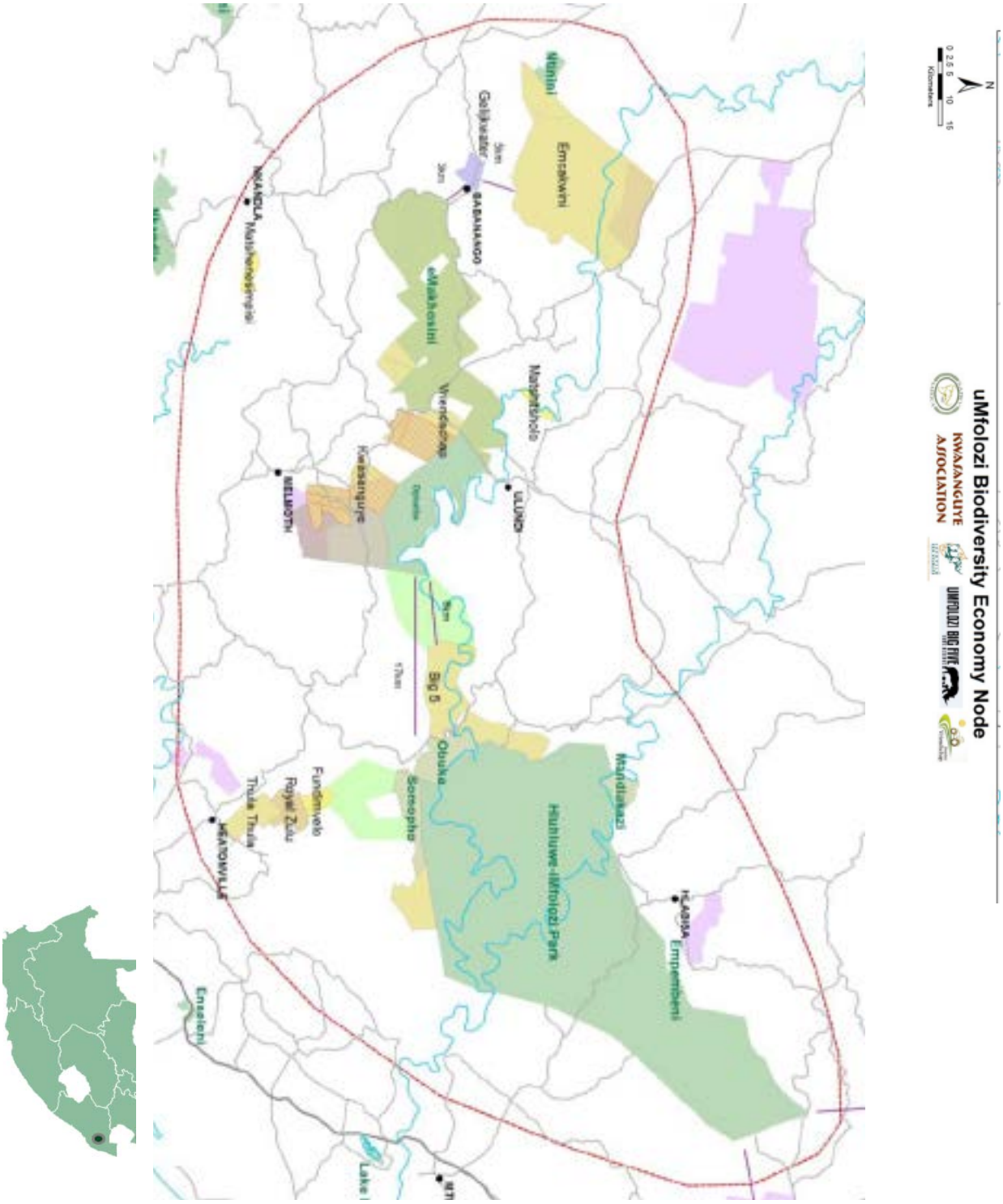

Figure 1: UBEN geography and project locations. Source: SAHGCA 2015.

The geographical scope of the intervention (Figure 1) is in the environs of Ulundi, including the Hluhluwe-iMfolozi Park (HiP) and prospective eMhakosini-Ophathe Heritage Park (including the 8,825 ha Opathe reserve). Functioning as a spatial aggregator, the target of the UBEN is to consolidate landscape management systems, ecosystems and territories into an extended conservation complex of over 150,000 ha with an improved infrastructure network in "expanding to game reserves, stewardship sites and community reserves around the core conservation parks in the surrounding area" (SAHGCA, 2015: 2). Biodiversity stewardship sites are regarded as vehicles which "give us teeth, [they are] not a pure buffer zone but governed by law after proclamation" (Interview, UBEN coordinator, Durban, 2019). The UBEN also has a spatio-temporal dimension, premised on maximizing the node's commercial value and conservation footprint into the future. Investments in the local Ulundi airport and road infrastructure upgrades are intended to spur future growth in the wildlife and tourism economies of the area, while extension areas and corridor linkages connect the standalone projects and incentivize future expansions. Table 1 below details the UBEN and its constituent project sites, showing a great variety of projects, measures, and multi-partner arrangements in the UBEN that aggregate to maximize a locus of control and potential revenue streams in the present and into the future. In this sense, the UBEN emulates capitalisms' intense focus on future value (Vaccaro *et al*., 2013) and acts as a 'proto-territory' for future commercialization.

Size	Landowner	Status	Management model and stakeholders	Outcomes/ indicative quote
Hluhluwe-Imfolozi Cluster				
1. Hluhluwe-Imfolozi Park (HIP)Corridor				
2,400 ha	Resituted land on behalf of the Corridor of Hope Trust. Under the Land Restitution Act land claimed in protected areas cannot be restored for occupation.	*Operational but contested*. Claim settled in 2008.	Co-management structure between Ezemvelo and the Corridor of Hope Trust. The Regional Land Claims Commission is an additional stakeholder.	"Everybody's aim is to keep the nature. We need money and we need to invite people to come and invest." (Interview, January 2017). Benefits derive from a percentage of 'gate takings', live sales of game, bursaries and a community lodge – Enseleni. Yet, respondents allege some some 60 million Rand [approx.. 3.7 million USD] from the claim has not been forthcoming, the co-management structure is not responsive, there are issues with the Trust, and the community benefit arrangements are perceived as inadequate.
2. Enseleni Bush Lodge				
Approx. 3 ha	Community lodge within Protected Area (HiP).	*Active*	Stakeholders: Ezemvelo partnership with the 10 chiefs around HiP. Ezemvelo run the lodge on behalf of the Amakhosi.	The lodge and its benefit model are functional but there underused budgets, and perception issues: "People think only Amakhosi benefit – there are funds and we only advise, lots of money to be used".
3. Mpembeni Rhino Ridge Safari Lodge				
428 ha	Ingonyama Trust Board (former communal grazing land) Esiyembeni communal land	*Active* and operational.	Co-management Ezemvelo, ITB and Hlabisa Traditional Authority	Disbursing benefits and a stable situation where the chief are trusted and respected. Yet some respondents indicated that "they could have negotiated better with the developer and operator," and some community members indicated they do not see benefits.
4. Somopho (Imfolozi Big 5)				
2,200 ha	Ingonyama Trust Board (former communal grazing). Under the Somopho traditional authority, now a Gazetted game reserve.	Lodge *inactive,* but protected areas gazetted and incorporated into HiP; but contested.	Co-management by Ezemvelo and Somopho Traditional Authority. Additional stakeholders: Inprodev (developer) and Mantis Collection (tourism operator).	Mtembu completed 2019 and was briefly operational before closure in 2020. Initial job creation during the construction and training for lodge staff and rangers. Loss of grazing land led to a court challenge to the gazettement of the reserve.
5. Obuka (Imfolozi Big 5)				
2,496 ha	Ingonyama Trust Board (former communal grazing), now a gazetted game reserve.	Lodge *inactive* but protected areas gazetted and incorporated into HiP.	Co-management Ezemvelo, ITB, Inprordev (developer), Obuka Traditional Authority,	Biyela Lodge completed 2019, but the tourism operator withdrew in 2020. Some evidence of disgruntlement amongst a segment of respondents, but less fractious than the Somopho reserve. The developer is taking the service

Size	Landowner	Status	Management model and stakeholders	Outcomes/ indicative quote
			Mantis collection (ecotourism operator),	provider through arbitration for alleged non-payment of fees due.
6. Mandlakazi (Imfolozi Big 5)				
Proposed 1,208 ha	Mandlakazi communal area, Ingonyama Trust Board.	*Failed.*	Co-management with Ezemvelo. ITB and Mandlakazi Traditional Authority	Community resistance and a lack of progress prevented operations.
Opathe Cluster				
7. Emakhosini-Opathe Heritage park				
Prospective 30,500 ha aggregated protected area.	Amafa Heritage trust land encompassing the graves of Zulu Kings, with former labor tenant resident on the land and the 8,500 ha, and the Opathe game reserve earmarked for inclusion.	*Defunct.*	Proposed Co-management arrangement between the AMAFA and Ezemvelo. Private actor Nico Harris (Vriendscap boerderay) continues to manage cattle on Emakhoini (500 for AMAFA, Kwasanguye)	Compromised by management differences, politics, and an unsettled land claim on Emakhosini. "we saw a presentation about EMOHP, but our reserve manager had never been consulted, and I haven't seen further engagement locally" (Opathe official, interview February 2019).
8. Kwasanguye community project				
3,000 ha	Voluntarily Redistributed commercial farmland (an effort on the part of landowners to diffuse land reform tensions). 200 ha under cane, 400 ha under timber, a game component and a Nguni herd.	*Active community project*. Partnership between white commercial farmer and three community trusts is operational.	Mentorship model for the community land. Directed by the former commercial farmer (Vriendschap Boerderay) and four claimant trusts - KwaBega Opathe, Amala, KwaMajikana and Nkayeshana	There were positive outcomes with regards to the Kwasanguye project as a standalone entity, with access to benefits – through sugar cane, forestry, cattle and game farming – on the part of claimants. Some intimations of paternalistic relationships with the mentor.
9. Kwasanguye-Opathe Linkage				
11,500 ha	Prospective incorporation of additional 3,000 ha into the existing 8,500 ha Opathe reserve.	*Failed* incorporation into Opathe reserve.	Private management of the augmented game reserve.	After a board approval of the linkage local level management, differences and distrust undermined the project. As an Ezemvelo official put it, "it was an idea ahead of its time, but dead in the water, and naïve in new political dispensation" (Ezemvelo BEN proponent, Pietermaritzburg, March 2017).
10. Koeningskroen Inguni cattle scheme				
1,500 ha	Commercial farmland speculatively purchased by Ezemvelo to enable linakge with the Emakosini-Opathe Heritage Park and facilitate Nguni cattle grazing scheme.	*Failed* Initially leased by Ezemvelo pending incorporation, Ezemvelo forced to sell the land to the King, at a significant loss.	A co-management arrangement was envisaged to supersede the interim lease. Stakeholders: Vriendschap Boerderay, Ezemvelo, Zulu King	There was Board level approval within Ezemvelo for the purchase of the land but local level managers were uncomfortable, former labor tenants were excluded from plans, and eventually the King scuppered the deal, securing the land for himself. The developer continues to farm cattle on Amafa land and may partner with the King on Koeningskroen.
Standalone group				
11. Thula Thula and fundimvelo				
4,280 ha (current) prospective expansion to 8,500 – 9,000 ha	Thula Thula reserve (3,500 ha). Former Communal land, former Natal Parks board Fundimvelo reserve (1,080 ha) and Commerical farmland (1,500 ha)	*Active* and likely expanding.	The Lawrence Anthony Foundation, donor funds, volunteer supported. Includes Amakhosi stakeholders, the Ingonyama Trust, and local trusts.	15 years ago the founder, Lawrence Anthony attempted a linkage to HiP through Municipal channels but was stymied. The new approach through Amakhosi and community engagement is more modest but more tangible.
12. Banabango Legacy lodge				
28,000 ha	Redistributed land, incorporating 13,000 ha Babanango reserve, education centre and Zulu Rock game lodge.	*In progress* – with 'investor readiness'. DEA funding pending Secured German legacy investor	35-year lease on redistributed land, facilitated by Conservation Outcomes, for ecotourism, and an NPO community abattoir for culled game.	"We are addressing the balancing act of giving guidance without being too patronising or controlling…. There are lots of good ingredients if we can manage community risks"

Table 1: List of uBEN project sites in northern KwaZulu-Natal.

The UBEN developments can be grouped into three – the first two groups involving initiatives that augment the existing Hluhluwe-Imfolozi Park (the HiP Cluster) and Opathe game reserve (the Opathe Cluster). Both core reserves are facing different deterritorialization pressures. HiP experiences issues to do with poaching, fencing problems, human-wildlife conflict and community contestations over benefits and jobs from the park, while Opathe faces illegal grazing, sand mining, hunting with dogs, and underfunding given its low tourist profile (Interviews with Ezemvelo officials 2018 and 2019). The HiP cluster has been more successful with the enclosure of two areas of communal land into the reserve facilitated by traditional authorities under the Imfolozi 'Big 5' project, though the Mandlakzai initiative is defunct after community rejection of the development. The HiP cluster also contains an older conservation expansion area enclosed from communal land. This is the Empembeni Rhino Ridge development, which was facilitated through the 'corridor of hope' land claim settlement and co-management arrangement, though the latter is contested. In contrast to the HiP cluster, the Opathe cluster of projects was unsuccessful in augmenting the Opathe reserve. While the Kwasanguye community conservation initiative alone appears successful to a degree, Opathe's linkages with the adjacent properties of Emakosini, Kwasanguye and Koeningskroen all faltered and failed. The third group, including two standalone 'satellite' projects, at Babanango and Thula, could incorporate into the former two clusters through conservation corridors. They are treading carefully, avoiding commercial hunting and the pitfalls experienced by other projects and trying to foster more community ownership and engagement.

At present, then, three initiatives can be said to be active, two are operational but contested, four are nascent/non-operational, and four are defunct. With this understanding of outcomes in mind, I turn to a discussion of why territorialization through the UBEN might be pyrrhic.

5. Pyrrhic conservation and the intensification of neoliberal territorialization

This section draws on experiences in the UBEN to argue that the market triumphalism within the intervention is pyrrhic. Firstly, the project outcomes detailed in Table 1 substantiate that the UBEN may represent *too little reward for too much effort*. While it remains to be seen if future value in the landscape can be 'unlocked' as its proponents hope, less than a third of projects are active, and fully a third have failed. Given the years of energy and investment that has gone in the UBEN's facilitation, such failures have led to frustrations, as one proponent attests: "co-ordination in the UBEN has been abysmal and caught up in Ezemvelo politics, and if it weren't for Babanango or IB5 there would be nothing to show for it" (Interview, Project proponent, Hilton, 2019). After the interview, even the two IB5 projects faltered when the eco-lodges closed – these were the primary income generation vehicle. The ecotourism operator withdrew during the COVID-19 lockdown. Such realities and implementation challenges in Kwazulu-Natal are painfully apparent to actors in this sector, who acknowledge 'few' good examples. Consultants suggest this is because projects in the UBEN are "complex and require long term and in-depth commitment, with community buy-in and real engagement and benefits"; this is a challenge with community conservation and co-management more broadly (see Cock and Fig, 2000). However, I would like to go further in my analysis to suggest further aspects of UBEN's pyrrhic status, achieved at *too great a cost*. These pertain to the re-enforcement of an uneven conservation geography, the exacerbation of tensions and enmity, and incidences of sacrificial spaces and spaces of exception.

Re-enforcing an uneven conservation geography

There is a wide range of community benefit models in the UBEN and a range of asymmetries from the point of view of beneficiaries. The literature on neoliberal conservation suggests that projects can frequently widen the distribution of social impacts by interacting with pre-existing economic, social and political inequalities (Holmes and Cavanagh, 2016). This is a significant area of concern given the general context of acute social and economic development needs of the rural poor in the area, many of whom have incurred substantial costs from the establishment of parks but few benefits in return (Gewald *et al*., 2018). This legacy around the UBEN was pointed out by a former Ezemvelo Community Conservation Officer (CCO): "In Hluhluwe-Imfolozi Park (HiP), there is only one black tourism operator, and he is a ward councillor" (Former CCO, HiP 15 January 2017). This lack of representativity and intractability is fossilized into South African conservation geography (Büscher *et al*. in press). As the Ezemvelo uBEN coordinator herself put it, "there is a

lot of gatekeeping when it comes to the financial benefits of conservation – and there is [still] a need to unlock those gates" (Interview, Durban, Feb 2019).

In this context, the benefits from the UBEN are curtailed, generating limited employment opportunities, or community levies from tourist visits to conservation areas, or dividends from ecotourism investments. While investments within the UBEN (such as the IB5) take a long time to mature and pay dividends, as initial loans need to be paid off, community needs are immediate for social reproduction (see Hornby and Cousins, 2019). Perceptions of asymmetric benefits and inequalities can ferment mistrust (Fisher *et al.,* 2019) or re-enforce an already uneven, racialized conservation geography. Even in cases where projects are successful, such as at Mpembeni Rhino Ridge, community beneficiaries can become disillusioned with the benefits accruing (Nsukwini 2019). This arises in a context where some stakeholders feel more robust negotiations with developers might have yielded better outcomes form the different initiatives in the UBEN (Interview, Hilton, November 2018). Two respondents cautioned against private sector developments that have significant power imbalances, or that lack sustained capacity or a financial incentive to manage stakeholder involvement (Interview, Conservation Consultant, October 2018; Interview, Project Rhino Team member, Hluhluwe-Imfolozi, November 2017). There are also perceptions that asymmetries exist amongst community respondents in the Hluhluwe-Imfolozi cluster more broadly, who suggest that "Ezemvelo is doing more for Amakhosi (Chiefs), Isilo (the King) and others' benefit… but neglecting the community." (Trust member, Interview, Mtubatuba, June 2019). This view was repeated in the Opathe cluster more broadly, where former labor tenants and land claimants are excluded from benefits within the proposed Emakhosini-Opathe heritage park. As a respondent put it, "projects create expectations but benefits accruing are not what we should have been getting… [and] the real benefit goes to the facilitators" (Emakhosini Claimant, Interview, May 2017). The failed Koeningskroen partnership was particularly controversial. As a consultant in the UBEN put it, "Koeningskroean was another disaster… there was elite capture and traditional politics with the King complicating the process" (Conservation consultant, Interview 2019).

Summing up the community benefit status quo, an Ezemvelo CCO said, "if the community really benefits, we want business owners and partners – in benefits and losses – the pie needs to be split by more people. We don't want a trickle-down" (Interview, 2018). Project proponents in the standalone cluster are wary of the big tourism operations, and developers involved in the other two groups, who they said are "hunting for dollars" and "moving too fast" to ensure genuine participation and benefit-sharing (Interview, Thula Thula, October 2020). This view was also expressed by an Ezemvelo lodge manager in Hip, who was concerned that high-end ecotourism might "hollow out" state resources because Ezemvelo lodges may suffer in competition with new private ones.[5] One commentator put it that implementers "shouldn't only target the top end, but [should] maximize the value chain and the end of the market to make sure benefits can be distributed more equitably, and ensure biodiversity 'buy-in' (Interview, Project Rhino Team member, Hluhluwe-Imfolozi, November 2017). All of these factors suggest that in its current form, the UBEN might continue to cement an already uneven and 'fossilized' conservation geography (Büscher *et al*., in press).

Exacerbation of tension and enmity

When issues of race, participation and exclusion are considered, as well as complex interactions with diverse stakeholders – each with different management approaches, imperatives and priorities – the uBEN can represent a contested landscape for bioeconomy development, and it can exacerbate tension and enmity in the landscape.

For starters, the Hluhluwe-Imfolozi cluster shows that tensions and enmity can arise within heterogenous beneficiary groupings and between residents, traditional authorities and project proponents over new interventions, not least because of the power relations and degree of participation in the planning that precedes them. As one proponent put it, the "biggest risk is the community" (UBEN coordinator, Interview, Durban,

[5] The Ezemvelo Mpila camp manager within HiP reflects as much when noting that Mpila lodge and Enseleni (the Amakhosi run lodge) occupancy was down to 70% in peak seasons and even worse in the slow seasons, yet occupancy is full at the private Rhino Ridge lodge (which also has links to the Empembeni community).

April 2019). In the Somopho traditional area, a group of residents have taken the Inkosi (chief) to court over his support for the gazettement of the protected area as part of the IB5, allegedly without full input into the decisions made (Interviews, Somopho. June 2018, Jan 2019). The consultant offered the following in explanation: "one gets the impression that the project was rushed through and the reserve declared in no time, but there was lots of resistance even within Ezemvelo … [and] it seems the community hasn't got the best deal" (Interview, Hilton, June 2019). Similar instances are evident over coal mining developments in the area (Leonard 2020). There were lesser complaints in the Obukha area (fieldwork observation, 2019); however, community resistance resulting from development tensions can also be evident, as in the failed initiative of the IB5 Mandlakazi reserve. As an Ezemvelo official put it, "there is no ways the community will allow the project – they are dead set against it" (Interview, January 2020).

In the UBEN, conservation territorialization can exacerbate already fraught relations with core protected areas. Tensions over poor fencing, human-wildlife conflict and anti-poaching efforts are particularly prevalent around HiP (Interview, Ezemvelo Community Conservation Officer, Centenary Centre, November 2018). Existing wildlife policy is contentious as it does not offer compensation for livestock kills by hyena and leopard.[6] As the chairperson of the local community conservation board attests, "if KZNW doesn't pay for killed goats by hyenas, people might want to kill those predators which they see as their animals because they are land claim beneficiaries" (Interview, Hluhluwe-Imfolozi, November 2017). Tensions over land reform also continue within the node, where the three claims around Kwasanguye and Melmoth remain unsettled, as does a claim at Emakhosini on the part of labor tenants – seen as the least of government's land reform priorities (Hall and Williams, 2001). Violent protests erupt sporadically due to unaddressed issues of human-wildlife conflict and a perceived lack of benefits from conservation, along with tensions over land. In Machibini in 2018, for instance, an Ezemvelo car was torched and tyres burnt on the 618 road to Nyalazi gate of the Umfolozi Park. In another example, the Ezemvelo CCO was held hostage over negotiations to secure more jobs in the Park. When there are such problems and a perceived lack of benefits, then, as a local conservation board[7] member and *Induna* put it, "people believe the mine is better [than conservation] as they can show things. Ezemvelo only built 1 school in 100 years and gives 'piece jobs'" (Interview, June 2019).

By contrast, the Opathe cluster shows tensions about management priorities and, to a degree, racial tensions between stakeholders, both of which have undermined project development and connectivity (Interview, Mtonjaneni, November 2018). While Ezemvelo board approval was secured for the Emakhosini-Opathe-Kwasaguye linkage, management tensions and divergences of views about hunting, cattle farming, private management and heritage protection interests prohibited the augmentation of the Opathe cluster. Some UBEN proponents interpret this as "paralysis and archaic views" on the part of Ezemvelo managers. Still, Ezemvelo staff at Opathe expressed significant concerns and frustrations – "if you are planning to drop fences and push to hunt and you don't consult us, it is a problem, how will conservation benefit?" (Interview, Ezemvelo Manager, Opathe June 2019). It is also alleged that the Department of Rural Development and Land Reform (DRDLR) was uncomfortable with a white, former landowner continuing to hold the title deeds for the community-claimed land in Kwasanguye. Similarly, a critical Ezemvelo manager is alleged to have withheld authorization for the initiative because of a perception of a condescending and patriarchal attitude on the part of the same stakeholder. Frustrated by a lack of support, such developments are interpreted by the proponent as unfair, and he has an additional belief that government funding will not be released for the initiative without kickbacks (Interview, Mtonjaneni, November 2018). While the truth of any allegations is beyond the scope of this article, it is clear that racial and organizational tensions are certainly evident in the post-apartheid conservation context of the UBEN. Another Ezemvelo official put it that "our biggest issues are protecting apartheid-era reserves, where there are perceptions of 'white people conservation' and of who should benefit… it is a never-ending transformation issue" (Interview, Pietermaritzburg, February 2019).

[6] This is because hyena and leopards were said to be a pre-existing feature of the landscape before the creation of the reserve, whereas compensation is paid for lion and wild dog kills as they constitute 're-introduced species' into the park.

[7] A structure set up to mediate people-parks issues in conservation around HiP.

Spaces of exception and sacrifice zones

As a final point, I detail how spaces of exception and sacrifice operate in a landscape that is directed under a hegemonic economic development paradigm. Northern KZN certainly has spaces of exception when it comes to dispossessions, deprivations and the slow violence associated with coal mining-affected communities (Leonard, 2020). However, conservation territorialization also imposes its burdens on proximate populations within the UBEN. A portion of residents in Somopho traditional authority are opposed to the enclosure of their grazing land, and their Inkosi (chief) was allegedly taking decisions without input (Interviews, Somopho, June 2018, Jan 2019). While this enclosure does not entail dispossession, it does represent the displacement of activities for individuals who engage in multiple livelihood strategies, supported by circular migration for work, livestock rearing and limited subsistence farming and government grants (Nsukwini and Bob, 2016). There is also direct violence associated with poaching and anti-poaching, with costs and losses on both sides of the fence. This is the most obvious example of a space of exception. As the chairperson of KZN's Project Rhino put it: "While this is not a real war, we are acting as a military with a different set of rules" (Interview, Hluhluwe-Imfolozi, November 2017). This militarization of conservation exacts physical and psychological costs on rangers and proximate communities, where suspicion and resentment can be rife (Interviews, Hluhluwe-imfolozi, July 2018). Projects within the UBEN are supportive, and in some cases, facilitative, of the militarization of anti-poaching and do not intervene within human-wildlife conflict situations, though some proponents do sympathize with the plight of adjacent residents. For some of these residents, there remains a perception that "conservation can also be cruel" (Interview, Sangoyane August 2018).

Secondly, there is evidence that sacrificial practices and sacrifice zones (see Bullard, 2000) pertain to the biodiversity economy in KZN; where "the spatial and geographical manifestations of social and environmental damages that are 'written off'" in the national interest and in conservation discourses (Nel, 2016, 247). In facilitating the bioeconomy and territorializing space for high-end ecotourism, externalities are not accounted for in the win-win discourses articulated by proponents (SAGCHA, 2015). In the Hluhluwe-iMfolozi cluster, there are concerns that the commercialization of biodiversity undermines the wilderness ethic famously championed by Ian Player in KZN. For example, some Ezemvelo officials lament that the Umoflozi Wilderness area has been compromised by the presence of the luxury Mtembu and Biyela lodges (Interviews, Feb 2018). Similarly, in Opathe, a key motivation for the augmentation of the reserve and its incorporation with Kwasanguye was to facilitate hunting. Yet local managers had concerns; "if you push to hunt … how will conservation benefit?" (Interview, Ezemvelo Manager, Opathe June 2019). The second form of sacrifice relates to biodiversity loss outside of protected areas[8] precipitated by a decreased lack of Ezemvelo intervention in the face of 'poor environmental decision making and political interference' and because of budget cuts and staff shortages.[9] Such contextual challenges lead to a sense of fatalism for planners, manifesting as a need to work within a neoliberal framework – "if you want to be effective you have to step out of the EIA process towards proactive planning – like offsets or making the economic case for biodiversity" (*idem*).

Finally, at a national scale, the framing of the biodiversity economy is embedded in power structures that may, in turn, undermine conservation, specifically within the presidential *Operation Phakisa*. This operation aims at "unlocking the economic potential of South Africa's biodiversity in order to reach a growth target of 5% per year by 2019" (SONA, 2014). *Phakisa* has a neoliberal orientation around the fast-tracking of offshore oil and gas development in a one-stop-shop within the Department of Mineral Resources – itself a pro-development mining body which has also subsumed environmental authorizations for mining away from the Department of Environmental Affairs. This approach is compatible with the local biodiversity framing over businesses and economic activities that directly depend on biodiversity, including fossil fuels derived from organic matter. While there has been an increase of Marine Protected areas under Phakisa from 0.5 % to 5%,

[8] Protected Areas comprise only 9% of Kwazulu-Natal, while 57% of the high biodiversity lies outside PAs (SANBI National Biodiversity Assessment 2018)

[9] While Ezemvelo is mandated to scrutinize all developments and Environmental Impact Assessments (EIAs) in the Province, planning staff can only comment on development applications within 2 km of Protected Areas and in other Critical Biodiversity Areas. Furthermore, an Ezemvelo planner attests they only have the resources to target EIAs, which are 'fatally flawed' to ensure efficiency, lamenting that "put simply, biodiversity is not a priority" (Ezemvelo planner, Pietermaritzburg, August 2018).

the remaining 95 % of South Africa's marine Exclusive Economic Zone is now out for lease. As one EIA practitioner put it, "these little islands [MPAs], which is really all they are, is a result of Phakisa which fast tracks both MPAs and mining…. if mining benefits the Republic as a whole (sic) it outweighs the community and environmental risk, then it will go ahead" (Interview, Pietermaritzburg, Nov 2019). Such a sacrificial, neoliberal development orientation certainly works against plans to mitigate biodiversity loss risks associated with mining. In this and the instances above, then, an assessment of the UBEN as pyrrhic deserves attention.

5. Conclusion: Biodiversity Economy as an intensification of neoliberal conservation and territorialization

There has been much enthusiasm for the Biodiversity Economy and its articulation with new conservation territorialization initiatives, such as biodiversity stewardship arrangements (DEA, 2016). There has also been a concurrent degree of planning and effort made by an array of actors to realize a nodal approach to conservation territorialization in the Umfolozi Biodiversity Economy Node. This took place amidst a multi-faceted conservation crisis of significant biodiversity loss and extinction, uncertainty over land-use change, institutional crises, rhino poaching, and degradation associated with coal mining. In the article, then, the UBEN is conceptualized as both a neoliberal crisis response and as a commodification strategy, functioning as a spatial aggregator and 'proto-territory' to facilitate and amalgamate discreet projects as well as the financialization of conservation space and the wildlife economy, now and into the future.

The findings also suggested that a nodal approach to biodiversity economy in Kwazulu-Natal might be pyrrhic: too great an effort for too little reward. Firstly, there was a major effort, but few successes, in reaching project goals. At a local level, the aims and intentions of many actors may be well placed, and there are limited successes, as well as patent failures. This aligns with Stoddard's (2020) claims that South Africa's 'experiment in wildlife privatization' is threatened; in the face of COVID and other dynamics, and its focus largely caters to the affluent. Its mounting costs contrast it to other pressing social needs faced by the government (*idem*).

This point alone questions whether if the Biodiversity Economy initiatives were realized with less effort, and for more reward, then the ends would justify the means. My argument has been that the costs have been too great, and embedded in problematic, historically rooted dynamics. The distributional asymmetries of the biodiversity economy approach question its suitability for mitigating conservation risks from land-use change, land reform, mining and rhino poaching. I argued that the UBEN can reinforce uneven conservation geographies, exacerbate underlying tensions and enmity, and be complicit with the production of sacrificial spaces at the conservation-extraction nexus. Thus, the more profound critique in the article focuses on the costs of a broader spatialization of the extractive economy that involve a deeper embedding of hegemonic neoliberalism, of which the UBEN is a part. In this light, the findings align with Bluwstein and Lund (2018) to suggest that even amidst their significant failures, conflicts and tensions, novel conservation formulations such as those described in this article remain powerful. They are gradually transforming communal and other landscapes into conservation territories.

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Between overstocking and extinction: conservation and the intensification of uneven wildlife geographies in Africa

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Abstract

Conservation news from Africa generally seems to exude crisis. Over the last decade, especially, we have witnessed the increasingly visible decline of charismatic species such as the rhino, elephant, cheetah, lion, giraffe and others, coupled with an ongoing defaunation of many forested areas. What is much less visible is that in certain areas an important countertrend is also occurring: the growth of wildlife species, most notably through the stocking of private lands and initiatives to develop broader wildlife economies. This article explores these two trends and shows that they are key in understanding conservation in sub-Sahara Africa and its rapidly changing political economy more generally. Focusing on South Africa, especially the booming wildlife economy in the Greater Kruger area, the article argues that the private possession or commodified management of conservation spaces and its (over)stocking of species actually benefits from an overall decline of charismatic species. As the number of charismatic species declines across the continent, it increases the value of well-stocked, privately conserved lands, providing their owners with unique sources of profit and revenue. The result is an intensification of uneven wildlife geographies across Africa.

Keywords: Charismatic species, extinction, Africa, conservation, wildlife

Résumé

Les nouvelles sur la conservation en Afrique semblent généralement exhaler la crise. Au cours de la dernière décennie, en particulier, nous avons assisté au déclin de plus en plus visible d'espèces charismatiques telles que le rhinocéros, l'éléphant, le guépard, le lion, la girafe et d'autres, couplé à une défaunation continue de nombreuses zones forestières. Ce qui est beaucoup moins visible, c'est que dans certaines régions, une contre-tendance importante se produit également: la croissance des espèces fauniques, notamment sur les terres privées. Ceux-ci ont également développé des économies plus larges et environnantes de la faune. Cet article explore ces deux tendances et montre qu'elles sont essentielles pour comprendre la conservation en Afrique subsaharienne et son économie politique, qui évolue rapidement. En se concentrant sur l'Afrique du Sud, en particulier l'économie de la faune en plein essor dans la région du Grand Kruger, l'article soutient que la possession privée d'espaces de conservation bénéficie en réalité d'un déclin global des espèces charismatiques. À mesure que le nombre d'espèces charismatiques diminue à travers le continent, cela augmente la valeur des terres bien approvisionnées et conservées de manière privée, offrant à leurs propriétaires des sources uniques de profit et de revenus. Le résultat est une intensification des géographies inégales de la faune à travers l'Afrique.

Mots-clés: Espèces charismatiques, extinction, Afrique, conservation, faune sauvage

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Resumen

Las noticias sobre la conservación de la vida silvestre en África anuncian su estado de crisis. Particularmente durante la última década, se ha constatado la disminución de las poblaciones de especies carismáticas como el rinoceronte, el elefante, el guepardo, el león o la jirafa, vinculada a la defaunación de muchas áreas forestales. Por otro lado y de manera menos llamativa, ciertas áreas muestran una tendencia contraria, con el incremento de poblaciones de especies silvestres, mediante la repoblación de terrenos de propiedad privada en los que se desarrollan modelos económicos vinculados a la vida silvestre. Este artículo explora estas dos tendencias, por su valía para comprender la conservación en el África subsahariana, así como los cambios acaecidos en su economía política. Centrándonos en Sudáfrica, especialmente en la pujante economía basada en la vida silvestre en el área circundante del Parque Nacional Kruger, el artículo demuestra que la propiedad privada o la gestión mercantilizada de los espacios de conservación y su (sobre)repoblación de especies, en realidad, se aprovecha de la disminución generalizada de las especies carismáticas. Así sucede que el valor de las tierras repobladas y gestionadas por particulares aumenta a medida que disminuye el número de especies carismáticas en todo el continente, proporcionando fuentes de ingresos y de beneficios a sus propietarios. La consecuencia final es la intensificación de las geografías desiguales de la vida silvestre en África.

Palabras clave: Especies carismáticas, extinción, África, conservación, vida silvestre

1. Introduction

Conservation dynamics across the African continent have long been volatile. And they seem to have become even more so in recent years. Several trends stand out in this respect. The first is the increasingly visible decline of charismatic species. During the 2016 Conference of Parties (COP) of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)[2] and the months that followed, much alarming news came out about rapidly declining numbers of species such as the cheetah, lion and giraffe. At the same time, there has been much attention on the rapid increase of wildlife crime over the last decade, globally but especially in Africa related to the poaching of elephants and rhinos (Duffy *et al.* 2019). That said, the fact that many African species are facing difficulties is old news. For years, scientists have stated that many species have historically and more recently seen large declines, even in protected areas (Oates 1999; Cragie *et al.* 2010). They would add that this decline is highly uneven across the continent and that there are important exceptions and even successes as well (Barnes *et al* 2016). But some of the recent declines are considered more alarming than normal, such as the rapid decline of giraffes and cheetahs: numbers for both have dropped by roughly 40% across the continent. Combined with the rise in militant wildlife crime, these dynamics have given further impetus to the argument that we are currently living through the sixth mass extinction of species (Barnosky *et al.* 2011; Ceballos *et al*. 2015)

A second important conservation trend over the last decade is one that is much less globally publicized in news outlets and currently not yet very widespread across the continent. This is the growth in numbers of some wildlife species, most notably on private lands and stimulated by industries like wildlife ranching and tourism. Mainly in selected biodiverse pockets in Southern and Eastern Africa and especially in South Africa, the establishment of private parks, so-called 'wildlife estates' or the *de facto* privatization of (parts of) public parks has been steadily growing (Child 2004). These dynamics conjoin a more general rise in interest in the 'wildlife economy' and the trade in wildlife species within and between countries (Department of Environmental Affairs 2016; Driver *et al.* 2019). As a result, there have also been countertrends in the regional growth of certain wildlife species, including several of the ones mentioned above. Some of this growth has been so substantial that wildlife management measures are regularly taken to bring population numbers down for fear of areas becoming 'overstocked', which would degrade ecosystems and hence be detrimental to the wildlife itself.

This article argues that these two seemingly contradictory trends tell a larger and important story about conservation and the extinction crisis in Africa. They are, in fact, key to understanding the current political economy of conservation on the continent, and even the political economy of Africa more broadly. Both the decline and fear of extinction of species and growth in specific pockets are part of a new phase in the integration

[2] Which was held from 24 September to 5 October 2016 in Johannesburg, South Africa.

of the African continent into the global capitalist economy. In South Africa, this has advanced the farthest and it therefore makes sense to look at dynamics here as a potential window to what might happen elsewhere. I do so with great caution and not with an aim to make any (straightforward) comparison between South Africa and the rest of the continent. One could perhaps assume that some trends in South Africa might be mirrored in other African countries with large wildlife populations such as (parts of) Namibia, Botswana, Zambia, Zimbabwe, Tanzania Uganda and Kenya. Yet, it may also be that South Africa remains fairly unique in this respect.

What is clear is that in the 'uneven historical and geographical development' of the continent, it so happens that South Africa is both highly biodiverse and the most developed country on the continent, giving it particular abilities and possibilities that allow it to further profit from wildlife. By focusing on the Greater Kruger area and especially the booming wildlife town of Hoedspruit, the article argues that the private possession or commodified management of conservation spaces and its (over)stocking of species actually benefits from an overall decline of charismatic species in the continent as a whole. As the number of charismatic species declines across the continent, it increases the value of well-stocked, privately conserved lands, providing their owners with unique sources of profit and revenue.

In order to develop this argument, I will first go into a discussion of species decline dynamics within extinction discourses regarding Africa, after which I will connect the two contradictory dynamics in general and through a case-study of the Hoedspruit area within the great Kruger region as the most important centre of the wildlife economy in South Africa.[3] Next, I will endeavour to make sense of these dynamics and the role of the Hoedspruit case study by discussing these as part of an overall intensification of uneven wildlife geographies across the continent. I conclude by reflecting on the implications of the central argument and calling for more research and reflection on political ecologies of extinction.

2. Species decline and extinction fears

Debates on species numbers in Africa are fraught with tensions, contradictions, and contestations. Despite this, scientists, conservation organizations, governments and others continuously study and communicate the dynamics around species numbers and populations, particularly as these are becoming more volatile due to the intensifying uneven geographical development of the continent. As argued by UNEP's most recent regional environmental assessment:

> Land, which is one of Africa's most prized natural assets, is under increasing pressure stemming from competition for access, changing global and regional consumption patterns, and the drive for greater economic growth. These pressures are leading to its degradation, loss of access, inequity and encroachment on fragile and protected ecosystems. (UNEP 2016: 15)

These and other pressures have, over the last decades, according to Craigie *et al.* (2010: 2221), led to a 59% decline in large mammal populations in protected areas across the continent. Crucially, they add that "Indices for different parts of Africa demonstrate large regional differences, with southern African PAs typically maintaining their populations and western African PAs suffering the most severe declines." Other studies come to similar conclusions, arguing that protected areas are important for many species and that "wildlife population trends are more positive in PAs located in countries with higher development scores, and for larger-bodied species" (Barnes *et al.* 2015: 1). Based on this, Barnes *et al*. (2015: 1) conclude that "the link between wildlife trends and national development shows that the social and economic conditions supporting PAs are critical for the successful maintenance of their wildlife populations." This bodes well in particular for South Africa, even though the country has its fair share of threatened and endangered species, and pressures on them (Republic of South Africa 2014: 10-16).

[3] The article builds on research done in a five year, NWO (Netherlands Organisation for Scientific Research) funded project (452-14-001), as well as on my long-term research in the Kruger area since 2003. Since 2016, I have made six research trips to Hoedspruit and the Kruger area, and conducted over 25 in-depth interviews, engaged in participatory observation in wildlife estates, reserves and the town itself, and collected archival material and relevant documents for discourse analysis.

My aim in this Section is not to provide an assessment of the methodological debates in ecology and conservation biology on species numbers and trends in Africa or generally. What is clear from the literature, though, it that there is limited consensus on most species' numbers, while there is a major bias in how research and popular attention and funding tend to go to a relatively small set of (often charismatic or otherwise popular) species (Donaldson *et al*. 2016; Davies *et al*. 2018; Gordon *et al*. 2019). There is, moreover, a major 'plant blindness' (Balding and Williams 2016) in conservation research, which is also reflected in the current article. Most importantly, the ecological literature laments that little is known about how trends in species numbers relate to broader patterns of development. As indicated Di Marco and colleagues (2018: 2): the "major limitation in these analyses is the absence of a link to spatial and temporal changes in human pressure and how these lead to change in the risk of species declines." These authors propose measuring and modelling broader concepts like the 'human footprint' to address this limitation, though they also acknowledge that this can provide potential indications of risk only (see also Isbell *et al.* 2017).

Instead, as a political ecologist, I want to place several striking features and disagreements in ecological debates on species trends in context, especially in relation to broader extinction fears and political economic developments across the continent, including the above assertion by Barnes and colleagues about trends being more positive in 'countries with higher development scores.' If there would be a direct correlation between 'higher development scores' and more positive wildlife numbers, then the above UNEP assessment may be something temporary and nothing to worry about for the long-term as long as the continent continues to 'develop.' This correlation, however, is deeply problematic. First, this is because globally, many highly developed countries are not necessarily known for their 'positive wildlife numbers', including many countries in Europe. Second, it leaves out broader contexts and other dynamics that complicate any notion of correlation. This includes the Intergovernmental Science–Policy Platform on Biodiversity and Ecosystem Services (IPBES) report from 2019, which concluded that over a million species risk extinction in the near future globally, and the 2020 global SARS-CoV-2 pandemic that has rendered wildlife conservation in Africa even more uncertain, particularly through the massive decrease in funding (Lindsey *et al.* 2020; Fletcher *et al.* 2020). Hence a more robust analysis of the link between species dynamics and 'development scores' is needed.

Within this context of 'extinction fears', the key question is how to evaluate the debate on species numbers in Africa? A brief look at several high-profile species will help to clarify why a focus on the above two main trends in a broader political-economic context is important to answer this question. First: the lion (Panthera leo). As one of the most charismatic of all African animals, lion population dynamics have been studied and debated for a long time. The scientific consensus seems to be that lion numbers and its overall genetic diversity are on a steady decline (Bauer *et al.* 2015; Dures *et al.* 2019). A recent, continent-wide analysis argues that "lion populations are rapidly disappearing from large parts of Africa, signaling a major trophic downgrading of savannah ecosystems" (Bauer *et al.* 2015: 14894). They show that West and Central African lion populations have been hardest hit but also that "lion conservation is successful in southern Africa, in part because of the proliferation of reintroduced lions in small, fenced, intensively managed, and funded reserves" (*idem*). This, they indicate, brings its own genetic and metapopulation challenges, thus concluding that "unless political and funding commitments are scaled up to address mounting levels of threat, lions may disappear from most of Africa" (Bauer *et al.* 2015: 14897).

This gloomy analysis received a response from other ecologists contesting some of its main premises. Riggio *et al* (2016: E107) argue that Bauer *et al.*'s "own data (…) rejects their claims that lions are "declining everywhere, except in four southern countries" and that lions increase only where "intensively managed."" They argue that even in Central and West Africa there are stable lion populations, that data from two sites have been misinterpreted and that Bauer *et al.*'s claims in favor of fencing do not hold. Most importantly, they conclude that:

> Certainly, serious threats are mounting and demand attention. That said, it is premature, indeed inappropriate, to level blanket criticism at countries outside southern Africa. The data show that authorities have maintained effective protection for many lion populations and should be congratulated where they have succeeded. Conservationists should also be wary of overstating widespread declines. If such claims are later rejected, science loses credibility. Conservation

> needs transparency in methods and data, and honest appraisal of the evidence and considerable uncertainties. Bauer *et al.* have not satisfied these essential requirements. (Riggio *et al.* 2016)

Interestingly, this critique seems to suggest that Bauer and colleagues, who are some of the world's most revered lion researchers, have given in to extinction fears and allowed their analysis to become overtly negative towards the 'decline side.' Such, indeed, that it not only needed rectification but also a stern critique to protect scientific credibility.

Another interesting case in terms of wildlife declines and extinction fears relates to the Giraffe. Giraffes are generally not poached in great numbers, and hence their numbers depend on available land where they can thrive. According to the latest IUCN red list assessment in 2016, the global population status had to be adjusted from 'least concern' to 'vulnerable' "due to an observed, past (and ongoing) population decline of 36-40% over three generations (30 years, 1985-2015)."[4] Responding to this news in 2016, Julian Fennessy, then co-chair of the IUCN giraffe and okapi specialist group, stated that "whilst giraffes are commonly seen on safari, in the media and in zoos, people – including conservationists – are unaware that these majestic animals are undergoing a silent extinction. It is timely that we stick our neck out for the giraffe before it is too late."[5] Responding to the same news, famous conservationist David Attenborough argued: "these gentle giants have been overlooked. It's well known that African elephants are in trouble and there are perhaps just under half a million left. But what no one realised is there are far fewer giraffes, which have already become extinct in seven countries."[6]

More recently, at the Conference of Parties of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), held in February 2020 in India, a press release was sent out urging for an "Africa-wide conservation strategy for Giraffe." It started as follows: "A century ago, more than one million Giraffe used to roam across sub-Saharan Africa. But these gentle giants are now extinct in at least seven countries with only 100,000 animals remaining in fragmented populations across the continent." It goes on to paint a grim picture:

> Infrastructure development such as roads, railways, powerlines, and pipelines have created barriers to migration, fragmenting Giraffe populations and their habitats. Habitat loss and degradation have also been fuelled by wildfire, livestock incursions and illegal encroachment by humans. Poaching, snaring and trade for bushmeat, skins, tails and traditional medicine have further put the Giraffe's survival in doubt. Diseases, civil unrest, climate change, human population growth, lack of law enforcement, and lack of awareness of Giraffe conservation exacerbate these threats.[7]

Species decline here is, again, accompanied by stark extinction fear discourses. But is this warranted? An official document submitted by the South African government to the August 2019 CITES CoP on the status of the Giraffe in South Africa argues that "the South African giraffe (Giraffa camelopardalis giraffa) can be hailed as a southern African conservation success story." It goes on to state that:

> The South African giraffe is considered a common species within South Africa, with an estimated population of between 21,053 and 26,919 individuals. Approximately half of the population occurs on privately-owned land (…). Since the 1960s, wildlife numbers on South African commercial farms have continued to rise, as has their economic value (…). In the early 1980s there were approximately 250 privately-owned giraffes in South Africa, but following their introduction into numerous private and provincial game reserves (reserves managed by

[4] https://www.iucnredlist.org/species/9194/136266699#assessment-information, accessed 25 February 2020.

[5] https://www.theguardian.com/environment/2016/dec/08/giraffe-red-list-vulnerable-species-extinction, accessed 25 February 2020.

[6] Idem. See also: https://www.theatlantic.com/magazine/archive/2020/04/how-to-tackle-a-giraffe/606787/, accessed 19 August 2020.

[7] https://www.cms.int/en/news/africa-wide-conservation-strategy-giraffe, accessed 25 February 2020.

> government nature conservation authorities; …) it is now estimated there are giraffes on most of South Africa's estimated 12,000 game farms and ranches. Populations on these properties comprise between one and 250 individuals, with a mean of 30 individuals per property.[8]

The note further argues that there are no significant threats to Giraffes and that the population trend is precisely opposite to those in earlier-cited discourses:

> The population of Giraffa camelopardalis giraffa in South Africa is increasing. Data from 13 formally protected areas show an estimated population increase of 54% over three generations (1985–2015) (…). By 2013, the number of giraffes in the Kruger National Park had increased by approximately 150% from the 1979 estimate. An even greater increase occurred on many of the estimated 12,000 privately-owned game ranches, indicating that private ownership can help to conserve the subspecies. The increase in private ownership of giraffes across South Africa and the economic interest in conserving a thriving, healthy and viable population, and by default a suitable environment for giraffes, have stimulated an increase in giraffe numbers within South Africa.[9]

While it cannot be stated that the strong increase in Giraffe numbers in one country is good news for Giraffes across Africa as a whole, this evidence does indicate that Giraffes undergoing a 'silent extinction' is exaggerated. One could perhaps argue that the confinement of a growing sub-population of the species may lead to genetic 'bottlenecking', where genetic diversity or major shocks could still lead to sudden implosion in numbers. Yet, researchers believe that this is extremely unlikely: after acknowledging and assessing these risks, Deacon and Tutchings (2019: 47) conclude their article on this 'conservation success story' as follows: "The increase in private ownership of giraffes across South Africa and the economic interest in conserving a thriving, healthy and viable population, and by default a suitable environment for giraffes, have stimulated an increase in giraffe numbers."

Other charismatic species also show uneven dynamics. The African wild dog seems to be decreasing across most of their range, though again not in South Africa where populations in private reserves, especially, are increasing (Nicholson 2020). Endangered mountain gorilla numbers in Uganda and Rwanda have been on the increase recently, despite many odds.[10] Elephant numbers seem to have taken a big hit between 2008 and 2017, with a decrease of over 30% down to 350,000. This has happened for many reasons, including competition over land and water, but mainly due to poaching.[11] According to the NGO National Parks Rescue, the situation is so severe that elephants have as little as 10 years till extinction.[12] The same, according to them, goes for the rhino, which has been under severe pressure due to a dramatic increase in poaching between 2008 and 2015. The majority of rhino were already found in South Africa, and this is where poaching was concentrated. During research on the rhino poaching crisis between 2011 and 2016, I often heard dramatic discourses about how the rhino was going extinct, sometimes indeed supposedly within 5 or 10 years (Büscher 2016).

While rhinos have taken a heavy toll, the South African Private Rhino Owners Association in 2018 wrote that rhinos on private land "is a remarkable conservation success story." They saw the numbers of rhinos on private land rise from 4000 at the start of the poaching crisis in 2008 to well over 5000 in 2014 when the crisis reached its zenith.[13] This again does not mean that rhinos are doing well across the continent, but it does show that extinction fears are not necessarily related to the actual probability of extinction. Similarly, while elephants

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[8] https://cites.org/sites/default/files/eng/cop/18/inf/E-CoP18-Inf-060.pdf, accessed 25 February 2020.

[9] Idem.

[10] https://www.iucnredlist.org/species/219/50649567; https://news.mongabay.com/2019/12/mountain-gorilla-census-reveals-further-increase-in-numbers/, accessed 27 February 2020.

[11] http://www.greatelephantcensus.com, accessed 27 February 2020.

[12] https://www.nationalparkrescue.org, accessed 27 February 2020.

[13] https://www.rhinoalive.com/white-rhino-on-private-and-communal-land-important-letter-and-questionnaire-to-be-returned-by-3-september-2018/, accessed 25 February 2020.

are clearly under strain, the fact that very large herds remain in various parts of Southern Africa, and even stable or growing numbers in several countries, including South Africa, shows that it is not realistic to say that these animals will soon go extinct, even in the face of an overall decline (Louw *et al.* 2021).[14]

To highlight one last charismatic example, the cheetah (Acinonyx jubatus) is interesting because its habitat needs are particular. Again "dramatic declines" were noted in a major article published in 2016 (Durant *et al.* 2016). This assessment emphasized that cheetahs are reliant on large territories and cannot depend on protected areas alone. And since land-use change is happening so rapidly across Africa, "a different approach may be needed to halt declines outside PAs and reduce impacts of edge effects on populations inside PAs to maintain connectivity and secure long-term viability of populations across large multiple-use landscapes." Hence, "new policy, management, and financial tools are needed that promote coexistence between people and wildlife outside and adjacent to PAs" otherwise "the future of wide-ranging and highly threatened species, such as cheetah, is in doubt" (Durant *et al.* 2016: 532). For species like cheetahs that rely on large range areas, smaller private reserves may not be able to sustain viable populations in the long term (*idem*). And while an estimated total number of 7,000 cheetahs in the wild does not mean they are near-extinct, this is a clear case where worrying species decline is linked to rapidly changing land-use across the African continent. Moreover, like with other species, there are several subspecies of cheetah – four to be precise – of which some are more threatened than others (including the Asiatic cheetah found only in Iran).

What about less high-profile examples? Extinction is not just about charismatic mammals. In fact, it is precisely the opposite (Lees *et al.* 2020). But since many non-charismatic species are not well studied (if at all), species numbers become even more problematic. Some of the available literature does suggest that many lesser-known species, including plants, have high extinction risks (UNEP 2016; Stévart *et al.* 2019). Yet here too there are rarely linear stories that end only one way; indeed, even many smaller or lesser-known species can survive in specific pockets if these are well protected, including in private reserves. This seems to be the case for reptiles in South Africa, though, again, not for all reptile species (Tolley *et al.* 2019). The point here is that generic declines and specific increases of species populations are both part of a broader context of the political economy of conservation in Africa, with South Africa playing a specific, important role. A closer look at species growth in relation to the privatization of nature helps to illuminate this broader context and the role of South Africa.

3. Species growth and the privatization of nature

The private possession and use of wildlife, through hunting, tourism, estates, ranching, private reserves and more, is often seen as an antidote to species decline (Lindsey *et al*. 2009; Wilson 2016). In South Africa, this has a very particular and prominent history, as one of the most famous instances of this argument relates to the selling of rhinos to private owners in the 1960s and 1970s as part of the boosting of rhino numbers to save it from extinction (Player 2013). This effort, led by the famous conservationist Ian Player, is widely regarded as one of the biggest conservation successes of all time, and helped to build the argument that private possession of wildlife is seen as a solution to species decline. This point was often made by influential conservationists like Ian Player and continues to be repeated frequently. Take prominent game ranchers Pamela and Peter Oberem. According to them: "the principle of 'if it pays, it stays' once quoted by prominent South African conservationist Dr John Ledger, about the future of conservation in Africa, has proven to be correct" (Oberem and Oberem 2016: 10). As a result, since the 1960s, we have seen a steady growth of private possession, management and use of wildlife in South Africa and other countries in Southern Africa and beyond (Snijders 2012). Indeed, before we go into more detail about South Africa, it is important to note that this is not just a South African phenomenon, even though South Africa plays a crucial role in the wildlife economy of the continent as a whole.

One notable illustration of an organization that has made the *de facto* privatization of parks the core of their business model is the NGO African Parks Foundation (APF).[15] APF now run 17 parks in 11 countries,

[14] https://static1.squarespace.com/static/5304f39be4b0c1e749b456be/t/57c71f5fcd0f68b39c3f4bfa/1472667487326/GEC+Results+Country+by+Country+Findings+Fact+Sheet_FINAL_8+26+2016.pdf, accessed 27 February 2020.

[15] https://www.africanparks.org, accessed 2 March 2020.

including in Niger, Chad, Central African Republic and elsewhere, which they do on a long-term lease basis from the respective governments. They claim that they are effective because they have 'pioneered' a public-private partnership model for African conservation, "whereby African Parks maintains the full responsibility and execution of all management functions and is accountable to the government, who is the owner and who determines the policy."[16] This is privatized management of public parks, with a strong emphasis on law enforcement and community engagement. According to APF, this has led to a sometimes-dramatic increase in wildlife, like for instance in the Majete reserve in Malawi:

> Decades of lawlessness and poaching had seen the reserve's wildlife completely eradicated by the 1990s. This all changed in 2003, when African Parks assumed management of Majete, the first park to enter our portfolio. We immediately began to revive the park through a series of species reintroductions. Today, Majete is flourishing, so much so that wildlife is being moved to populate other parks and private reserves within the country.[17]

Next to APF, there are also many other private reserves and conservancies, like those in Laikipia county in Kenya, including the famous Ol Pejeta (home of the last northern white rhinos; see Bersaglio and Margulies 2021) and several public parks that are de facto private-run due to the almost complete take-over of foreign management, like in the Virunga National Park in the DRC (Marijnen and Verweijen 2016).[18] In Southern Africa, countries like Botswana, Zambia and Namibia have also seen a rise in private reserves (Lindsey *et al.* 2009), which in some cases follow a long history of developing profitable, state-led wildlife economies (Mogende and Ramutsindela 2020). All this has resulted in sometimes spectacular species growth. On this basis, some analysts look to Southern Africa as an example to promote the privatization of nature elsewhere:

> Lands that were formerly dedicated to domestic livestock enterprise have converted to wildlife conservation on a grand scale (…) and southern Africa has more wildlife than 100 years ago, which stands in contrast to the declining wildlife that is owned by the State elsewhere in Africa (…). Indeed, the policy has been so successful that populations of some species are increasing exponentially (…) and a collapse in prices and numbers is possible. (Wilson *et al.* 2016: 3)

The article is referring to the large-scale transition from productive agricultural farms to game farms and private nature reserves, of which there are now an estimated 12,000 in South Africa alone.[19] As Brooks *et al*., also reflecting on this trend, note:

> Over the past two decades, private game farms have become an increasingly dominant feature of the South African countryside. The driving forces behind this move by landowners from conventional agricultural operations to various forms of wildlife-based enterprise are complex, the result of a range of global economic imperatives intersecting with local socioeconomic pressures and concerns. Clearly one of the key drivers is tourism. (Brooks *et al.* 2011: 260)

As they further emphasize, private landowners "grasped the opportunity to benefit from the growing ecotourism-based leisure market" (idem: 261) and so further experimented with various forms of the use and private profiting of wildlife. As part of this process, species growth became an explicit goal, so encouraging

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[16] https://www.africanparks.org/about-us/our-story/the-african-parks-model, accessed 2 March 2020.

[17] https://www.africanparks.org/the-parks/majete, accessed 2 March 2020.

[18] The set-up of the Virunga park is complex and although it is a national park, the private Virunga Foundation holds a lot of power in the management set-up, which Marijnen and Verweijen (2016) argue, leads to a major emphasis on marketization and green militarization of the park.

[19] https://cites.org/sites/default/files/eng/cop/18/inf/E-CoP18-Inf-060.pdf, accessed 28 February 2020. This number means a rapid growth from the 399 properties devoted to wildlife in 1974 (Snijders 2012: 92).

wildlife ranching as a related industry (Lindsey *et al.* 2009; Oberem and Oberem 2016). As noted, this became so successful that new problems started to occur:

> Legislative changes during recent decades resulted in a massive shift away from livestock towards game ranching in southern Africa, resulting in significant increases in the abundance and distribution of many wildlife species. However, there are problems associated with game ranching from a conservation perspective, including persecution of predators, overstocking, introductions of exotic species and genetic manipulation of 'huntable' species (Lindsey *et al.* 2009: 99).

In response, the authors suggest that adjoining private reserves should consider forming conservancies to overcome some of these problems. Conservancies are multiple, conjoined properties without internal fencing and can so, according to Lindsey *et al* (2009), better balance the numbers of species and be more tolerant of predators. This in turn, they and others argue, is good for ecotourism and hunting, which may stimulate local community development and 'decent jobs' as well (idem; Oberem and Oberem 2016: 11). Brooks *et al*. (2011), who have looked into this premise, are more skeptical and note many problems related to community development and jobs in the wildlife sector. This is an important issue I will come back to below. The remainder of this section first relates how and why the South African government aims to further stimulate the privatization of wildlife through the development of a broader 'biodiversity economy.'

South Africa is both highly biodiverse and the most developed country in the continent, giving it particular abilities and possibilities that allow it to further profit from wildlife (Kamuti 2015). It is 'well-developed' overall, and contains tourism infrastructures and many other (tourism) attractions to make it an appealing place to visit for many western and other tourists (Van Amerom and Büscher 2005).[20] The private wildlife industry has been strong for a long time and gaining confidence due to its growth and success. It has also led its representatives to put much pressure on the South African government to come with an enabling policy framework that would allow them to grow and develop further, become more profitable and so contribute to the South African economy and job-creation (Snijders 2012).[21] One of the responses has been the launch and development of a general policy of encouraging the growth of the South African 'biodiversity economy.' In 2016, this led to the launch of the National Biodiversity Economy Strategy (NBES; DEA 2016), which further develops distinct bioprospecting and wildlife economies. I will focus on the latter, about which former Environment Minister Molewa remarks that (DEA 2016: iii):

> Over the period 2008-2013, the total Wildlife Industry market has grown by more than 14% per year. To understand the future growth potential of this sector, it is important to first understand how this growth was comprised. This growth comprised an average annual growth exceeding 6% in domestic hunting, a decrease in international hunting, and an exponential growth in live auction sales. It is likely that the increase in the domestic hunting market would continue. International hunting has reduced since 2008, evidently as a result of the global economic crisis, and thus holds a very significant growth potential as the international economy stabilises and grows, at least on par with domestic hunting. The growth in live auction sales has experienced unprecedented growth over the past 5 years, mostly likely driven by new investments in the Wildlife Industry. It is likely that this market segment will stabilise and that annual growth will thus also stabilize at normal levels. Based on these figures, it is likely that the consolidated

[20] The numbers of non-western tourists, including from the middle east, India and other parts of Asia, but also elsewhere, has increased over the last years, though not in large numbers. See: https://www.southafrica.net/gl/en/corporate/page/international-tourist-arrivals-report, accessed 20 July 2021. All numbers have seen dramatic declines in 2020 and 2021 due to the SARS-CoV-2 pandemic.

[21] This was very visible, for example, during the 2016 CITES conference of parties in Johannesburg, attended by the author, where private wildlife spokespeople were very active in pushing discourses to get the government to act to facilitate and enable the industry.

> Wildlife Industry has the potential to experience a weighted average annual growth rates between 4 %-14 % per year over the next 14 years.

What is important about the 97-page NBES is that it is not just an overarching government strategy for the biodiversity sector. Rather, it aims to transfer this entire sector into a broader *economy* across the agricultural, eco-tourism and conservation domains that is supposed to play an important part in the South African economy as a whole (DEA 2016: 18). Moreover, it aims to build income-earning opportunities for poor, rural populations and so tie significant segments of society into a broader economy dependent on biodiversity and (the growth of) wildlife. This is clear from the executive summary (DEA 2016: v): "NBES has set an industry growth goal stating that by 2030, the South African biodiversity economy will achieve an average annualised GDP growth rate of 10% per annum. This envisioned growth curve extends into the year 2030 and is aligned to the efforts of the country's National Development Plan, Vision 2030." To achieve this and ensure poverty reduction and job creation, the strategy has a strong vision for turning rural marginalized people into neoliberal entrepreneurs, as emphasized by Minister Molewa's forward (DEA 2016: iii-iv):

> This Strategy will not only assist South Africa's transition to Green Economy, but will also play a bigger role for livelihoods in job creation and poverty reduction, especially for rural communities, as most of the indigenous biological resources surrounds these communities. This Strategy will also play a major role in the transformation of the economy by motivating marginalised individuals to start their own biodiversity-based enterprises, as well as enhancing the entrepreneurial spirit of current players in the sector, thus, creating an appreciable and sustainable economic presence.

As so often, this neoliberal discourse and the grand 'economy of expectations' attached to it are starkly different from the realities they purport to intervene in and transform. Below, I will touch on several of these. For now, it is important to emphasize that investment in and pressure on the sector to grow is expected to continue to increase tremendously in the coming decade. Indeed, the government and the 'wildlife forum' it has established, have already gone all out to organize several 'biodiversity economy indaba's' (meetings)[22], publish research and strategy documents, bring players together and develop marketing and publicity materials, including to convince 'marginalized individuals to start their own biodiversity-based enterprise', as illustrated in Figure 1.

Whether or how this wildlife economy works out and meets the expectations, especially given the dramatic disruptions to 'conservation business as normal' due to the SARS-CoV-2 pandemic, is an important question I will return to. Important for now, however, is that when an entire economy is being built on the premise of tradable, visible, exploitable and augmentable wildlife, it must ensure that this wildlife is indeed available and abundantly so. Short of a (perhaps not unthinkable) disaster like a super virus that kills most wildlife, it therefore seems likely that there will be a lot of investment in ensuring not just the survival of species, but indeed the growth and adequate population management of species, including on genetic levels. This became clear in July 2020 when the South African Department of Environment, Forestry and Fisheries announced a 'reprioritization' of its budgets for a 'nature-based post Covid-19 recovery.' As the Minister announced, because of the "the important role that the biodiversity economy plays in the country's development plan", substantial investments are made into the sector to ensure the 'sustainability of our protected areas' as well as "the future sustainability of our contribution to nature-based tourism and its longer term employment potential."[23] A year later, in May 2021, the Minister concretized the expected results: "The Biodiversity Economy is expected to create 110,000 new jobs by 2030 and contribute an additional R47 billion to GDP."[24]

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[22] https://www.environment.gov.za/event/deptactivity/3rdbiodiversity_economyindaba, accessed 28 February 2020.

[23] See https://www.environment.gov.za/mediarelease/creecy_covid19revised_budgetvote202021, accessed 19 August 2020.

[24] https://www.gov.za/xh/node/806695, accessed 21 July 2021.

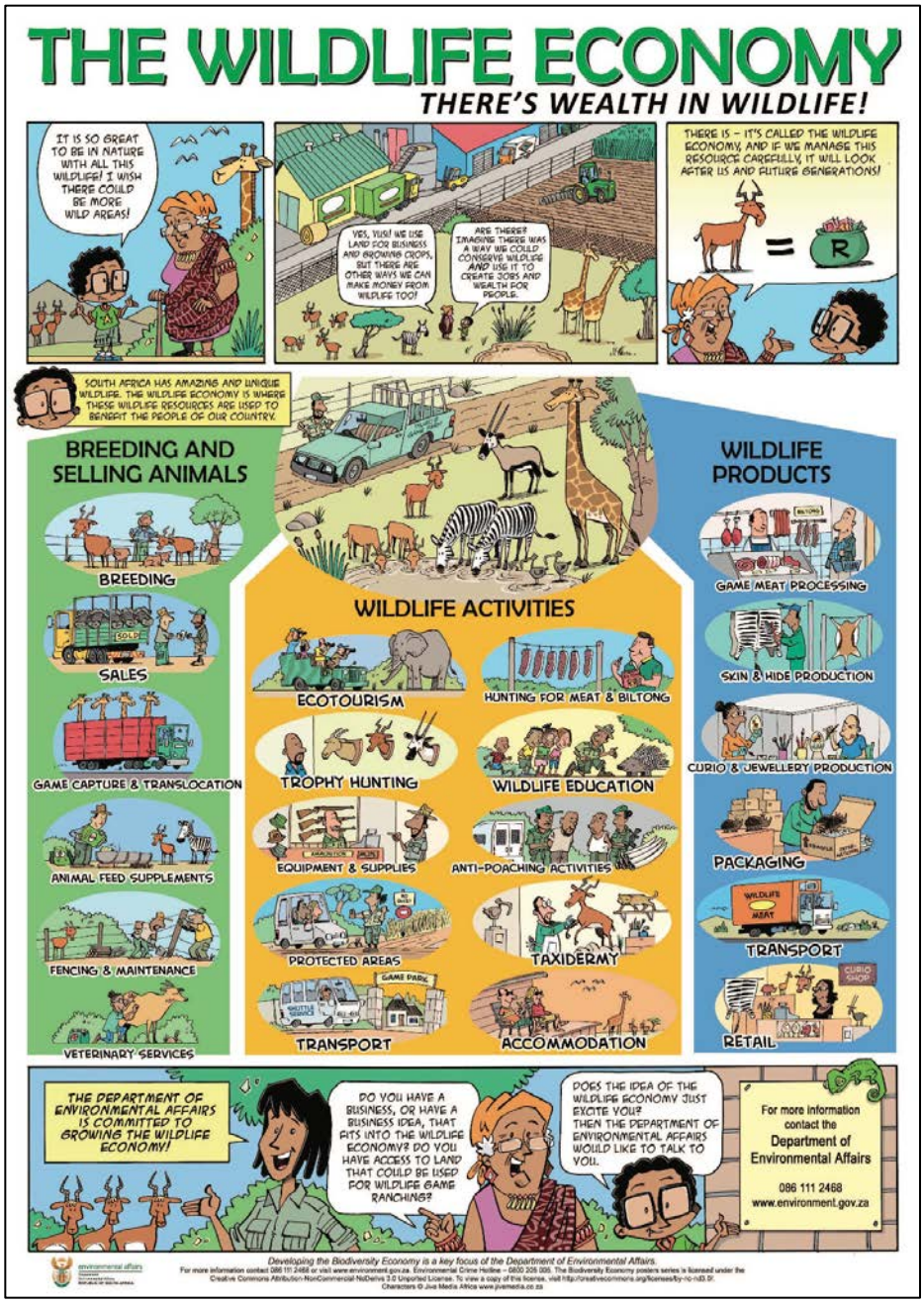

Figure 1: DEA leaflet on the wildlife economy. Source: https://www.environment.gov.za/event/deptactivity/3rdbiodiversity_economyindaba

Hence, instead of tempering high expectations in the face of potential major disruptions, the SARS-CoV-2 crisis is used to further intensify the pressure on the biodiversity economy. Consequently, it stands to be assumed that the biopolitics of wildlife in South(ern) Africa will also intensify drastically, and that this may indeed lead to thriving and growing wildlife populations in many different reserves in the region (with potential knock-on effects following the translocation of animals from South Africa to reserves in other parts of Africa).

At the very least, it will be highly unlikely that the major charismatic species this entire industry depends on, including the lion, elephant, giraffe, rhino and others, will go extinct soon. What seems more likely is that they will become more concentrated into distinct regions that contain highly 'stocked', intensely managed reserves. One of the most prominent of such regions is the Hoedspruit area in the Greater Kruger region.

4. Hoedspruit: the wildlife haven

Hoedspruit is a small village west of the Kruger National Park (Figures 2 and 3). A quiet backwater only 20-25 years ago, Hoedspruit has grown rapidly into the center of the most important wildlife economy region in South Africa (Thakholi 2021b). The town calls itself a 'wildlife haven' and is surrounded by private nature reserves and smaller, so-called 'wildlife estates': fenced lifestyle estates where one can live surrounded by wildlife.

It is these wildlife estates and surrounding private reserves and its proximity to the Kruger Park that has allowed the town to grow massively and rapidly.[25] Different types of people, including investors, pensioners, wildlife professionals but also families, have purchased houses in these estates and also started investing in Hoedspruit, including building schools, restaurants, shops and other infrastructure, which drew further development and people.[26] Most major South African real-estate companies have offices in Hoedspruit and advertise 'environmental', 'safe' and 'peaceful' living in a town with all necessary modern amenities, including a small airport.[27] Still, the major attraction for the region is how the Kruger National Park works as a 'capital-multiplier.' Take Blyde Wildlife Estate, one of several wildlife estates close to Hoedspruit:

> Only 65 km from Blyde Wildlife Estate is Kruger Nationalpark *[sic]*, which not without reason is South Africa's proudest and main visitor attraction. With its 20,000 km² we are not only talking about the country's largest safari area, but also the largest game reserve in the world, which can muster the largest concentration of mammals including approx. 8,000 elephants, 2,500 white rhinos, 13,000 gnus and 900 sable antelopes just to mention a few. Here we are talking about the world's largest interconnected natural areas, where the wildlife can live undisturbed by man under protected conditions.[28]

While these claims are hard to verify and probably quite unsubstantiated, the broader point for this article is not whether these numbers about species match exactly with reality. It is rather that the dense and growing numbers of wildlife reserves and estates, the large ecotourism sector and the very lively wildlife ranching sector in the area all make for a large focus on species breeding and growth in species numbers. Indeed, in several interviews, it was explicitly mentioned that many reserves are more about stocking and sometimes even 'overstocking', than about conservation.[29] One estate agent even referred to this as the 'dark side' of the estates. This 'dark side' of (over)stocking is specifically related to the above-mentioned charismatic species as well as the ungulates they live with and prey on. This again shows that in selected pockets of the continent, strong species growth is not only happening but the basis for a broader economy more generally. It also further increases the pressure to ensure that at least the main charismatic African savannah species will not go extinct.

Due to all these factors, it is also clear that the Hoedspruit area, as part of the Greater Kruger region, is critical within the broader South African Wildlife Economy Strategy (DEA 2016: 9). It is where much capital is based, where different activities come together and from where many important players in the wildlife

[25] These wildlife estates are part of a larger trend in South Africa of the development of 'eco-estates' around major urban centres that also focus on nature-based lifestyles for 'largely white elites' (Ballard and Jones 2011).

[26] Interview real-estate developer, 11 January 2017, Hoedspruit, South Africa. See also Thakholi 2021b.

[27] See, for example, https://www.remax.co.za/property/for-sale/south-africa/limpopo/hoedspruit/, accessed 4 March 2020.

[28] http://www.blyde.dk/the_area.html, accessed 23 April 2017.

[29] Interview estate agent, 10 January 2017, Hoedspruit, South Africa. Oberem and Oberem (2016) also talk about (over)stocking being an issue in wildlife ranching, though others question the extent to which this takes place as they believe this would be an example of 'bad management' (interview by Dr. Stasja Koot with wildlife consultant and Hoedspruit resident, 10 November 2017). Thanks to Dr. Koot for permission to refer to this interview.

economy operate. In the next Section, I will reflect on what this means in terms of the broader wildlife geographies and the question of extinction in Africa as a whole. For now, I want to discuss what the article alluded to several times already: whether the booming wildlife economy can live up to its social expectations, especially in relation to community development and upliftment.

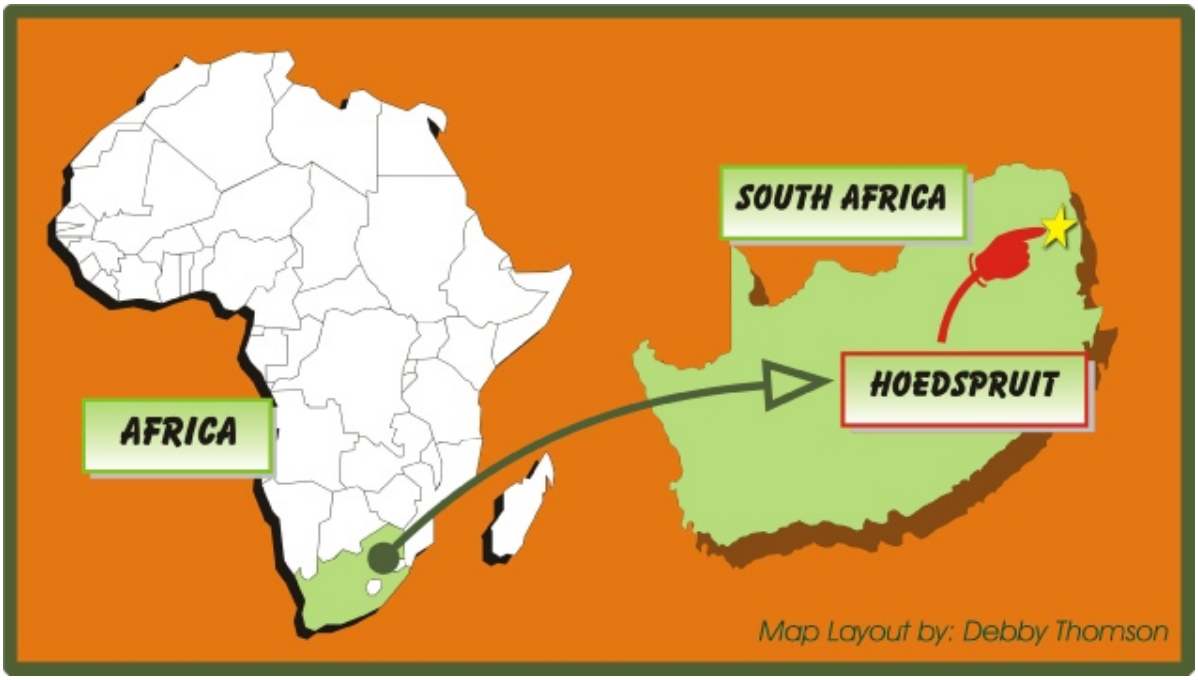

Figure 2: Hoedspruit location overview. Source: http://www.hoedspruit.co.za/contextual.html

Based on research since 2016 in this region by myself and colleagues, especially the research done by Lerato Thakholi (see her article in this special issue: Thakholi 2021a; also Thakholi 2021b), it is clear that the social situation in the Hoedspruit area is dire and highly unequal in racialized but also gendered ways. As Thakholi details in her article, unemployment is high (higher than the national average), the general forms of labour and jobs in the wildlife economy are poorly paid, highly insecure and come with much pressure and anxiety. One major source of this anxiety is that laborers in the private wildlife industry have started to be regularly polygraphed because of measures to curb rhino poaching, which escalated in the late 2000s (Thakholi 2021b: 7). All this comes within a context that is highly skewed in favor of white investors and national or global elites *vis-à-vis* local black people who have been historically dispossessed (Thakholi 2021a; Koot 2021; see also Mogende and Ramutsindela 2020, for a similar argument about Botswana).

The critical element undergirding these dynamics is (access to) land. All the land around and in Hoedspruit town is private and mostly in the hands of wealthy whites. This was mentioned, for example, by a staff officer from the local municipality:

> The only challenge is land; the moment that there is land, the town can grow; the reason why we don't have land is that the whites don't want to sell the land, they want to control the town; Hoedspruit is unique in that there is no township settlement, but if we would have that we could promote work much more; but also for people to work where they live and vice-versa; and then they don't have to take the buses, which also impact the environment. And the thing of traveling also causes lots of accidents; so it really has a negative impact on people.[30]

[30] Interview Staff Officer Maruleng Municipality, 12 May 2017, Hoedspruit, South Africa

As this staff officer also mentions, there is no space for low-cost housing, which means that most of the people who work in and around Hoedspruit's wildlife economy have to be bussed in and out every day from two former homeland areas called 'The Oaks and the Willows' and the Bushbuckridge area, both of which are about 30-40 km away. This leads to further insecurity, road safety hazards, as well as high transport costs for many laborers, which takes away from their already meagre salaries.

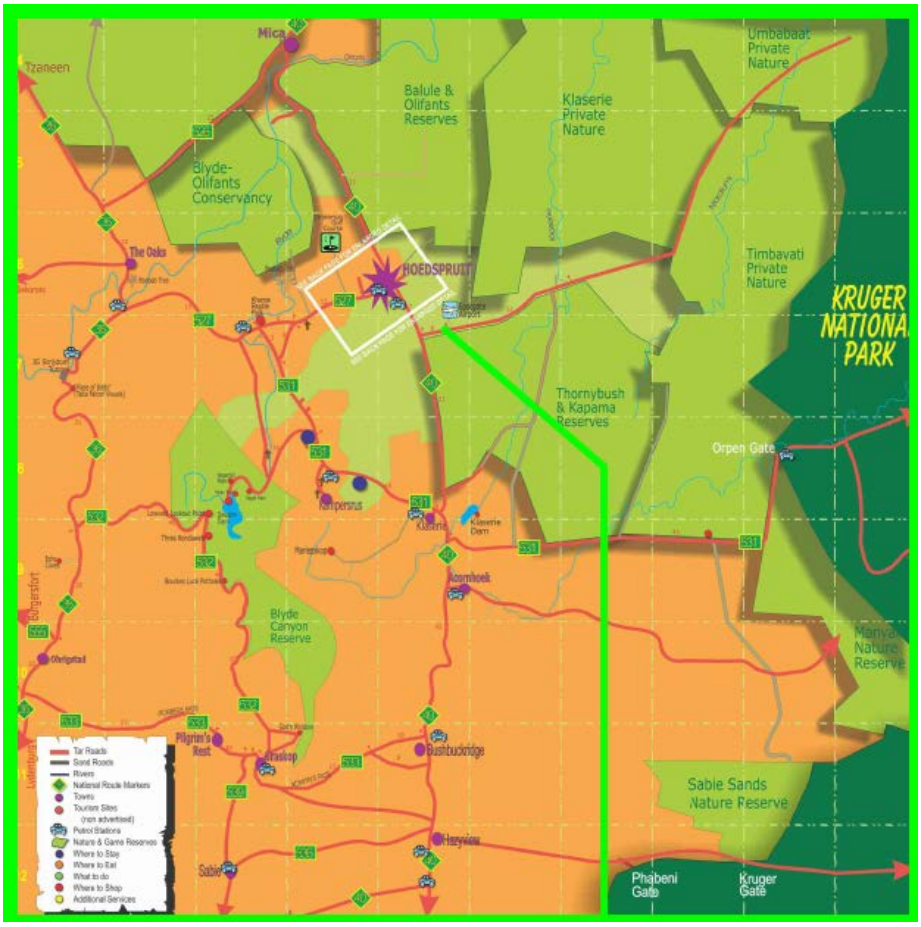

Figure 3: Hoedspruit location detail. Source: http://www.hoedspruit.co.za/recommended.html

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The situation is therefore quite desperate in the area, leading Thakholi (2021a; 2021b) to refer to this as a socio-economic crisis situation. Yet, many whites in the area do little to *fundamentally* change the situation. One influential real-estate mogul was blunt about this, stating in an interview: "we have the former homelands, Oaks and Willows and Bushbuckridge, where people stay and own land, so they want to return there, and don't really want to live in Hoedspruit, so this enables Hoedspruit to remain as it is, which is a good thing."[32] Another example comes from Zandspruit wildlife estate, a more upmarket estate in Hoedspruit. Whilst doing a tour of the property with one of the developers, I was told that the owner got lucky in buying the property even though it could have been bought by the municipality, which ended up not happening. This, according to the developer, was very fortunate, because the other plan for the area was to develop low-cost housing, and this, according to him, "would have killed the town." He continued by saying that if the land would have been bought by the municipality, there would have been a massive influx of poor people and that it would have been a 'mess with too many houses' and 'chaos.' He concluded that it was fortunate that this did not happen.[33]

The skewed land ownership was a key issue throughout my research in the area, and how this stopped the municipality from providing housing for poorer segments of society, leading to a form of 'green apartheid' where social and racial divisions are extremely stark (Koot *et al.*, in submission). This strong statement is further reinforced by research findings that indicated that the social benefits from the wildlife economy are deeply racially skewed and that there are few black 'entrepreneurs' able to develop significant businesses as per the DEA leaflet above, although there are obviously some.[34] Most black entrepreneurs continue to depend on low-wage activities, like selling curios or other forms of informal labor. And while this does not mean that black entrepreneurs are (always) rejected, the ones able to move from marginalized and low-income activities to the center of the wildlife economy in the Hoedspruit area seem to be few.

All this should not be surprising, certainly not to those who study the broader South African post-Apartheid context, where dire social situations and inequalities continue to be rife, and have sometimes worsened in recent years (Von Schnitzler 2016; Marcatelli and Büscher 2019). It is also not surprising in the context of broader theories of uneven capitalist development (Harvey 2006; Smith 2008). One of the core elements of these theories is that capitalist development is characterized by social and other forms of unevenness, and that these map onto other (racialized, gendered, historical) forms of unevenness. In the case of the wildlife economy in the Hoedspruit area, this leads to a situation where the profitability of the wildlife economy is enhanced by the presence of a large surplus population of marginalized people, desperate for any form of income. Even worse, as I have shown, influential segments of the white wildlife economy elite deliberately try to keep it that way. Yet this is but one element of the broader intensification of uneven wildlife geographies in Africa.

5. The intensification of uneven wildlife geographies

How do the above empirical dynamics fit within a broader political ecology of wildlife decline and extinction fears in the continent as a whole? I argue that these uneven dynamics are a logical part of the capitalist intensification of uneven wildlife geographies in Africa. This has two main elements: the overall push for the further integration of Africa into broader patterns of global capitalist development, and the role that wildlife and related sectors play in this. The first relates to the dynamic of the 'New Scramble for Africa' that many have written about (Carmody 2017) and that itself is an intensification of older colonial and postcolonial dynamics of exploitation of Africa and its resources (Rodney 1972; Büscher 2012; Mbembe 2016). These historical and

[32] Interview real-estate developer, 11 January 2017, Hoedspruit, South Africa.

[33] Participatory observation, Zandspruit estate, 30 August 2017, Hoedspruit South Africa.

[34] See, for example, https://hoedspruit.net/tours/wild-olive-tree-camp/, accessed 21 July 2021.

contemporary global dynamics of accumulation are critical to place the ongoing 'New Scramble' in context, as argued by Ayers:

> Integral to this worldwide strategy of accumulation have been profound changes in the social, technical and spatial organisation of capitalist production, encompassing three interconnected processes: firstly, manifold defeats of labour and the emergence of new chasmic levels of inequality; secondly, a shift to lean production and industrial restructuring; and thirdly, the spatial reorganisation of global capitalism and intensified processes of 'primitive accumulation' (…). It is in such interconnected processes, particularly the spatial reorganisation of global capitalism and intensified processes of primitive accumulation, the article contends, that the 'new scramble for Africa' is to be more adequately understood. (Ayers 2013: 237)

It follows that the ongoing scramble for Africa as part of the intensifying capitalist uneven development of the continent has major consequences for land use and for the environment, broadly defined. With increasing industrialisation, trade, infrastructural and general (though highly uneven) economic development across the continent, lands for conservation and species are under increasingly intense pressure. According to UNEP's 2016 regional assessment for Africa:

> Major threats to biodiversity in Africa include habitat destruction, deforestation, habitat conversion and disturbances such as habitat fragmentation, overexploitation of some species, invasive alien species, pollution, and climate change and variability. Changes in land use and lack of appropriate land-use planning contribute to loss of habitats and biodiversity. Agricultural expansion (…), establishment of settlements in biodiversity-rich ecosystems and sensitive areas, expansion of livestock into wildlife management areas, excessive collection of firewood and construction materials, and illegal exploitation of wildlife also contribute to biodiversity loss. Invasive alien species of both plants and animals are a serious threat to local biodiversity in the region/ (UNEP 2016: 78)

Similarly, the recent IPBES (2018: 249) assessment for Africa:

> Africa's development outcomes for the coming decades will be determined by a number of drivers of change, and the policy changes adopted by African countries in response to changing world conditions (…). Cumulatively, these drivers are likely to create dramatic changes for the African continent and the global environment with which the continent interacts. Africa has some of the most abundant natural resources in the world, including its biodiversity. The continent's development trajectories are projected to increase impacts on ecosystems. Economic growth, through production and consumption chains, human settlements and infrastructure development, will be a key driver of change. Many states in Africa have a vision to become emerging economies in the coming decades. This is compounded by rapid population growth and urbanisation, policy and cultural changes, and global resource demand especially for food, energy, water and other extractives. With increasing raw material extraction for economic growth and weak institutional arrangements, countries in Africa are experiencing unprecedented rate of resource exploitation in recent time.

These two reports show in great detail how Africa's further and deepening integration into global accumulation processes, as well as choices made by African governments and people in this process, lead to massive environmental challenges and, indeed, threats to and decline of species. At the same time, the two reports also

highlight the role that wildlife in Africa can play in further stimulating accumulation processes. The executive summary of the IPBES (2018: xii) for Africa starts paradigmatically in this regard:

> Africa's extraordinary richness in biodiversity and ecosystem services, and wealth of indigenous and local knowledge, comprises a strategic asset for sustainable development in the region. *Africa is the last place on Earth with a significant assemblage of large mammals*. Africa has significant regional, subregional and national variations in biodiversity that reflect climatic and physical differences, as well as the continent's long and varied history of human interactions with the environment. This natural richness, accumulated over millions of years, coupled with the wealth of indigenous and local knowledge on the continent, is central to, and constitutes a strategic asset for, the pursuit of sustainable development in the region (*emphasis added*).

This discourse follows a long genealogy of 'African exceptionalism' discourses that sought to frame Africa's charismatic animal species as the basis upon which the continent can build its wealth and place in the global capitalist economy (Snijders 2012). Many of these discourses go further still, by focusing more on Africa's charismatic animals than its people. In fact: the latter are often even blamed for the decline of species (Hughes 2010; Büscher 2011). In all of this, the spectres of crisis and extinction are critical, for two important reasons. **First**, they legitimate outside intervention into Africa's wildlife conservation and geographies. Extinction fears urge and inspire action and intervention, often violently so (Adams 2004; Massé and Lunstrum 2016; Duffy *et al.* 2019). **Second**, crisis and extinction make Africa's charismatic animals and ecosystems even more valuable. Extinction fears, in this logic, are very useful, something that Graham-Rowe (2011: s103) also points at:

> Perhaps the most disturbing notion is the prospect that people might trade in endangered animals as a means of "investing in extinction." This is the idea that by actively buying up and stockpiling rare animal parts, one can not only push up the price, but also encourage further poaching that will eventually force the species into extinction. In cold-blooded business terms it makes an awful lot of sense, says John Scanlon, secretary-general of CITES in Geneva, Switzerland. "If something is rare it becomes more attractive," he says. "And the rarer something is, the more valuable it becomes."

According to this same logic, the private possession or commodified management of conservation spaces and its (over)stocking of species may actually benefit from an overall decline of charismatic species across the continent as a whole. As the number of charismatic species declines across the continent, it increases the value of well-stocked, privately conserved lands, providing their owners with unique sources of profit and revenue. In other words, the capitalist intensification of uneven wildlife geographies in Africa sits logically in between (over)stocking and extinction; it is the fear and possibility of the latter that makes the former so valuable. The paradoxical consequence is that actual extinction is not likely to happen in the foreseeable future for most charismatic African species, though it does not mean that their long-term future is certain either. In the conclusion I reflect and speculate on why this is so.

6. Conclusion

In this article I have brought together two recent trends in conservation debates and realities in Africa: the increasingly visible decline of charismatic species such as the rhino, elephant, cheetah, lion, giraffe and others and the less visible simultaneous growth of wildlife species, most notably through the (over)stocking of private reserves. One of the main points I have stressed is that the dramatic extinction fears and discourses that surround African charismatic animals are not just often exaggerated, but that they play a crucial role in the

rendering valuable of the private exploitation of these same animals.[35] This may also mean that most conservation players involved in the privatization of wildlife and the building of broader 'wildlife economies' have little incentive to question the rapid, uneven integration of Africa into the global capitalist economy. They may, like the IPBES and UNEP reports, lament the unfortunate social and environmental effects that this integration has, but not question its fundamental legitimacy or even its necessity.

To the contrary: they may even further emphasize the necessity of uneven development through the full integration of Africa into global capitalism so that other countries and regions may become more like South Africa, where capital believes it can manage the problems that bestow Africa's charismatic animals. In this neoliberal discourse of seeing challenges as 'opportunities', the decline of species in many parts of Africa due to large-scale land-use change is precisely the argument that is used to stimulate further privatization of wildlife and a concomitant neoliberalization of conservation. Yet this does not mean that the actual consequences of this integration and its detrimental social and environmental effects can remain hidden, even though private wildlife conservation is remarkably good at this (Thakholi 2021a). As Adams and Hutton (2007: 165) stated some time ago, "global discourses of extinction bear directly on local issues of rights and human welfare." In the case of the Hoedspruit area, the socially detrimental costs of the booming wildlife economy were not just right under the surface, but indeed underpin the entire edifice. Besides the moral and social horrors of these costs themselves, this renders the edifice very socially unstable for the longer term. This also shows that my argument in this article is not simply that unevenness is 'spatial.' Besides the incredible spatial unevenness in the extinction of species, with extinction in certain parts mirrored by abundance in other parts of Africa, the unevenness is social and political as well.

A similar argument could be advanced for the environmental costs of the further capitalist integration of Africa into the global political economy. While this may stimulate both the decline and the growth of species through a reshuffling of uneven wildlife geographies across the continent, it is not obvious that this is a stable long-term configuration. To the contrary, it seems remarkably unstable in myriad ways, including by taking into account the specter of climate change. All this, *pace* Harvey (2014: chapter 16), does not mean that we can or should expect a generic environmental collapse at some point soon in Africa. It does mean that the highly contradictory and ironic trends in wildlife conservation in Africa may intensify for quite a while to come. Whether and how these will at some point lead to broader tipping points that lead to the extinction of some species is uncertain and cannot be ruled out. But more likely in the short to medium-term, according to my analysis, might be a process of uneven degradation and destruction amid pockets of the exact opposite. The dangers in this more nuanced picture are perhaps not 'spectacular' yet therefore arguably more worrying. They signal the further development and intensification of a deeply unsustainable and crisis-prone constellation that is both highly conducive *and* vulnerable to major disruptive events. The SARS-CoV-2 pandemic that is far from over at the time of writing (August 2021) is but one and arguably relatively mild example of this.

Coming to grips with these dangers and their relations to extinction processes is critical. To do so, the further development of a political ecology of extinction is necessary: one that takes extinction processes seriously, but as part of a critique of broader processes and histories of uneven capitalist development.

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Ice and Ivory: the cryopolitics of mammoth de-extinction

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Abstract

Woolly mammoth tusk hunting has become a black-market industry in the Siberian region of Yakutia, where thawing permafrost due to climate change is revealing the bodies of thousands of mammoths. They are often in a state of incredible preservation, and their accompanying tusks can be sold to China where they are carved into ornaments as a marker of status. Alongside tusk hunting, another potential industry has emerged: de-extinction. Many of the mammoths found on the tundra have potentially viable DNA that might be used to resurrect a mammoth through genetic technology. Mammoth de-extinction is a cryopolitical process – a focus on the preservation and production of life at a genetic level through cold storage. 'Cryobanks' have emerged as a way to safeguard endangered and extinct species' genetic material, and forms part of a turn towards pre-empting conservation crises during what some scholars are calling the 'sixth great extinction.' The mammoth's body is broken down into pieces – tusks form luxury commodity chains, whilst flesh and blood is parceled into frozen genes and cells. The mammoth in the freezer is indicative of a reorganization of cold life in a warming world, with the specific cryopolitics found in the cryobank an attempt at extending human control over planetary processes that are now seemingly out of control. Drawing on fieldwork undertaken at the Mammoth Museum in Yakutsk, Siberia, and at the Natural History Museum's cryobank in London, I follow the mammoth from permafrost, to freezer, to back outside, and consider how her de-extinction is a response to a particular sort of future crisis – that of our own extinction.

Key Words: De-extinction; permafrost; Arctic; cryopolitics; rewilding

Résumé

La chasse aux défenses de mammouth laineux est devenue une industrie de marché noir dans la région sibérienne de Yakoutie, où le dégel du pergélisol dû au changement climatique révèle les corps de milliers de mammouths. Ils sont souvent dans un état de conservation incroyable, et leurs défenses peuvent être vendues en Chine où elles sont sculptées en ornements comme marqueur de statut. Une autre industrie potentielle a maintenant émergé : la « dé-extinction ». Certains des mammouths trouvés dans la toundra ont un ADN potentiellement viable qui pourrait être utilisé pour ressusciter un mammouth grâce à la technologie génétique. La désextinction des mammouths est un processus cryopolitique – la préservation et la production de la vie à un niveau génétique grâce à l'entreposage au froid. Les « cryobanques » sont apparues comme un moyen de sauvegarder le matériel génétique des espèces menacées et éteintes. Ils font partie des efforts visant à éviter les crises de conservation pendant la soi-disant « sixième grande extinction ». Le corps du mammouth est décomposé en morceaux – les défenses forment des chaînes de produits de luxe, tandis que la chair et le sang sont fragmentés en gènes et cellules congelés. Le mammouth dans le congélateur est révélateur d'une réorganisation de la vie froide dans un monde en réchauffement, et la cryopolitique spécifique trouvée dans la cryobanque est une tentative d'étendre le contrôle humain sur des processus planétaires qui sont maintenant apparemment hors de contrôle. En m'appuyant sur des travaux de terrain entrepris au Mammoth Museum à Yakutsk, en Sibérie, et à la cryobanque du Natural History Museum à Londres, je suis le mammouth du

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pergélisol, au congélateur, jusqu'à l'extérieur. Je considère comment sa désextinction est une réponse à un type particulier de crise future – celle de notre propre extinction.
Mots clés: Dé-extinction; permafrost; Arctique; cryopolitique; ré-ensauvagement

Resumen

La caza de colmillos de mamut lanudo se ha convertido en una industria del mercado negro en la región siberiana de Yakutia. El deshielo del permafrost está dejando al descubierto los cuerpos de miles de mamuts. A menudo están muy bien conservados, y sus colmillos pueden venderse a China, donde se tallan en forma de adornos como marcador de estatus. Ha surgido otra industria potencial: la de la desextinción. Mamuts con ADN potencialmente viable que podría utilizarse para resucitar un mamut mediante tecnología genética. Se trata de un proceso "criopolítico", centrado en la conservación y producción de vida a nivel genético mediante el almacenamiento en frío. Los "criobancos" han surgido como una forma de salvaguardar el material genético de especies extinguidas y en peligro de extinción, y un esfuerzo por evitar la "sexta gran extinción" y las crisis de conservación. El cuerpo del mamut se descompone en trozos: los colmillos forman parte de las cadenas de productos de lujo, mientras que la carne y la sangre se parcelan en genes y células congeladas. El mamut en el congelador es indicativo de una reorganización de la vida fría en un mundo que se calienta. La criopolítica específica del criobanco es un intento de ampliar el control humano sobre los procesos planetarios que ahora parecen estar fuera de control. Basándome en el trabajo de campo realizado en el Museo del Mamut de Yakutsk (Siberia) y en el criobanco del Museo de Historia Natural de Londres, sigo al mamut desde el permafrost hasta el congelador y de nuevo al aire libre. Considero que su desextinción es una respuesta a un tipo particular de crisis futura: nuestra propia extinción.
Palabras clave: Desextinción; permafrost; Ártico; criopolítica; rewilding

Абстракт

Охота на бивень шерстистого мамонта превратилась в отрасль черного рынка в сибирской Якутии, где таяние вечной мерзлоты из-за изменения климата обнажает тела тысяч мамонтов. Они часто находятся в состоянии невероятной сохранности, и их бивни могут быть проданы в Китай, где украшения из кости служат индикатором общественного статуса. Наряду с охотой на бивень возникла еще одна потенциальная отрасль: де-вымирание. Многие из мамонтов, найденных в тундре, имеют потенциально жизнеспособную ДНК, которая может быть использована для воскрешения мамонта с помощью генетических технологий. Де-вымирание мамонтов – это криополитический процесс, в котором основное внимание уделяется сохранению и производству жизни на генетическом уровне посредством холодного хранения. «Криобанки» возникли как способ защиты генетического материала исчезающих и вымерших видов и являются частью поворота к предотвращению природоохранных кризисов во время того, что некоторые ученые называют «шестым великим вымиранием». Тело мамонта разбивается на части: бивни образуют сети товаров роскоши, а плоть и кровь разделяются на замороженные гены и клетки. Мамонт в морозильной камере свидетельствует о реорганизации холодной жизни в теплеющем мире, при этом специфическая криополитика криобанка является попыткой расширить человеческий контроль над планетарными процессами, которые теперь как кажется вышли из-под контроля. Опираясь на полевые исследования в Музее Мамонта в Якутске, в Сибири, и в криобанке Музея Естественной Истории в Лондоне, я следую за мамонтом, от вечной мерзлоты до морозильной камеры и обратно, и рассматриваю, как де-вымирание мамонта является ответом на особый вид будущего кризиса – кризиса нашего собственного вымирания.
Ключевые слова: де-вымирание; вечная мерзлота; Арктика ; криополитика; возрождение дикой природы

1. Introduction

The region of Yakutia in North-East Russia is the size of India but has a population akin to that of Belgium. It is also one of the coldest inhabited places on Earth, with its capital Yakutsk regularly registering temperatures of -50°C, and much of its Northern tundra reaches lying beyond the Arctic Circle. Almost all its landmass is permafrost – that is, soil that is permanently frozen. Lately, however, things have been changing: record high temperatures in the summer months, wildfires raging through the larch forests of the *taiga*, permafrost thawing, the ground slumping and buckling, causing huge damage to the infrastructure that was

built on the assumption the ground would remain stable – *permanently*. Meanwhile, in March 2020, the Russian government published a new Arctic strategy which set out a hugely ambitious – and destructive – plan for exploiting the region's vast resources: an Arctic shipping route that banks on an ice-free Arctic Ocean, plans for oil and liquid natural gas extraction, plus the infrastructure necessary to facilitate it (Putin, 2020). The situation in the Russian Arctic encapsulates the fundamental paradox of the proposed new geological epoch of the Anthropocene: that humans are now the dominant geologic agent that affects Earthly processes, but the consequences of those actions are threatening human – and other species' – survival on the planet.

Every summer, groups of men – mostly Indigenous – head deep into the Yakutian tundra and likely will not return until the autumn. They are after the ivory from mammoth tusks, once locked deep within frozen permafrost, now becoming more and more accessible with increased thaw. There are officially sanctioned tusk hunts, but most of the hunters operate illegally with the use of a high-powered water canon to blast through mushy permafrost and make tunnels. These tunnels are dangerous, liable to subsidence and mudslides, but the deeper they go, the greater the chances to strike white gold. A single tusk can sell for eye-watering amounts, travelling from tusk hunter to buyer to Chinese markets, carved into ornaments, shaped into jewelry, displayed in homes as markers of status.[2] Hunters who find big, intact tusks can expect riches far beyond the average monthly salary of Yakutia (around US$500); hunters who find nothing – most of them – will more than likely lose money. Tusk hunting is a gamble, but the allure of striking it big is enough to see hunters return summer after summer.

Tusk hunters are not the only ones on the lookout for wooly mammoths (Mammuthus primigenius). The controversial new science of de-extinction purports that extinction no longer be forever; as long as genetic material exists in a form that is not highly degraded, it is possible to resurrect – in theory – extinct species, either by cloning an intact cell, or by a process of hybridization that plugs the genetic features of the extinct creature into the genome of a taxonomically similar one (Shapiro, 2016). There are currently two main laboratories actively working on de-extinction science: geneticist George Church's laboratory at Harvard University, which uses CRISPR technology to cut and splice genes[3], and Sooam Biotech in Seoul which is following the cloning method. The mammoth is one of the top candidates for de-extinction, despite having been extinct for several thousand years; the reason mammoth DNA has not degraded to the point of uselessness for de-extinction is because it has been preserved by permafrost. Ultimately, the goal is to return a de-extincted mammoth to her former territory in Siberia.[4] A rewilding project on an isolated patch of tundra in North-Eastern Yakutia is attempting to restore the prehistoric 'mammoth steppe' ecosystem. Called the Pleistocene Park in a nod towards pop-culture's most famous de-extinction project, the idea is to mitigate permafrost thaw by way of large herbivores trampling the soil to keep it frozen, stimulating a grassland that reflects solar radiation. Ironically, it is the thawing of permafrost that reveals these mammoths – sometimes in the form of almost whole bodies, so well preserved they look as if they are sleeping. As the ground slumps and collapses in on itself, mammoth flesh is exposed to air that rots and degrades.

To counter the destructive outcome of melting – and, indeed, warming in general – DNA must be preserved through artificial freezing systems. Conservationists are increasingly turning to frozen safeguards as a sort of stopgap solution until better technology or resources become available (Edesi *et al*., 2020). This is largely a response to a biodiversity crisis that some ecologists are calling the 'sixth great extinction' – the first one attributed to human activity (Ceballos *et al*., 2015) – and might be termed 'crisis conservation.' Putting species DNA and genetic material 'on ice' acts to diffuse the fraught immediacy of endangered species

[2] Carved ivory ornaments are a status symbol in China and the country occupies the dubious honour of being the world's largest ivory trade (Myers, 2017). After its 2018 elephant ivory ban, the Chinese market turned to mammoth ivory to plug the gap. Whilst this move may have had a positive impact on elephant poaching elsewhere in the world, the forces of capitalism make themselves known in other arenas – in this case, the thawing permafrost of Siberia by which the mammoth's body is renegotiated as a luxury commodity.

[3] CRISPR is a gene editing software that hugely speeds up the process of sequencing and splicing genes. Such has been CRISPRs meteoric rise in popularity, it is now possible to purchase home CRISPR kits for biohacking yourself.

[4] I purposely gender the 'Siberian mammoth' as female, partly due to the fact the most important mammoth body to de-extinction research – Buttercup – is female, but also as a way to point to the masculine nature of de-extinction science and the task of the first de-extincted mammoth to begin a cycle of reproduction and birth.

conservation and extinction, mute the nagging anxiety that it may be too late, and offer a get-out clause – be that through captive breeding or the potential for de-extinction. This is a strategy orientated not only towards the conservation of species, but also the conservation of time, made possible by the temporal plasticity offered by the freezer – or, more accurately, a cold storage facility for genetic material called a cryobank. Cryobanks are part of a wider process of what scholars are calling 'cryopolitics' – the political renegotiation and manipulation of life through coldness (Bravo, 2017; Radin and Kowal, 2017).

For this reason, tusk hunters are often used by scientists for tip-offs on mammoth bodies. Once the precious tusks have been removed, their festering corpses can be salvaged and transported to freezers where they can be hacked apart further in the pursuit of 'useable' DNA. That the quite patently dead mammoth bodies contextualized by thousands of years of extinction now exhibit a sort of liveliness speaks to a moment of crisis that is both apparent in conservation and across the planet itself. Resurrecting the mammoth is indicative not just of a biopolitical desire for mastery over life, but also as tool to prolong human survival on an increasingly hostile planet. How this process occurs in practice is underscored by a broader commodification and renegotiation of life at the cellular level, made possible by new technologies of freezing. The viability of de-extinction is a cryopolitical transaction that sees the threat to life due to global warming become stabilized by human methods of cryopreservation – ostensibly cementing the notion that the Anthropocene designates a sense of human mastery over natural processes through technological prowess.

This article sits at the intersection between a variety of vested interests regarding the woolly mammoth and her potential as a de-extinction candidate. What draws these interests and interventions together is coldness, and the processes of freeze and thaw that make the mammoth visible, possible, and valuable. How does temperature figure in these new forms of crisis conservation, as thawing permafrost produces both climate anxiety and capitalist potential? And how does a cryopolitics of coldness renegotiate boundaries of life and death, extinction and resurrection, control and commodity? These questions are answered using data from two fieldwork stints to Yakutia, Russia – the first comprising one month spent at the Pleistocene Park north of the Arctic circle, the second three months in Yakutsk, home of the Mammoth Museum. It draws from a combination of in-person interviews with key actors in cryobanking, de-extinction and tusk hunting practices, participant observation, and discourse analysis of popular media around de-extinction and the Pleistocene Park. In order to provide a historical context to the current situation of mammoth conservation, I first trace a number of mammoth histories which follows the trajectory of the mammoth's status from museum specimen to genetic material; the next section considers the fraught space of the 'outside' where mammoths are discovered by tusk hunters in thawing permafrost, and the anxieties of extinction generated through increasing temperatures; then, I enter the cryobank to examine how freezing suspends and preserves life, producing a reimagining of pre-emptive conservation practices that values the life – or resurrection – of the mammoth as future capital; the final section imagines the resurrected mammoth out in the world again, and argues that the de-extinction of the mammoth is not only indicative of cryopolitical control over nonhuman life during the sixth great extinction, but also a novel 'crisis conservation' of the human species at a time when rising temperatures threaten our survival.

2. De-extinction and the cryopolitics of molecular life

Cryobanking and de-extinction are part of a broader renegotiation of life from holistic individual units to the level of the gene – a process which began with the discovery of the gene at the beginning of the 20th century and dubbed "the molecularisation of life" by Foucauldian theorist Nikolas Rose (2001; 2007). This reconfiguration promoted by biological and biomedical institutes also served to 'optimize' and control these processes, with new forms of technoscience becoming embedded within the promotion of life at the molecular level (Braun, 2007; Parry, 2006). The notion of the gene as a bounded entity which contained the long-obscured secrets of life itself was an incredibly attractive and easily graspable idea, taking root in the popular imagination and spawning countless scientific interrogations (Fox-Keller, 2002; Kay, 2000; Fletcher, 2020; Rossi, 2013). In the latter stages of the 20th century, genetic biology shifted its attention to entire genomes, and began to sequence the genomes of different species with varying genetic complexities: the human was completed in

2003 as part of the ground-breaking 'human genome project'; the mammoth over a decade later in 2015, and the first extinct genome to be sequenced (Palkopoulou *et al*., 2015).

The gene is not merely an abstract unit of life, but also a form of commodifiable matter. The encroaching forces of neoliberalisation and privatization work together to decide which genetic material and research is privileged over others, producing a form of molecular biopolitical governance (Mendes, 2017; Thacker, 2005). This aligns with the academic use of the term 'biocapital', in which biological materials take on commodity value once they are *extracted* from organic bodies through biotechnologies (Cooper, 2008; Parry, 2004, 2006; Shukin, 2009). Biomedical theorist Catherine Waldby identifies this trend through what she calls 'biovalue', stating that dissection of corpses represents "the mining of death to increase the value and productivity of life, its technical augmentation" (2000: 142). The extinct mammoth remains dead, in the normative understanding of the term, but her increasing biovalue through sliced and diced body parts produces a certain liveliness underpinned by how attractive these pieces are as commodities. Body parts and cells circulate across boundaries that are becoming increasingly porous due to the fungible nature of biological material taken out of its environmental milieu (Rajan, 2006). In particular, the push for the mammoth's de-extinction places particular emphasis on the genome, and the ability of laboratory tissue cultures to be controlled and manipulated outside the individual living body (which, of course, no longer exists). The genetic features that 'make' a mammoth – shaggy fur, small ears, cold-adapted blood – take on a greater value than the sum of their parts; it is only by replicating these species indicators that a mammoth might be said to be resurrected through hybridization. And similarly, in the case of cloning efforts, the hunt for the intact cell plucked from the decaying body of a dead mammoth becomes the locus of life – the possibility of coaxing cell reproduction in a laboratory that might one day restore an entire species from extinction.

Instead of focusing on living and viable populations, the race now becomes one of gathering salvageable genetic material, either for use in captive breeding or artificial insemination programs, or as safeguards for future de-extinction schemes (Breithoff and Harrisson, 2018). These repositories of cells, genes, pieces of flesh or plant life, then take on an altered state as frozen life, suspended and catalogued until it is needed at a later date. Called cryobanks, they have been referred to as "future-making institutions" (Harrison: 2017), and producers of "latent futures" (Radin, 2016). This is indicative of a new form of biopolitics enabled by the freezer – that of a *cryo*politics – in which the life in question is now *not allowed* to die and is kept in a form of stasis until further decisions can be made on its viability (Kowal and Radin, 2017). Freezing technologies make possible the malleability and extension of life at the genetic level, with the most advanced freezing techniques (currently liquid nitrogen) allowing frozen material to endure indefinitely. Biotechnology sociologist Hannah Landecker uses the notion of plasticity in the freezer to identify what she terms 'the thread of life' – the idea that cells outside of the mortal individual body become continuously linked across boundaries of sex, species, and even time: "It is the new form of immortality built into scientific life – disembodied, distributed continuity" (2007: 176).

Cryopolitics does not just encompass the rise in human freezing systems, it also points to the ways in which life is entangled with coldness as a precondition of being – a precondition which is becoming ever more threatened by a rapidly warming world and a meteoric rise in species extinction (Bravo, 2017). Political ecologists call for greater attention to be paid within the remit of their approach to shifting biopolitical practices of conservation (Büscher, 2018; Cavanagh, 2018), and I wish to answer this call with a focus on the ways the melting of ice and the switching on of the electric freezer configure and reconfigure life. Geographer Bram Büscher draws on Brian Massumi's notion of 'ontopower', in which he highlights how the aims of conservation are being renegotiated as pre-emptive measures in a world beset by crises of extinction (Büscher 2018). Cryopolitics is therefore a new *kind* of ontopower, in that the ability to suspend and preserve life and time through freezing produces new temporalities of pre-emption, highlighting the ways in which cryobanking renegotiates the political life of the specimen. Precision conservation, in general, has seen a shift to the molecular as a response to the anxieties of the Anthropocene (Adams, 2017; Rossi, 2013). The proliferation of cryobanking facilities for endangered and extinct species of non-human suggests that the overall health of animal and plant populations are now also being negotiated at the level of the gene – a shift that mirrors the

molecularisation of life (Rose, 2001; 2007). And of course, it is not merely cryobanks who are engaging with molecular conservation; Sooam Biotech and the George Church lab practice their de-extinction efforts through the use of frozen cells, genes and DNA. This is a brand-new type of conservation work, in which the difficult realization is that perhaps there will not be time, at least right now, to save some of the most critically endangered species in the sixth great extinction (Lermen *et al*., 2009).

The mammoth's status as a de-extinction candidate occupies a new kind of cryopolitics: one that aims to produce and maintain control over the life of an extinct species, but as an auxiliary to the renegotiation of power over cold human life. Refreezing the mammoth renders her broken down into the molecular, her genetic life parceled as commodities to be exchanged or sold, and her potential de-extinction into a creature that can rewild an ecosystem for the benefit of human survival. This is different to the trend towards a more neoliberal conservation through which the mammoth becomes monetized (Brockington *et al*., 2008; Büscher *et al*., 2012), although occasionally, and not helped by the Pleistocene Park's tongue-in-cheek nod towards its Jurassic counterpart, there is talk about a future of mammoth safari holidays (Andersen, 2017). The Pleistocene Park commodifies the de-extincted mammoth through all manner of promotional material and targeted visions of a fully functioning ecosystem with the mammoth at the helm to attract funding and donations[5]; journalists and filmmakers drawn to the fantastical nature of the project similarly bolster this vision with jaw-dropping vistas and narratives of pioneering human ingenuity (Andersen, 2017; Slater, 2017; Sneguirev, 2020). Yet dig deeper and this is no typical rewilding project – this rewilding project claims it will save the world. Notwithstanding the hyperbolic language emerging from what is still just a local project, the Pleistocene Park exists as a geoengineering strategy *not* for the conservation of animals, but for the conservation of humanity. Permafrost thaw releases greenhouse gases into the atmosphere, exacerbating climate change and thus threatening human survival; meanwhile, the proliferation of apocalyptic narratives in popular news reporting and media, indicate the notion of human extinction has become a pressing trope as the planet heats up (Milkoreit, 2017; Sepkoski, 2020).

The following sections will 'follow' the mammoth as she is prospected and dug out of thawing ground, parceled up through a multitude of vested interests, and preserved/conserved across a variety of scales and practices.[6] Doing this aims to think through these new conservation practices that are predicated on responding to what is seemingly an out-of-control situation (Cunha, 2015) with greater precision and pre-emption. The specific cryopolitics that underpin such practices reveal the power imbalances of curating future life in the Anthropocene. These cryopolitical renegotiations are largely predicated on controlling temperature, shifting the locus of governable life from the uncontrollable outside into the controllable inside of the cryobank. I show how the mammoth embodies this shift at every step and when – *if* – she emerges back outside, she will be mobilized as a planetary savior not her own species, but for humanity.

3. Mammoth histories

The first – at least, the first documented – full frozen mammoth body was found in 1799 by an Evenki hunter called Ossip Schumakov at the mouth of the River Lena. Disregarding the warnings from other Evenki not to disturb the carcass, Schumakov hacked off the tusks and sold them to a merchant in Yakutsk, who presumably spread the word around town about the find. Several years later, these rumors reached the ears of the botanist Mikhail Adams, who led an expedition to exhume the body and bring it back to St. Petersburg. The expedition was mostly a failure, with Adams arriving in August of 1807 to a rotting mammoth corpse, torn

[5] The Pleistocene Park has run several crowdfunder campaigns to drum up interest and support in order to help them bring more animals to the Park. Although nothing to do with mammoth de-extinction, these crowdfunders use the likeness of the mammoth in logos and artistic renderings of what the Park with de-extincted mammoths would look like.

[6] My approach draws inspiration from 'follow the thing' literature, although with a strict caveat: much of the criticism levied at this vein of scholarship points to its linearity in favour of ending up in Western markets without considering what goes beyond that (Gregson *et al*., 2014); my goal here is to scramble any such notions of linearity and instead point to the rather messier and eruptive points along intersecting commodity chains and different scales.

apart by scavengers with the majority of the organs and trunk eaten completely; he was only able to retrieve most of the head and two of the feet which had remained encased in permafrost. However, a big success was the collection of the skeleton, and once back in Yakutsk he was able to procure the creature's tusks from the original buyer. By comparing sketches of the complete carcass drawn by the merchant alongside the oral testimony of Schumakov, he was able to assemble the first ever mammoth skeleton for display to the world (Figure 1). Although not without its errors – the tusks were placed the wrong way – this reconstructed beast became integral to the new paleontological understandings of prehistoric creatures. Georges Cuvier, for example, used the Adams' mammoth as evidence for his theory that this was a distinct (and now extinct) species, and not a sub-population of elephants as originally thought (Rudwick, 2005, 2014). The fact the Adams' mammoth had been found with skin covered in hair proved that it was adapted to living in cold climates. Along with the fossilized remains of mammoths, the Adams' specimen, and the subsequent discovery of other intact bodies in the permafrost, contributed to an understanding of the mammoth's prehistoric habitat, behaviors and eventual extinction – although debate is ongoing whether this was due to Pleistocene Overkill or climate change (Brook and Bowman, 2004).

Figure 1: The Adams mammoth. (author's own, 2019)

These mammoth discoveries quickly became objects of curiosity and proliferated in museums and exhibitions: displayed as skeletons, life-size models mocked up with hair, or even the preserved specimens themselves on show. The mummified corpse of a baby mammoth – Dima – was discovered in the Magadan region in 1977, and another baby – Lyuba – was found in even better condition on the Yamal peninsula in 2007, so much so that she still had her mother's milk in her belly. Both Dima and Lyuba travel the world in temperature-controlled crates, put on display in glass cases for the public to marvel at. The Melnikov Permafrost Institute's permafrost cave is home to a plaster cast replica of Dima, having been the storage facility for the body until it was taken to St. Petersburg (Figure 2). Other mammoths have achieved similar fame, not least the Jarkov mammoth, which was the subject of a bizarre expedition led by French explorer Bernard

Buigues in 1999. Armed with little more than a vague tip-off from a Dolgan boy and a hefty wad of cash, he took a crew into the tundra in an attempt to drill the creature out of the still-frozen permafrost. The Discovery Channel documentary 'Raising the Mammoth' (2000) shows the faintly other-worldly footage of the beast – still mostly encased in a block of ice – being winched into the air by helicopter and flown over the snowy landscape to a permafrost cave, where it remains to this day.

Today, mammoth finds are relatively common. Thawing permafrost and a surge in tusk hunters plying their trade in the summer months mean that preserved remains are revealed on a regular basis – either by slumping ground or blasting the permafrost with water cannons. However, not all mammoth finds are created equal. How well preserved the bodies are depends on how quickly the mammoth was frozen in permafrost after death, and how long the corpse was exposed to the degradational effects of air upon discovery. In 2012, a tusk hunter discovered a mammoth – a female nicknamed Buttercup – on *Maly Lyakovsky* island in the Laptev Sea, off the Arctic coast of Yakutia. The head of the Mammoth Museum in Yakutsk, Semyon Grigoriev, immediately set about forming an expedition team to visit the remains, having been informed of their remarkable preservation in the permafrost (Grigoriev *et al.*, 2017). When the team arrived at the site, they were amazed to find an almost complete mammoth carcass, replete with frozen hair, skin and flesh; in fact, so well preserved was Buttercup that Semyon promptly sliced off a piece of her flesh and ate it. But the most shocking – and jubilant – discovery came when excavators drilled into Buttercup's flesh, which then produced a dark red, sticky substance that flowed out of her side. Whilst no longer containing red blood cells, what Buttercup had produced was a sort of degraded blood, and she was the first mammoth on record to do so. Liquid blood meant that this mammoth was better preserved than any other mammoth ever discovered before; liquid blood meant that – at least potentially, *theoretically* – Buttercup could be brought back to life.

Figure 2: Dima in his glass case at the St. Petersburg zoological museum, and the plaster cast replica at the MPI. (author's own, 2018; 2019)

The Siberian mammoth is now the focus of multiple vested interests. Having lain dormant in the relative peace of extinction, locked away for centuries in a permafrost tomb, she now finds herself the subject of excavations, blasted with water cannons, chopped into pieces and broken down into genes, her tusks shipped off to China and her DNA sent across the world to biotechnology laboratories – Seoul, Osaka and Harvard. Her body is now worth less intact, with the knowledge gleaned from the Adams' mammoth spent and the bodies of Dima and Lyuba now relegated to mere curiosities. Instead, the mammoth's intrigue lies in her future potential, either as riches in the form of carved ivory ornaments, or as viable genetic material for her de-extinction. A team of scientists, with representatives from both the George Church lab and Sooam Biotech present, conducted an autopsy on Buttercup in 2014 and took various samples of blood and flesh; whilst her

tusks were retained by the Mammoth Museum, her body – harvested of any potentially viable genetic material – now lies forgotten in a plastic bag in the corner of the walk-in freezer (Figure 3).

The molecularization of the mammoth into tusks and genes produces new configurations of value as future capital through the new science of de-extinction. She becomes valued as something *beyond* her individual body and history, and instead represents something broader and more future-oriented through the fungibility that molecularization offers. The mammoth's scientific and popular trajectory throughout history can be correlated with the renegotiation of her status as a material and socio-cultural object: the Adams' mammoth appeared at a point when paleontologists and geologists were grappling with questions of earthly revolution and past extinctions[7]; today, her situatedness within a world of ongoing extinction and climate change means she encapsulates both an engagement with a deep past, but also the anxiety of an uncertain future. As the planet warms and survival rendered increasingly precarious, coldness becomes a valued scarcity: it is at this point the two cryopolitical worlds of the outside (mammoths in thawing permafrost) and the inside (mammoths in the cryobank) converge to produce a new definition of life and extinction – all contained within a drop of blood.

Figure 3: The sad final resting place of Buttercup. (author's own, 2018)

[7] In particular, paleontologist Georges Cuvier's analyses of fossil and carcass discoveries across Siberia drew attention to how certain histories and certain futures become constructed. Having derailed the budding discipline of Western geology with petulant smears and misinformation, as well as subscribing to deeply racist and often downright unscientific beliefs, his ideas around extinction and the remains of extinct species were revolutionary at the time (Rudwick, 2005). His catastrophist thinking and notion of earthly 'revolutions' causing massive and sudden upheaval to planetary life was not particularly original, but his dogged pursuit of his theories of a prehistory without humans (and propensity to explain things away that didn't fit) led to his work becoming very influential to geological thinking, cementing the idea that these catastrophic revolutions were wholly natural and separate from human culture, and that the fossils and bones of extinct animals were 'nature's own history' (Rudwick, 2014: 80). This, along with the discovery of strata and the gradual layering of the sediments that contained these fossils meant that the earth's deep past became legible through the notion of a linear geological history.

4. Unearthing extinction: permafrost and mammoths outside

Extinction, in the way it is traditionally understood, is a containment. The life of the species has been contained by the passage of time; a cut-off point that implies the creature – in this case the mammoth – remains locked in the past. What the flowing blood does, however, is wrest the mammoth back from her position in deep time. Her body is dead and frozen, her species lost to history, but the presence of blood suggests something more, something *livelier*. To the scientists who found her body, and many others like her, Buttercup is both the first of her kind and part of a long lineage of other mammoths. Lineage indicates linearity: a gradual and quantitative accumulation of time through mammoth parenthood and their young. Buttercup had parents; her CT scan showed she had given birth to eight children, and her gigantic tusks revealed she had lost one of them before it was weaned, but seven survived beyond that.[8] Buttercup had left a legacy, and her children had likely gone on to have children of their own. But at the same time, Buttercup's incredible state of preservation, and her bloody existence on the cold slab of the autopsy table in 2014, mean she is out of sync with the rest of her line.

There is a cryopolitical renegotiation that must happen to transfer the mammoth from her bodily form on the tundra to her commodity value as tusks and cells, which is generated by the forces of warming. Whilst the tusk hunters use thawing permafrost to their advantage, there is a sense of anxiety for the scientists as long as the mammoth remains *un*molecular, which can only be rectified by the predictability of the cryobank. Preserving specimens in the cryobank – particularly specimens that are already centuries old – suggests a temporal lengthening, a sort of plasticity that can be stretched out indefinitely whilst staying very much the same (Farman, 2018). That global temperatures are rising, and the Arctic is melting is much easier to come to terms with if there's a safeguard of human-controlled freezer systems. It is also reassuring that one might, to borrow Joanna Radin's term, put "life on ice" (2017); perhaps we don't have the solutions for X *now*, but we might in the future. This pre-emptive cryopolitical shift can only occur once the anxieties of *outside* melting are rectified by the safety of the human-controlled cryobank, the unpredictability of the mammoth corpse sliced up and placed into sterile test-tubes to be frozen.

This process can be fraught. After returning from the hands-on environment of the Mammoth Museum, I was shown round the rather more sterile cryobank at the Natural History Museum in London by Jacquie, the head of the lab. She recounted to me a breathless story of collecting snail samples in Vietnam and freezing them in the field with dry ice – a process that has a time limit before degradation occurs. An incoming typhoon saw their flight back to London re-routed, and they were delayed at customs due to over-zealous border guards, all the while their precious cargo getting warmer and warmer. She recalled the tense flight back to London:

> We drank so much gin on the way home, and then landed in Heathrow eventually, delayed! My husband picked us up from Heathrow and I said: "Put your foot down! Straight to the museum!", pulled up outside the museum here and then they wouldn't let us in! Like 'who are you?'! I'd asked them to warn security that we were coming late but the message hadn't got through. So they wouldn't let me in, and there was another delay while they sorted all that. But we got the boxes back in here and it was still frozen when we opened it. We were leaping around like little maniacal Rumpelstiltskins in joy!

It was touch and go for the specimens in this case, with the threat of warming encroaching further and further. Once inside the temperature-controlled freezer, the conservationists were able to breathe a sigh of relief that they had at least a representative – in the form of genes, or, in this case, snail slime – of the species in its molecular state. It is here we might consider the gene as a boundary object that curates a locus of different actors that produce complex political relationships (Rajan, 2006; Star, 2010). In the mammoth's case, breaking her body down into pieces of flesh and DNA renegotiates the scalar and temporal boundaries of life and death in species conservation and de-extinction (Breithoff and Harisson, 2018; Chrulew, 2017). Here, the added

[8] Mammoth tusks are incredible blueprints for the life of their owner. Ringed like trees, a tusk can reveal a mammoth's age, how many children she had, if they reached maturity, and when she entered the menopause (Channel 4, 2014).

dimension of freezing as preservation generates a sense of malleability around the delineated forms of life and death, disruptive agency and human control.

The Mammoth Museum relies on the knowledge of tusk hunters who deliver any well-preserved prehistoric creatures to the museum laboratories (Figure 4). Whilst having tea one day with Semyon, a couple of tusk hunters burst into the room to report a find – they had stumbled across a part of a baby mammoth whilst digging permafrost tunnels. Suddenly, the discussion turned to how best to transport the discovery to the Mammoth Museum's freezer. Yet disturbing mammoth bodies can be a point of tension on the tundra, with different configurations of life and death converging and potentially clashing. Many Indigenous Siberian cosmologies warn that desecrating the grave of mammoths risks terrible luck befalling the person who does such a thing (Arzyutov, 2019; Cohen, 2002; McKay, 2017); elsewhere in Yakutia, I spoke to the wife of a tusk hunter who told me she was worried for him as he had gone to the tusk hunting site without the special beads needed to neutralize the bad fortune of moving a mammoth. Whilst commitment to Siberian belief systems is a complex issue after decades of a Soviet state that forced cultural homogenization upon its Indigenous groups (Grant, 1996; Vitebsky, 2005), the stories I heard from wives largely conveyed disappointment that money was the main motivation in their husbands' activities. Yet it is the demand for ivory that churns the wheel of capital and the production of new commodities in the form of mammoth parts. Whilst the mammoth tusks become prized for their economic potential and the mammoth bodies (or genes) for their scientific potential, both of these work within a capitalist system that affords no space to different ontologies or cosmologies. The melting or blasting of permafrost produces new economies of luxury goods crossing borders, whilst simultaneously paving the way for genetic research that might very well result in Jurassic Park style mammoth petting zoos.

Figure 4: A potentially viable baby mammoth specimen. (The Mammoth Museum, 2018)

At the heart of it, this is a foregrounding of potential life over death. Freezing the molecular mammoth turns the biopolitical into the cryopolitical, whilst the mammoth's status as 'extinct' in the realm of a de-extinction laboratory further complicates and unsettles preconceived notions of what life is, where it is located, and how it becomes mobilized in the face of a warming world. Through this, the mammoth becomes an atemporal body, removed from her historical context in the ancient permafrost of the *outside* and forced into a space through which her genes and tusks become commodities to be stored, swapped, used in an attempt to renegotiate her liveliness as *future* capital through the cryobank's de-extinction potential. This process of renegotiation through molecularisation, alongside the shift towards a pre-emptive ontopolitics of crisis

management, becomes solidified inside the human controlled coldness of the cryobank. Now, let us follow her inside.

5. The cryobank: inside the freezer

The cryobank at the NHM in London is located down in the basement, far away from the brightly colored exhibits, shiny glass cases, and throngs of tourists. When I finally got there, down seemingly endless corridors, I was met by a couple of largish rooms – one containing a laboratory of sorts, the other housing the freezers. A smaller room adorned with warnings and sensors contained three liquid nitrogen tanks. There were very few people there, and there was a distinct sense of being cut off from the busy museum upstairs. A cursory visitor would have no idea this was here, and there is very little mention of the cryobank on the museum's website; it is certainly not a part of the exhibit and display space. Jacquie had agreed to meet me to answer some of my questions, provided they stayed within the approval of the museum's PR department. I was forbidden from asking anything about possible uses of the cryobank's material for de-extinction, or indeed, any applied conservation measures at all; I was also to stay away from ethical queries and potential geopolitical tensions. The NHM's cryobank is for archiving and research purposes only, so they refused to comment on how this sort of material might be used by more practical conservation bodies. Or, as Jacquie said by way of explanation: "We're not living, we're dead. The deader the better down here!"

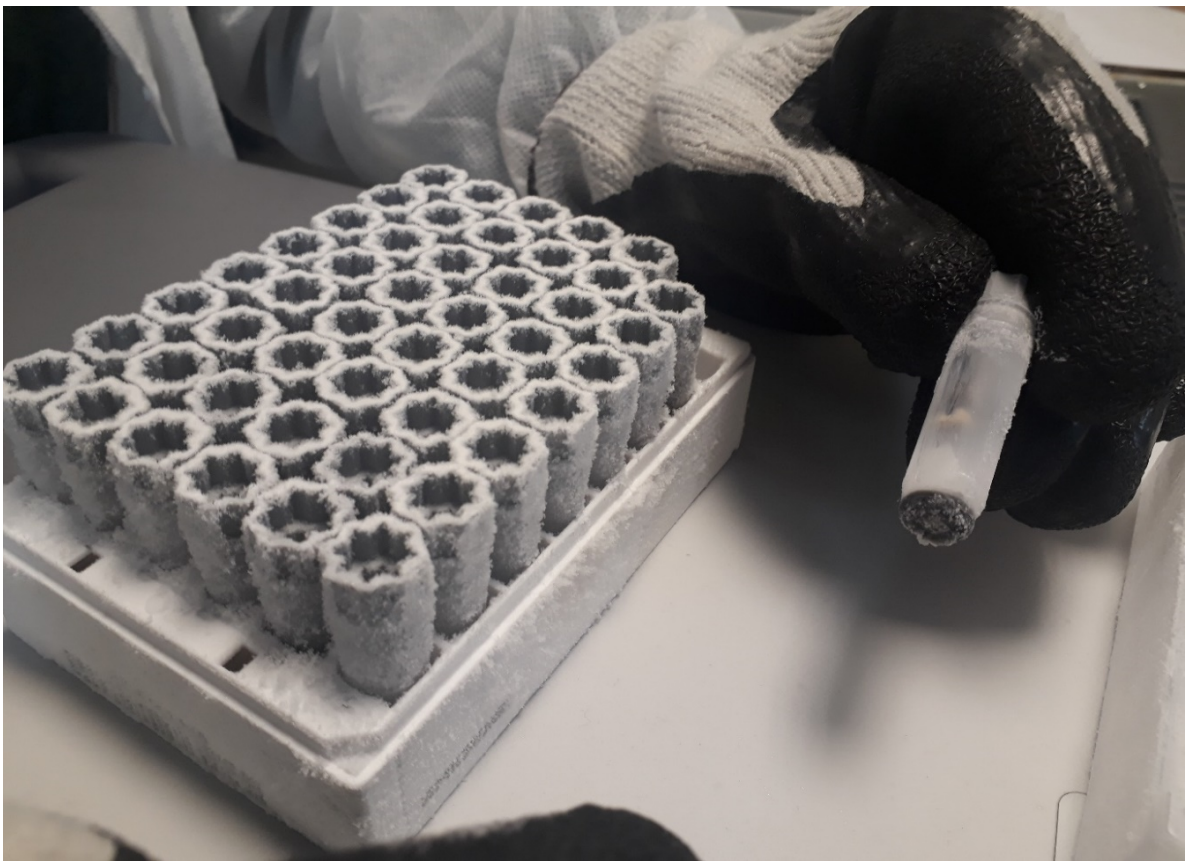

Figure 5: Frozen test tubes used to store genetic material. (author's own, 2019)

Other cryobanks are more applied and hand-on. The San Diego Frozen Zoo, for example, is actively involved in endangered species conservation through artificial insemination and embryonic stem cells (San Diego Frozen Zoo, n.d.). Then there are the cryobanks actively involved in de-extinction research which search for viable DNA for experimentation. What happens to cryopreserved material as it rejoins the 'defrosted' world generates all sorts of questions regarding the motivations of conservationists and their instruments, alongside the choices made regarding which species get to take on these extremely expensive processes. Indeed, even the method of freezing greatly impacts the quality of preservation. Freezing essentially slows the movement of the organic molecules that make up a sample; the greater the molecular movement, the greater the rate of degradation (Figure 5). The freezer room at the NHM cryobank houses freezers at -20°C and -80°C, with the liquid nitrogen tanks keeping temperature at -196°C.

With over three quarters of the spots in the cryobank currently occupied, Jacquie faces a lot of tough decisions regarding the value placed on specimens. Provisos that make up a specimen's value are generally the rarity of the species, how useful it might be to scientific research, and the quality of the sample. But a lot of this value is purely economic. Jacquie told me that she essentially has to run the cryobank like a business:

> [JACQUIE] So we're quite an old-fashioned institution, but sadly we've been dragged into the sort of business side of things, the cost-per-sample business model type of way of running biobanks, and I'm particularly bad at it! I need to retire and let someone who knows what they're doing take over… We don't say profit, but we have to recover costs, because it's very expensive – our carbon footprint is huge, the electrical costs are huge. There's quite a problem around how we sustain this, who pays for the costs? Keeping things frozen at those ultra-cold temperatures is extremely expensive.

She went on to tell me how government funding is drying up, grants from research institutions are often short term, her staff are retiring and not being replaced – all this has resulted in the cryobank having to recuperate its costs. Only one of the three liquid nitrogen tanks was in use because of the expense of keeping them running; I was expecting an astronomic financial figure, but Jacquie quoted me around £5,000 (US$6,881) a year. Her sunny disposition often slipped as she talked about the frustration of trying to do such important work without the help that she needs. She showed me a robot that can reorganize and barcode 96 test tubes at a time, but because it needed to be manually programmed, it remained chronically underused.

When considering artificial cryopreservation in cryobanks and laboratories, we cannot forget these exist within an economic system predicated on surplus value and commodification. The conservation work done by the cryobank has become precision conservation, the molecular 'thread of life' it promises made possible by the freezer's ability to suspend death and revitalize the health of a particular species through tweaks and plugs (Landecker, 2007). This is ice manipulated through the human-dominated systems of the inside, and is similarly underpinned by particular flows of capital and vested interests (Tsing, 2005; 2015). What gets to count as valued life is enclosed by the confines of the cryobank's walls and freezers, the decisions made regarding what to keep configured by stakeholders who will enable Jaquie to break even. The NHM cryobank's official line is one of a 'dead' archive – that it exists as a repository to safeguard genetic material and does not inform applied or future conservation projects. However, the categorization of species through a taxonomy of value (whilst simultaneously requiring cryobank scientists to produce this value through their labor) as the spaces of preservation get ever smaller and more difficult to run are fundamental caveats to what lively commodities the cryobank can produce. Even if a mammoth never emerges from the test tubes archived in the NHM, the *potential* for life remains, frozen in time, almost indefinitely.

The relocation of life from the organism to the molecular level through laboratory freezing techniques is an attempt at shoring up another layer of control on an increasingly unpredictable Earth. To cryobanks like the NHM, collecting genetic material to store in freezers is a safeguard against the spiraling rate of extinction – a future archive that acts as an organic repository, suspended in stasis until a time at which it might be needed

for more practical measures (Searle, 2020). This is pre-emptive conservation work that removes the immediacy of the crisis. To de-extinction scientists, the ability to replicate and preserve life through cell cultures and genomes represents an opportunity to not only renegotiate the properties of life, but also to create it. The cryobank becomes a tool through which to extend mastery and control over life, the freezer acting in direct opposition to the unpredictable forces of melting that occurs beyond the bounded and sterile space of the laboratory, where life is suspended within an ambiguous cryopolitical space between being alive and being allowed to die (Radin and Kowal, 2017).

But the cryobank is not the perfectly controllable system it has been designed to be. Notwithstanding being subject to economic systems or freezer breakdowns, the mammoth genes themselves are not the perfectly immutable and predictable objects demanded by the cryobank – particularly if they have become degraded by the forces of thaw and death (Franklin, 2000, 2007; Parry, 2006). What happens once mammoth DNA leaves the cryobank produces new cryopolitical relationships and generates new ethical dilemmas – such as whether a de-extincted mammoth and its CRISPR-rendered genome could be patented by international law (McMahon and Doyle, 2020); or indeed, who is responsible for the creature? Once genetic samples begin to travel along cold chains of scientific and economic value, their liveliness takes on more weight – and more unpredictability. This is where the logic of a pre-emptive ontopolitics begins to break down in the context of the cryobank (Büscher, 2018). De-extinction cannot solely happen in a freezer, and if the mammoth's 'resurrection' is ever a success, her supposedly fungible and controllable form will be – once again – remade anew. If the mammoth does, indeed, go back outside, she will represent an act of crisis conservation – only not for herself, but for another species entirely.

6. Mammoths out in the world again

About a month into my stay in Yakutsk, Semyon invited me to a horse autopsy. A tusk hunter had discovered the horse – a prehistoric foal – and the body had been transported back to the Mammoth Museum's freezer to be displayed for a variety of experts, including a team of South Korean geneticists who had just arrived from Seoul. The head of the delegation was Hwang Woo-Suk, a biotechnology expert and veterinarian who made global headlines in 2005 when he claimed to have cloned human embryonic cells – a world first. Whilst the scientific community were grappling with the ethical implications of this, it emerged he had falsified the results of the experiment. Overnight, Hwang went from being dubbed "the pride of Korea" (Scanlon, 2006), to being blacklisted and disgraced, barred from conducting any governmental stem cell research, with his state funding withdrawn.

But Hwang, despite being under criminal investigation, was not finished with embryo research. He retreated into the private sphere, using his veterinary expertise to set up a pet cloning company, charging wealthy patrons – Barbara Streisand is a client – hundreds of thousands of dollars to ensure their precious pets would never 'die.' There was nothing the ethical and rigorous peer review of the scientific community could do about it. A few years later, Hwang began showing up in Yakutsk. Hwang's personal fortune, amassed from his pet cloning business, went towards building a state-of-the-art laboratory at NEFU – something the university could never have afforded otherwise. In exchange, he requested access to any well-preserved specimens of prehistoric creatures found in the permafrost. He wanted to take samples back to his lab in Seoul – Sooam Biotech – to play around with and experiment on ancient DNA, a much greater challenge than dealing with living cells. To put it bluntly, Hwang wants to clone a mammoth.

Hwang also wants to clone the horse lying on the autopsy slab (Figure 6). The creature had been thawing for a while to allow for the sampling to take place on semi-defrosted flesh. The whole room stank; unsurprisingly, prehistoric horse corpses do not smell too great. The results of the radio-carbon dating procedure had come through, and the creature was officially around 42,000 years old, and was between 10-20 days old at the time of death. It was remarkably well preserved, no pieces missing, and every bit recognizable as a horse. Hwang circled the body, prodding at it occasionally, communicating to Semyon his requirements for the visit: he wished to return in the dead of night to collect samples of DNA, which would then be packed

into an ice box and timed just right so he could dash to his plane back to Seoul, taking the samples with him as hand luggage. This was likely to circumvent Russian laws on exporting biological material through customs, however 'dead' it might be. Regardless, a few months after I left Yakutsk, I noticed that Hwang has made the news – his horse cloning efforts had been unsuccessful.

Buttercup's autopsy had led to similar frustrations, in which her frozen flesh and liquid blood failed to provide the viable cells necessary to expand outwards into a fully realized beast. Both Sooam Biotech and the George Church Lab took samples from her body, but were unable to find any 'useable' DNA. However, both laboratories insist they will be able to successfully resurrect the mammoth at some point in the future.[9] What exactly happens, therefore, if de-extinction becomes a reality? The Pleistocene Park, of course, is the obvious place for her to go, claiming to offer a ready-made mammoth habitat. Sergey Zimov, the owner of the Park, strides over the tundra sporting a t-shirt sporting the mammoth's likeness, declaring: "I need maybe 50,000 mammoths, but no-one [will] give me so many!" (2019). His reason for wanting mammoths – and, indeed, the whole point of the Park – is not for biodiversity, however, but for the redemption of humanity. The mitigation of permafrost thaw promised by the Park is curated around the idea of 'saving the world', whilst Sergey's son Nikita states: "I personally don't really care about the animals that much", he told me during my visit. "We're trying to create the whole system...I'm not an animal rights activist; I care about humans way more. I have three kids – what I do, I do for them."

It therefore becomes necessary to think through the motivations and power structures underpinning this new form of crisis conservation. The process of molecularization and subsequent de-molecularization of the mammoth through various vested interests is indicative of a grasping for greater control as we hurtle towards a future that portends a lack of it. Just as Landecker (2007) identifies the ability to further manipulate life through laboratory techniques such as tissue culturing and freezing techniques, proposing the de-extinction of the mammoth is an extension of this lust for control, or perhaps hope (Rossi, 2013). Manipulating genes and hybridizing species suggests we might 'swap' (just like CRISPR does) the looming terrible futures of uncertainty for one of benevolent management and stewardship. Whilst the vision of the Pleistocene Park might be to allow the techno-mammoth to wander around and cause havoc in relative freedom, her inextricable history of cryopolitical molecularization and genetic manipulation mean that notions of 'bringing back' are imbued with the meddling hand of the Anthropos. The mammoth's task is no longer to *be* a mammoth, whatever that might be; now she is tasked with an altogether weightier labor – to right the wrongs of humans who refuse to relinquish control of, and over, life. This is crisis conservation with a twist: the conservation in question is that of the human species *through* mammoth resurrection, and the existential threat that accompanies the Anthropocene mantle.

The work done by both the Pleistocene Park and the cryobank are conservation practices that seem to contradict each other – the focus on rewilded ecosystems versus the precision conservation of genes and individuals (Adams, 2017) – yet both reveal the fraught tension at the heart of the Anthropocene: that this is an epoch that designates both responsibility *and* anxiety onto the Anthropos. Crisis conservation – in the mammoth's case at least – is therefore orientated towards the future (rather than the past, which is often the criticism levied at rewilding), underpinned by the cryopolitical potential of suspending death and preserving life on ice (Collard, 2010). It means the crisis can be averted by buying more time, through freezing, to counter a rapidly warming planet and melting Arctic. Cryobanks, despite Jacquie's insistence that her specimens are not engaged in any practical application, exist for the potential to be used for future conservation purposes, whether that be de-extinction or other methods of conservation. The shift towards pre-emptive crisis conservation is encapsulated by the mammoth's commodity value in the cryobank being its *potential* for future life (Büscher, 2018); this life has now become reconfigured as redemption for humanity, however unlikely the success of the Pleistocene Park may be. To be of value in this world of looming crises and possible apocalypse

[9] Just before publication of this article, a new de-extinction organisation called Colossal, backed by US$15 million from funders and headed by George Church, announced it would concentrate solely on 'resurrecting' the mammoth in the next 4-6 years (Zimmer, 2021).

means she must curate a better future for the humans that made her. How this works in practice, once the molecular mammoth is returned to a body, once she becomes part of – and can transgress – her ecosystem again, remains to be seen.

Figure 6: The prehistoric foal. (author's own, 2018)

7. Conclusion

What makes a mammoth? Can a mammoth be a cluster of cells, a carved ornament? Can she be resurrected, or will any such attempts only ever be franken-scientific hubris that conjures up the monstrous (Lorimer and Driessen, 2011)? Are the mummified or mounted bodies of historical mammoths all that is left, or does the mammoth take new forms, occupy new spaces or scales, and embody a sort of mutability made possible by flows of things and capital? Bringing life into the equation further complicates things. We question whether life can ever emerge from extinction, when the cryobank makes possible the continuous thread of life through a cryopolitics of suspension, when de-extinction science plays with cells and swaps genes, creating new forms of life through hybridity and genetic manipulation. The tension between the thaw and the freeze troubles these previously fixed identities and definitions, the antagonism of the constant drive towards new extractive opportunities against a backdrop of newly discovered mammoth bodies, fighting against or alongside new economies of tusk trading and DNA swaps. If we return to the idea of crisis conservation as pre-emption (Büscher, 2018), what is it that is being pre-empted here? To conserve means to protect something from destruction; in the mammoth's case, she has already been destroyed, or at least, remade into something entirely

new. Instead, the crisis conservation found here is that of a cryopolitical sort – that by preserving the ice, the coldness against a backdrop of global warming, we might preserve our very survival on the planet.

The relocation of life from the individual organism to the molecular level through laboratory freezing techniques is an attempt at shoring up another layer of control on an increasingly unpredictable Earth. To cryobanks like the NHM, collecting genetic material to store in freezers is a safeguard against the spiraling rate of extinction – a future archive that acts as an organic repository, suspended in stasis until a time at which it might be needed for more practical measures. To de-extinction scientists such as George Church and Hwang Woo-Suk, the ability to replicate and preserve life through cell cultures and genomes represents an opportunity to not only redraw the boundaries of life, but also to create it. The human-controlled space of the cryobank becomes a tool through which to extend mastery and control over life, the freezer acting in direct opposition to the unpredictable forces of melting that occurs beyond the bounded and predictable space of the laboratory. The thread of life that exists through cell culture across generational, species and organism lines is made possible by freezing, through which life is suspended within an ambiguous cryopolitical space between being 'alive' and being allowed to die. In this sense, it becomes possible to do away with the inherent finitude of life and achieve a sort of immortality – a secular eschatology that abandons the unpredictable notion of a higher power (Farman, 2018), recasting humans as ultimate masters of their own destiny as a way to counter the growing anxiety of apocalypse and extinction.

It is the thawing of permafrost that produces this anxiety of apocalypse; the backdrop of an ongoing sixth great extinction event contextualizes the primal fear of human extinction. The mammoth's potential resurrection crystallizes around the point at which the planet is no longer providing the optimal conditions for human survival and the potential for human technologies to bend those conditions to suit us once more. Once revered in her full form as museum exhibits and scientific specimens, the mammoth has been steadily broken down into her constituent parts until she embodies a molecular commodity, chopped up and put into freezers, squeezed into test tubes and vials, shipped off to places far from her original resting place as biocapital. In becoming molecular, she is imbued with lively future possibility, her cells and genes entering technological spaces that stretch and enlarge, both materially and temporally. The life encased in her cells is temporally translated, both encompassing the vast reaches of her history and possible future, whilst simultaneously suspending time altogether. But beyond the inside boundaries of the cryobank and the cell wall, the unpredictable forces of melting produce ruptures in cryopolitical life – discontinuities which disrupt the linearity of human-controlled time. The life of the molecular mammoth might be safe in the cryobank, but the conditions of her resurrection involve a task: to restore the thawing permafrost that was once her tomb, and to alter the apocalyptic future facing humans in the Anthropocene (Rose, 2017). The very impermanence of permafrost is destructive of both past time and future time in which the human species get to continue on and on, generating a fear that time is running out, and resulting in the desperate push to freeze and control time through the cryobank.

Might a carved ivory ornament encapsulate the messiness of this situation somewhat? This is not to say that these heterogenous scales and temporalities might map onto the surface of a tusk, no matter how intricate – this has been my point in attempting to follow the mammoth, that there is no such neatness. But in the absence of any de-extinct mammoths (yet), these expensive ornaments call to attention both their vast histories and their suspended futures. Many of the carved tusks I saw in Yakutia depicted scenes of Indigenous tribal life, of reindeer herding or fishing (Figure 7). These are not the huge, glittering centerpieces displayed in Chinese homes, but part of a long history of craftmanship honed over centuries, a material archive of living alongside mammoths. Ivory finds, then rare, have now lost much of their mystery as their exposure to the elements is tied up with climate-induced permafrost thaw, illegal economies of trade, and a relentless churn of extraction funded by a Russian state looking to profit from a warming world (Erickson, 2018).

The ivory ornament is not molecular, of course, in the way that the vials and test tubes of the cryobank contain the molecular mammoth, but it represents the almost fungibility of value to be found in de-extinction as crisis conservation. To make a mammoth now requires merely the ability to swap and edit genes with CRISPR, regardless of its specific mammoth histories; similarly, what is valued in Chinese homes is not

mammoth ivory, but rather the status that ivory of *any* kind will bring. This is a cryopolitical renegotiation that depends on the melting away of the mammoth's embodied past. Thus, the unspoken crisis at the heart of mammoth de-extinction has little to do with her own species; rather, at a time of geopolitical tensions and extractive designs in a warming Arctic, she represents a potential get-out clause for the possibility of human extinction in the Anthropocene, and the chance to levy control over both life and time – as erroneous as that fantasy may be.

Figure 7: A carved tusk depicts Indigenous reindeer herding in Chersky, Yakutia. (author's own, 2018)

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Enjoying extinction: philanthrocapitalism, *jouissance*, and 'excessive environmentourism' in the South African rhino poaching crisis

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Abstract

From 2007 till 2015, rhino poaching grew rapidly in and around Kruger National Park, South Africa. And though poaching numbers have declined since then, the 'poaching crisis' and its consequences continue to influence rhetoric and practice in the area, including continuing public outcries that the rhino is close to extinction. This discourse of extinction is also prevalent among the luxurious tourist lodges on private nature reserves of the Greater Kruger Area that attract wealthy tourists. In response, some lodges started initiatives in which tourists can join the fight against rhino poaching. These tourist activities share important similarities with 'philanthrocapitalism', in which wealthy philanthropists address social and environmental challenges drawing on the same business principles that made them successful. Based on research on the tourism industry, I explore the political ecology of such high-end, 'environmentourist' activities. I argue that philanthropic environmental tourist activities are based on a reductionist articulation of the rhino poaching crisis. They de-politicize it from its socio-economic and historical context and are 'excessive', in that they produce and legitimize exorbitant forms of privatized, luxurious tourism and consumerism as a solution for social and environmental crises. Moreover, such 'excessive environmentourism' allows wealthy tourists to enjoy 'doing good' in a very specific way, best captured by the term '*jouissance*.' *Jouissance* is a particular type of ambivalent enjoyment that includes fascination with dark and horrific elements (i.e. poached rhinos and the idea that these animals are at the brink of extinction). I conclude that *jouissance* functions as a core motivation for wealthy tourists to engage in touristic experiences precisely because it enables them to believe they can overcome the dark sides of their own excesses ironically by 'doing good', grounded in excessive consumption.

Keywords: Extinction, enjoyment, *jouissance*, philanthrocapitalism, South Africa, rhino poaching, tourism

Résumé

De 2007 à 2015, le braconnage des rhinocéros s'est rapidement développé dans et autour du parc national Kruger, en Afrique du Sud. Et bien que le nombre de braconnage ait diminué depuis lors, la « crise du braconnage » et ses conséquences continuent d'influencer la rhétorique et la pratique dans la région. Le public proteste toujours que le rhinocéros est proche de l'extinction. Ce discours d'extinction est également répandu parmi les lodges touristiques luxueux du Grand Kruger qui attirent des touristes riches, sur des réserves naturelles privées. En réponse, certains lodges ont lancé des initiatives dans lesquelles les touristes peuvent se joindre à la lutte contre le braconnage des rhinocéros. Ces activités touristiques partagent d'importantes similitudes avec le « philanthrocapitalisme », dans lequel de riches philanthropes abordent les défis sociaux et environnementaux en s'appuyant sur les mêmes principes qui ont fait leur succès en affaires. Sur la base de recherches sur l'industrie du tourisme, j'explore l'écologie politique de ces activités «écotouristiques» haut de gamme. Je soutiens que les activités touristiques environnementales philanthropiques sont basées sur une articulation réductionniste de la crise du braconnage des rhinocéros. Ils le dépolitisent de son contexte socio-économique et historique et sont « excessifs », en ce qu'ils produisent et légitiment des formes exorbitantes de

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tourisme luxueux et privatisé et de consumérisme comme solution aux crises sociales et environnementales. De plus, un tel « écotourisme excessif » permet aux touristes riches de profiter de « faire le bien » d'une manière très spécifique, mieux capturée par le terme « jouissance ». La jouissance est un type particulier de plaisir ambivalent qui inclut la fascination pour les éléments sombres et horribles (c'est-à-dire les rhinocéros braconnés et l'idée que ces animaux sont au bord de l'extinction). Je conclus que la jouissance fonctionne comme une motivation essentielle pour les touristes riches à s'engager dans des expériences touristiques, car elle leur permet de croire qu'ils peuvent surmonter les côtés sombres de leurs propres excès, ironiquement en « faisant le bien », tout en étant fondés sur une consommation excessive.
Mots-clés: Extinction, jouissance, philanthrocapitalisme, Afrique du Sud, braconnage de rhinocéros, tourisme

Resumen

De 2007 à 2015, le braconnage des rhinocéros s'est rapidement développé dans et autour du parc national Kruger, en Afrique du Sud. Et bien que le nombre de braconnage ait diminué depuis lors, la « crise du braconnage » et ses conséquences continuent d'influencer la rhétorique et la pratique dans la région. Le public proteste toujours que le rhinocéros est proche de l'extinction. Ce discours d'extinction est également répandu parmi les lodges touristiques luxueux du Grand Kruger qui attirent des touristes riches, sur des réserves naturelles privées. En réponse, certains lodges ont lancé des initiatives dans lesquelles les touristes peuvent se joindre à la lutte contre le braconnage des rhinocéros. Ces activités touristiques partagent d'importantes similitudes avec le « philanthrocapitalisme », dans lequel de riches philanthropes abordent les défis sociaux et environnementaux en s'appuyant sur les mêmes principes qui ont fait leur succès en affaires. Sur la base de recherches sur l'industrie du tourisme, j'explore l'écologie politique de ces activités «écotouristiques» haut de gamme. Je soutiens que les activités touristiques environnementales philanthropiques sont basées sur une articulation réductionniste de la crise du braconnage des rhinocéros. Ils le dépolitisent de son contexte socio-économique et historique et sont « excessifs », en ce qu'ils produisent et légitiment des formes exorbitantes de tourisme luxueux et privatisé et de consumérisme comme solution aux crises sociales et environnementales. De plus, un tel « écotourisme excessif » permet aux touristes riches de profiter de « faire le bien » d'une manière très spécifique, mieux capturée par le terme « jouissance ». La jouissance est un type particulier de plaisir ambivalent qui inclut la fascination pour les éléments sombres et horribles (c'est-à-dire les rhinocéros braconnés et l'idée que ces animaux sont au bord de l'extinction). Je conclus que la jouissance fonctionne comme une motivation essentielle pour les touristes riches à s'engager dans des expériences touristiques, car elle leur permet de croire qu'ils peuvent surmonter les côtés sombres de leurs propres excès, ironiquement en « faisant le bien », tout en étant fondés sur une consommation excessive.
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1. Introduction

Since 2007, rhino poaching grew rapidly in and around Kruger National Park, South Africa, until 2015, when rhino casualties started to go down again. Many attempts to curb this poaching crisis, and the concomitant, oft-proclaimed extinction of the rhino, have been taken by government, civil society and private actors, including the dehorning of rhinos, 'educating' local communities about nature conservation and, most prominently, the militarizaton of conservation areas (Annecke and Masubelele 2016; Büscher 2016, 2018; Büscher and Ramutsindela 2016; Duffy *et al.* 2019; Hübschle 2017; Lunstrum 2014, 2016, 2018; Massé and Lunstrum 2016; Morais *et al.* 2018). Increasingly, the tourism industry has also started to play an important role in curbing the crisis. The connection between the rhino poaching crisis and tourism has, amongst others, been investigated by Massé (2019), whose focus is on the industry's use of social media; Saayman and Saayman (2017), who focus on the species' economic value; Morais *et al.* (2018), looking at 'community level' tourism micro-entrepreneurship; and Lubbe *et al.* (2019), who have studied the impact of rhino poaching on the tourism industry and on tourists. I contribute a philanthrocapitalist and psychoanalytic analysis of several anti-poaching initiatives set up by the high-end tourism industry. In most political ecological literature about poaching, sustainable tourism is approached as a market-based income-generating mechanism to provide funds for conservation (see, for example, Brockington, Duffy, and Igoe 2008; Igoe 2017). This reveals important processes of power when people interact with nature, with an emphasis on socio-economic inequality and late capitalist practices (Mostafanezhad *et al.* 2016). Taking a similar approach, I focus on recent developments in

the high-end, privatized, or 'excessive' tourism industry, which is excessive in the sense that it promotes elitist lifestyles in which exorbitant material consumption has become the standard: "late capitalist societies (whether in the West or Third World) are characterized by the normalization of excess—the desire for the best, biggest, tallest, richest, most original" (Kapoor 2020: 16).

On the private nature reserves to the west of Kruger—an area referred to as the 'Greater Kruger Area'—the already high number of luxury tourist lodges keeps growing (see, e.g., Hoogendoorn, Kelso, and Sinthumule 2019). And many tourists, when they learn about the rhino poaching crisis, "in some way want to be involved in the fight against poaching" (Lubbe *et al.* 2019: 14). Therefore, the discourse of the rhino as close to extinction has set in motion many philanthropic initiatives to 'save' the species for tourists to provide financial and in-kind support. Subsequently, high-end tourist lodges have now developed a rather large and intriguing suite of activities in which tourists can join the fight against rhino poaching. They can, for example, physically take part in activities to microchip rhinos (and their horns) to track down criminals (KC 2020); visit and donate to a rhino orphanage (RR 2020); do a tour to an anti-poaching unit or visit the world-famous, all-female and unarmed anti-poaching unit the Black Mambas (Pondoro 2017). One activity that stands out is when tourists join a translocation of rhinos to 'safer' havens, where anti-poaching policies are much stricter, such as Botswana.

The article builds on and extends existing literature about philanthropy, capitalism, and conservation, in southern Africa and globally (Diallo 2015; Holmes 2010, 2012; Ramutsindela 2009, 2015; Ramutsindela, Spierenburg, and Wels 2011). Since "the precise means by which philanthropy creates, transforms and mobilizes money, political resources, images and discourses and turns them into conservation practices are unclear" (Holmes 2012: 200), I explore the role of philanthropic tourism activities as an important strategy in this. My analysis of the political ecology of what I call 'environmentourism' provides for a further conceptualization of this niche type of tourism, in which *the impact of tourism itself* on an environmental problem (in this case rhino extinction) is at the core of the tourism experience (cf. Baptista 2017). This conceptualization is informed by literature about philanthrocapitalism (Bishop and Green 2010; Edwards 2008; Kapoor 2013; Wilson 2014a), in which the wealthy and famous provide support for charities to eradicate poverty and/or to support environmental causes. It refers to philanthropy in which wealthy, successful (and often famous) people claim that the same methods and ideas (business techniques and ways of thinking) that made them successful capitalists should now be replicated to resolve contemporary environmental and social problems (Bishop and Green 2010, see further below).

In addition, the article advances a critique of philanthrocapitalism by uncovering elements of it that take place unconsciously and irrationally (see also Kapoor 2013), especially the 'enjoyment' of philanthropy as created in the interaction between tourists and the industry. Tourism activities provide accessible ways for wealthy tourists to enjoy 'doing good', because, I suggest, the industry sets up these activities in such a way that tourists can find their '*jouissance'* in them.[2] The psychoanalytic concept of *jouissance* addresses the unconscious and irrational, referring to a particular type of enjoyment that goes beyond 'pure' or conventional ideas about enjoyment: it also includes fascination for the dark and horrific sides of things, such as poached rhinos and the idea that these animals are at the brink of extinction. Furthermore, in environmentourism, the strong focus on exorbitant and excessive consumption is presented as if this creates an ultimate experience of pleasure and relaxation. More critical analyses, however, argue that although holidays tend to be associated with a relief from duties to achieve relaxation, pleasure and a break with obligations, they are also responsible for the exploitation of labor, environmental degradation or cultural destruction (Kingsbury 2005). Tourism's 'just' or conventional enjoyment thus cannot be separated from politically pressing issues of exploitation, domination and environmental degradation (Kingsbury 2005; cf. Žižek 2008).

In what follows, I first present the methodology, followed by an elaboration on environmentourism, philanthrocapitalism, and *jouissance*, and how they relate. Next, I present several environmentourist initiatives, with a specific emphasis on one particular initiative in which rhinos are translocated from South Africa to Botswana. These activities tap into fantasies of the white savior of African nature, and show how exorbitant

[2] It goes beyond the scope of this article to elaborate on the theoretical embedding of *jouissance* in psychoanalysis more broadly. See, for instance, Žižek (2008), and for *jouissance* in relation to tourism, Buda (2015), Fletcher (2014a), Kingsbury (2005) and Koot and Fletcher (2021). For *jouissance* in relation to philanthrocapitalism see Wilson (2014b).

luxury goes hand in hand with feelings of disgust and horror about poached rhinos. In the subsequent discussion and conclusion I suggest that within environmentourism the pursuance of *jouissance* leads wealthy tourists not only to forms of excessive consumption but in fact to see this as their ethical responsibility. In this way, new niche types of ethical tourism come to be seen as sustainable, all the while legitimating the further expansion of neoliberal capitalism as something innately good (cf. Duffy 2015; Fletcher 2011). My final argument is that philanthropic environmentourist activities are based on a reductionist articulation of the rhino poaching crisis, de-politicizing it from its socio-economic and historical context, while legitimizing privatized, luxurious tourism and pushing exorbitant consumerism as a solution for social and environmental crises. *Jouissance* functions as a core motivation in this for wealthy tourists to engage in touristic experiences precisely because it enables them to believe they can overcome the dark sides of their own excesses ironically by 'doing good' grounded in excessive consumption.

2. Methodology

The findings of this article are based on a combination of ethnographic research and critical discourse analysis (CDA). The ethnographic research was focused on tourism in relation to the rhino poaching crisis and the broader 'wildlife economy' on and around private nature reserves in the Greater Kruger Area, South Africa. Fieldwork took place between September 2016 and June 2019 for almost 5 months in total.[3] During this time, I conducted 87 semi-structured interviews. Interviewees were selected based on their involvement in either the wildlife economy and/or rhino poaching, after which a snowballing method was used by asking for more potential interviewees at the end of interviews. Some 39 interviewees work(ed) in the tourism industry (e.g. lodge owners, managers) and these form the core of the empirical results informing this article. It is important to mention that interviews about rhino poaching and the broader wildlife economy often also provided much information about the tourism industry. Thus, although some of these interviewees did not directly work in tourism, many had much knowledge and a strong opinion about the industry and often worked *with* the industry (e.g. municipal and provincial government officials, wildlife estate inhabitants, wildlife estate managers and developers, private game reserves' wardens, conservationists). Furthermore, I participated in some of the high-end tourism 'anti-poaching' activities, including a visit to a rhino orphanage, a visit to a 'poacher's garden' and an activity organized by a lodge to visit the Black Mamba's all-female anti-poaching unit.

Additionally, CDA was an important methodology (Fairclough 2012; Van Dijk 1993). CDA focuses on "*the role of discourse in the (re)production and challenge of dominance* [which is] the exercise of social power by elites, institutions or groups, that results in social inequality, including political, cultural, class, ethnic, racial and gender inequality" (Van Dijk 1993: 249-50, emphasis in original). CDA very specifically investigates "what structures, strategies or other properties of text, talk, verbal interaction or communicative events play a role in these modes of reproduction" (Van Dijk 1993: 250; see also Fairclough 2012). Its focus on the (re)production of social power is important in this article; it aligns with an explicit critique on philanthrocapitalism, namely its concentration of power (Edwards 2008; Kapoor 2013), and an analysis of discourse as presented by 'those in power' is therefore an important addition to the ethnographic material. In my selection, I focused on popular and marketing outings (i.e. travel magazines, websites) by the tourism industry about 'do good', or ethical, nature conservation activities they offer for tourists, with a focus on private nature reserves and tourist lodges in the Greater Kruger Area. However, it soon became clear that many linkages were to be found with other areas in, and sometimes outside of, South Africa, due to the often regional and/or (inter)national work of the philanthropic initiatives. I subsequently linked my ethnographic findings to the discourse about rhino poaching, while the industry's articulations of and argumentation for their philanthropic tourist activities gave me the possibility to identify the creation of fantasies and desires on which tourists' *jouissance* is based. One thread of media sources that is especially important for this article is the 'African Ark' project with actress Uma Thurman and Wilderness Safaris, which was covered by the popular magazine *Town & Country* (Glowczewska 2015a). My analysis is based on an interpretation of these qualitative sources. After closely reading many texts and websites, I focused on material about philanthropic initiatives in relation to the South African rhino poaching

[3] Over two weeks in September/October 2016, January 2017 and May/June 2019, and approximately one month in July 2017, October/November 2017 and May/June 2018.

crisis, clearly targeted at high-end tourists, particularly if these initiatives were presented as having a direct impact on the crisis.

3. Environmentourism, philanthrocapitalism, enjoyment

Environmentourism

Tourists travelling to Africa do this mostly from a relatively safe 'tourist bubble', "created to host visitors, the arrangements for their travel, stay, well-being and above all for their safe return home" (Van Beek and Schmidt 2012: 13). This bubble is also prevalent in environmental initiatives for tourists in Africa, that are based on discourses that portray the beauty of African nature as well as its threats, such as extinction. The rhino poaching crisis is loaded with imagery of suffering animals, which are in urgent need of protection (Büscher 2016; Lunstrum 2014), and this protection can now ostensibly be achieved through what I term 'environmentourism.' The neologism 'environmentourism' is inspired by 'developmentourism' (Baptista 2017), in which the focus of the *development impact of tourism itself* is crucial, since "the merging of development and tourism" into one single practice means the two are not distinct, and thus "should appear as a single word and a single morpheme" (Baptista 2017: 94).

Environmentourism differs from other types of ethical nature-based tourism, including many globally prominent ecotourism initiatives. As a niche type of tourism, environmentourism lacks a core characteristic of ecotourism, namely that 'local communities' are included to be 'developed' and benefit from the tourism activities (see West and Carrier 2004). While ecotourism has a specific focus on sustaining "the well-being of the local people" (TIES 2021), environmentourism *only* focusses on addressing environmental concerns, and thus ignores local communities' well-being. This does not mean that specific lodges might not also support some type of 'community project' elsewhere, but an environmentourist activity itself is one solely targeting a specific environmental problem. And although environmentourism overlaps with other types of ethical tourism such as volunteer tourism, it still shows important differences: when compared to volunteer tourism, environmentourism has a stronger focus on a nature-based tourist experience infused with wealth and luxury, thereby taking place in an environment of excesses and exorbitance. Furthermore, while it also "creates value in the trade of experiences in or with 'nature'", environmentourism still differs from volunteer tourism because 'voluntourists' are mostly "young people [who] will gain experiences necessary to compete in a highly competitive economy" (Brondo 2015: 1405-1406). Volunteer tourism projects thus target ecological projects that are also opportunities for self-development (Strzelecka *et al.* 2017). Environmentourism, however, is focused on people who already *have* become successful in the economy, most of whom are not young anymore.

Philanthrocapitalism

Environmentourism strongly aligns with some core principles of philanthrocapitalism, in which former types of philanthropy are regarded as largely ineffective, due to their limited integration of basic business principles (Bishop and Green 2010; Farrell 2015). Philanthrocapitalism should be seen as an important element of the contemporary global political economy, in which capitalism adds 'a conscience' to its activities (Farrell 2015). In fact, according to philanthrocapitalist advocates Bishop and Green (2010: 2), "much philanthropy over the centuries has been ineffective. They [philanthrocapitalists] think they can do a better job than their predecessors [by] trying to apply the secrets behind that money-making success to their giving". Important preferences within philanthrocapitalist projects are commercial management styles, short term targets, quantitative goals, and technical solutions for environmental and social challenges (Edwards 2008). Well-known philanthrocapitalists include Bill Gates, Richard Branson or George Soros, who built up their wealth in the corporate or financial sector, in addition to many celebrities such as Angelina Jolie, Bono or Oprah Winfrey.

Philanthrocapitalism's effectiveness has so far not been proven, and has been heavily critiqued. For instance, it allows for a concentration of power and prosperity among the wealthy. Based on "private visions of the public good" (Raddon 2008: 38), philanthrocapitalist funding is not democratic: decisions are taken by a wealthy elite, and the ideology behind philanthrocapitalism infuses competitive principles into civil society (Dean 2005; Edwards 2008; Giridharadas 2018; Reich 2018). Thus, there is a lack of accountability and political

legitimacy because "[e]lites decide, according to their own priorities, prejudices, or idiosyncrasies, what causes matter, how much to spend on them, and in what manner" (Kapoor 2013: 65). This ignores attention for structural social changes in the broader political economy (Edwards 2008). Efforts to counter contemporary ecological problems have increasingly been addressed by engaging the same capitalist markets and mechanisms that are for a large part responsible for the same environmental problems (Fletcher 2014b; Büscher *et al.* 2012). Complex social and environmental issues are presented in a simplified manner, leading to commodification of the problems and presenting markets as 'common sense' (Farrell 2015). Despite these important critiques, philanthrocapitalism's influence is growing, providing a 'business model' that "is sold as a panacea, applicable to government programmes as much as philanthropic causes" (Kapoor 2013: 47).

Philanthrocapitalism becomes increasingly important for political ecology. After all, ecological crises such as the climate and biodiversity crises, are not caused by humans *in general*, but by the capitalist economic system that aims for endless economic growth while benefiting a minority of wealthy people (Hickel 2020b). In fact, one person among the richest 1% emits hundred times more CO_2 than somebody among the world's poorest half, and the richest 10% of the global population has emitted more than half of the total CO_2 since 1990. Furthermore, rich people tend to invest a lot in ecologically destructive industries (e.g. mining or fossil fuels) to subsequently consume high energy products such as luxury imports, private jets, big cars, business class flights, big houses and excessive holidays (Hickel 2020a). Such behaviour is often aimed at endless material excesses and continually affects the environment and social relations. Furthermore, since philanthrocapitalists are often framed as successful, they set a standard for a much larger culture of excessive consumerism. Thus, although philanthrocapitalism is conventionally associated with the 'very rich', "the essential features of philanthrocapitalism" can today be made available "to everyone" (Bishop and Green 2010: 239). Therefore, it is "not just billionaires and their mega-foundations that command attention" (Reich 2018: 9); seen as a "movement *led by* these super rich" (Bishop and Green 2010: xi, emphasis added), it is followed by many others (Koot and Fletcher 2020), including wealthy tourists. The pleasure that exorbitant consumption brings about, however, can be regarded more than 'only' conventional pleasure.

Enjoyment/jouissance

For philanthrocapitalists it is important to be able to *enjoy* giving away money or 'doing good.' Indeed, "Bill Gates likes to recruit new super-rich philanthropists by telling them how much he is *enjoying* giving away his money, so *fun* is part of the popular philanthrocapitalism formula" (Bishop and Green 2010: 244, emphasis added). In addition to addressing global inequality (and environmental problems), Wilson (2014b) explains that philanthrocapitalism, through the mobilization of *jouissance*, also provides a visceral enjoyment *of* global inequality. The Lacanian concept of *jouissance* is not the same as the common-sense understanding of enjoyment: it is "the raw libidinal energy of the bodily drives, which is only experienced as enjoyment when structured by specific fantasies that underpin our sense of reality" (Wilson 2014b: 113). In this case, tourists can tap into fantasies about themselves as white saviors, who are needed to save African nature from brutal, mostly black, poachers (Abidin *et al.* 2020). Based on colonially grounded, racial inequalities, conservation spaces "create space for white saviors to make their mediagenic interventions" (Abidin *et al.* 2020: 10; cf. Mbaria and Ogada, 2016). Such fantasies structure our relationship to *jouissance*, which is simultaneously associated with the pleasure associated with pain, disgust, and the horrified fascination *of* enjoyment (Wilson 2014a). Furthermore, *jouissance* contains a continuous expression of excesses (extravagant wealth and luxury) that become normalized, leading to pain and counterproductivity through the seductions of capitalist development "in spite of its production of inequalities and environmental ills" (Kapoor 2020: xiv). These fantasies channel desire for *jouissance* in specific directions by attaching it to specific objects (i.e. rhinos) that avow to deliver it. This fundamental ambivalence, however, makes *jouissance* promise gratification it can never really deliver: the pain one experiences in the pursuit of pleasure turns into pleasure in the experience of pain (Žižek, 1989). Thus, fantasy's promise to provide a desired satisfaction in the future conceals the impossibility of this promise and stimulates further pursuance of *jouissance*.

Through philanthrocapitalism, "[j]ust as we are encouraged to vicariously enjoy the wealth of the philanthrocapitalists, we are equally invited to experience extreme poverty through their eyes" (Wilson 2014b:

115). To this enjoyment of inequality, I add environmental degradation, which we can experience through the anguish, grief and pain when hearing about climate change or species extinction. By participating in activities to protect the rhino, wealthy tourists buy into this problem as ethical consumers who simultaneously connect to pleasure and pain, including their own anguish and grief about the situation. As a capitalist product, ethical environmental tourism offers experiences of *jouissance*, creating "a feeling of intense sensation or excitement that, although commonly framed as unequivocal enjoyment, in fact frequently entails significant negative emotions and bodily sensations as well" (Fletcher 2014b: 103). Using the concept of *jouissance* builds on earlier studies on tourism and hedonism (Malone *et al.* 2014; Strzelecka *et al.* 2017), where the pleasure element of (ethical) tourism is central. And although some of these studies have addressed the element of pain too (e.g. Malone *et al.* 2014), overall the exploration of the attraction that the dark and horror side of contemporary ethical tourism activities can instigate has thus far been limited (Koot and Fletcher 2021). More specifically, no one has investigated how pain and pleasure interact subconsciously and irrationally in tourism, which makes *jouissance* important when investigating different types of ethical tourism.

I now move to the results section on environmentourism, in which I first position tourism in the Greater Kruger Area in its socio-economic context. Next, I zoom in on the specific case of 'Africa's Ark' and the role of actress Uma Thurman, and how her experience is used as marketing for a specific environmentourist trip. Furthermore, I show the promotion of excessive and exorbitant consumption, in and beyond tourism, and how tourism is presented as the best solution against rhino proaching, while structural inequalities are ignored. After showing that environmentourism is a growing phenomenon well beyond the Greater Kruger Area, I analyze excessive environmentourism in the discussion and conclusion as an extension of philanthrocapitalist ideology that offers *jouissance* as a core driver of such activities.

4. Environmentourism against rhinocide?

Since apartheid was abolished in 1994, disparities in wealth in South Africa have endured, particularly regarding land, which is still largely controlled by a predominantly white minority (Goodman 2017; Koot, Hitchcock, and Gressier 2019). *De facto*, this is an economic continuation of apartheid for most black people, whose "political liberation has yet to translate into broad material gains" (Goodman 2017; see also Alexander 2002; Bond 2014). An important reason is that private interests have become prioritized, including those of mining, agriculture, and tourism. Communities around the Greater Kruger Area suffer from bad public services, and at times have set up protests on the entrance roads towards Kruger National Park. By closing roads with debris and burning tires, they have prevented international tourists to enter the park, at times throwing stones and intimidating tourists. The protests did not necessarily seek a response from tourists, but by affecting tourism a quicker response is expected from officials. It led a tour operator to explain that the tourists "have to sometimes give up their dream of having one day in the Kruger National Park", while the industry has "become pawns in the non-delivery protests, and I wonder when the police and government are going to act and protect us?" The assumption here is that tourism has nothing to do with the protests. Mainly worried about the industry's image, another tour operator explained that he feared a tourist would get injured, which could "cause a business to crumble" (De Villiers 2018).

Against this background, several interviewees explained they lost trust in the government to address the issue of (rhino) poaching, due to corruption and disinterest. As a lodge owner stated, "I think the private operators, the lodges, are doing far more than the government does" (interview, 15 November 2017). Especially the Sabi Sands private reserve was often presented as a role model, since it "is relatively affluent and can therefore afford higher anti-poaching costs when compared to most other reserves", resulting in much lower poaching numbers. This is regarded as "marketing for our owners, who can explain this to their tourists" (interview, 25 June 2018). However, the protests as described above are part of the broader socio-economic and political context in which contemporary environmentourism thrives. And although it is not my intention here to say that the specific examples in this article are directly related to these activities, or that the industry is to blame for them, I do suggest that the industry plays a crucial role in local and national politics: it needs to legitimize its own presence and influence in the area, and the implementation of environmentourist activities supports this legitimization.

For many tourism operators, neighboring Botswana is considered a better place for nature conservation. For this reason a lodge and land owner donated an airplane to the government of Botswana to support their anti-poaching efforts. Moreover, he is involved in rhino translocations to tourism property in Botswana together with a rich philanthropist from the Netherlands. He explained that the enormous growth of luxurious lodges in the Greater Kruger Area is disturbing:

> This growth is not always good from an ecological point of view and it creates much disturbance. For this reason, Botswana is great: at a certain point they have made the choice for top class tourism with high prices so that much money will trickle back into the industry without creating an overload. (interview, 10 November 2017)

However, this high-value/low-volume tourism has received substantial criticism (Magole and Magole 2011; Mbaiwa 2005), including on how at one point it led to a 'shoot-to-kill' policy in protected areas under the Khama administration (Duffy *et al.* 2019). But this was quickly dismissed by the same lodge and land owner as "very exaggerated […]. It is not as if the Batswana government are just shooting at everything and everybody there, but if they are being shot at they will shoot back" (interview, 10 November 2017).

Environmentourism's activities are thus not separated from their wider social and political context, and the activities themselves have important consequences for nature and people. I now zoom in onto one project in particular, described as Afrika's Ark in the popular magazine *Town & Country*.

"Only tourism can save them"

The high-end tourism company Wilderness Safaris has long cooperated with the Botswana government, in particular the Botswana Defense Force (BDF), which provides military transport planes and soldiers to assist with rhino translocations. As one of the biggest high-end tourism operators in southern Africa and a self-declared "**leading conservation and tourism company** in the industry today" (WS 2015, emphasis in original), Wilderness Safaris initiated the 'Botswana Rhino Reintroduction Project' in 2001 as a solution against the 'local extinction' of the black rhino in Botswana (WS 2021). The project takes a central position in a magazine article called 'Africa's Ark', marketing this project as a tourist attraction in which tourists can experience "[e]ight adrenaline-fueled days rescuing rhinos in South Africa and Botswana" (Glowczewska 2015a). The popular magazine, *Town & Country*, is all about luxury, style, travel and leisure, presenting rhinos as facing extinction due to poaching by 2024 (Glowczewska 2015b), since "wildlife experts estimate they may be gone in just 10 [years]" (Glowczewska 2015a: 159). Furthermore, the urgency to act is emphasized by Wilderness Safaris' CEO explaining that "[w]e have to do this *now*" (cited in Glowczewska 2015a: 163, emphasis in original). Booking company Explore Inc., which is where this eight-day trip can be booked exclusively, also emphasize the importance to stop "the seeming unstoppable rhino holocaust" (Briggs 2020). To join this fight against extinction, tourists are offered the eight-day rhino relocation trip. Described as a "safari like no other", this trip provides tourists "[a]n unprecedented opportunity to participate in the most dramatic conservation story of the 21st Century" (Glowczewska 2015b). The magazine article (Glowczewska 2015a) and the description of the trip on the *Town & Country* website (Glowczewska 2015b) are both focused on potential high-end tourists, attempting to lure them into the Botswana Rhino Reintroduction Project. Dramatic narratives about helpless rhinos, their expected extinction and ruthless poachers are easily alternated with descriptions of the safari as luxurious and exorbitant, and how one can be part of the solution. This way, pleasure and pain are continually used as bait for potential tourists who can buy into the fantasy of saving Africa's threatened nature.

The trip starts off with a charter flight from Johannesburg to the Royal Malewane safari lodge at the Thornybush Private Nature Reserve in the Greater Kruger Area, which is "as opulent as safari lodges get [and where you can b]eat your jetlag with a massage or a swim at the spa" (Glowczewska 2015b). The lodge is a proud founding member of the Greater Kruger Environmental Protection Foundation (GKEPF), a military anti-poaching initiative that would not "be possible without the valuable patronage of our guests, many of whom generously contribute additional funds after coming face to face with these majestic creatures [rhinos] at Royal Malewane" (RM 2020). By doing this, guests thus also support the increase of militarized interventions to

prevent poaching. During the first three days at Royal Malewane, tourists receive an introduction to nature conservation, they do several game drives, a walking safari, sundowners and star constellation watching. On day four, they fly to Johannesburg and stay there for one night. In the afternoon and evening they can consider any type of 'urban' activity, to continue the journey to Botswana the next morning. Alternatively, tourists can choose to book a charter from Royal Malewane (at additional cost) straight to Wilderness's Mombo Camp in the Moremi Game Reserve, Botswana (Glowczewska 2015b). Just like Royal Malewane, Mombo Camp "is luxury *au naturel*: canvas tented suites on raised wooden walkways, indoor and outdoor showers, 100 percent solar-powered (Wilderness Safaris walks the sustainability talk), with private and public bars, generously stocked" (Glowczewska 2015a: 172). Here the tourists stay for the last three days. On arrival, tourists receive a briefing during high tea on how Wilderness Safaris supports rescuing rhinos; they can experience a (relocated) rhino capture from a helicopter; they can monitor their whereabouts and health; they can fit the animals with tracking devices; if lucky, they can even witness the release of a rhino back into the wild. Furthermore, because it is "largely Botswana's diamond wealth that enables its exemplary conservation stance" (Glowczewska 2015b), it is also possible to visit a diamond mine run by the world's second-largest diamond company DeBeers. The trip is expensive: US$ 18,655 per person and a tax-deductible requirement of US$ 25,000 per person for the Wilderness Wildlife Trust to Rhino Conservation Botswana (Glowczewska 2015b; see also WWT 2016).

Importantly, the project was supported by Botswana's former President Ian Khama and his brother the Minister of Environment, Wildlife and Tourism, Tshekedi 'T.K.' Khama. While the protection of natural resources in Botswana used to be the main mission of the BDF (Glowczewska 2015a), former president Khama is one of the shareholders of Linyanti Investments, a subsidiary of Wilderness Holdings, and his nephew and lawyer are also on the board of Wilderness Holdings (Ntibinyane 2011). This could explain why Wilderness Safaris is Botswana's "longtime partner" (Glowczewska 2015a: 161), in the country where T.K. Khama proudly articulated the urgency to shoot potential poachers if "they do not surrender their arms immediately on request" (Glowczewska 2015a: 201).

Political and economic elites were complemented by further including Hollywood actress Uma Thurman. In the *Town & Country* article, the eight-day trip is promoted with 'tough girl' Thurman as 'the tourist.' Her support is meant to attract "passionate travelers with a deep interest in conservation", whose trip "will closely parallel Uma's adventure" (Briggs 2020). She agreed to support the prevention of what she dubbed "rhinocide", which refers to the pain one feels when experiencing (stories about) the slaughter of rhinos (Glowczewska 2015a: 161). In classic *jouissance* terms, Thurman explained that "[t]he beauty of these animals and the absurdity of their plight is so painful" (in Glowczewska 2015a: 161). This pain showed in a promotional video, together with her happiness, when she cried at the release of rhinos at the end of her trip (T&C 2015). In the extensive article, many moments of pleasure and pain are described to further promote this type of environmentourism focused on philanthropic engagement and funding (Glowczewska 2015a,b). For instance, in addition to the strongly articulated focus on consuming tourism experiences to support the quest against rhino extinction, excessive consumption is promoted more generally throughout the Africa's Ark article: Thurman also functions as a model on pictures throughout the article, branding luxury clothes and jewelry with their prices, including Purdey, Ralph Lauren, Rolex and Chopard (Glowczewska 2015a). This shows the opulent character of the high-end tourism industry, related media and private nature reserves, creating an "enclosed condition of elite life that appeals to fantasy, sometimes eccentricity, but defines immersion in an environment that sets a limit on and horizon of experience" (Marcus 2018: 63).

As Thurman reflected back on the trip, she concluded: "[t]here is always hope" (Glowczewska 2015a: 202). The eight-day trip, or environmentourism more generally, is an important exponent of this hope: it promises tourists that they can be an important part of the solution, easing the pain of poaching by joining pleasant tourist experiences, all the time embedded in exorbitant luxury. Wilderness' CEO, for instance, explains that the tourists are crucial for them to be able to raise all the funds. This apparently shows

> …how crucial all tourism in Africa is to the survival of wildlife and the wilderness. If travelers don't come to safari lodges, human population pressure is such that over time the land on which animals now roam will be repurposed—for cattle, agriculture, or development. African

> communities will lose the jobs tourism generates (Mombo Camp employs 2.5 people for every bed), and the only places you'll be able to see a rhino or hear a lion roar will be in a zoo. (Glowczewska 2015c)

The owner of Explore Inc. added that "this is what 'tourism' is all about—conserving the last havens for wildlife in our fantastic natural world. African wildlife is under siege [and *o]nly tourism can save them*" (Briggs 2020, emphasis added).

The tourism solution in context

This core idea—that tourism is crucial to solve rhino poaching—is widely shared among lodge owners and managers in the Greater Kruger Area. One lodge owner and investor in several reserves explains:

> I am often blamed for my high prices. […] We as landowners are forced—and we do this with love—to invest a lot of money in protecting these animals, but one way or the other it needs to be paid for. If you as tourists do not want to pay for it, then there won't be any rhinos anymore. […] The tourist also has a big responsibility here: a tourist must be willing to pay for this otherwise there will be no protection. (interview, 10 November 2017)

Spectacles of consumption, presented as a 'responsibility', are targeted at wealthy people, forsaking in-depth analysis of broader socio-economic structural problems relating to the rhino poaching crisis. This includes often deplorable labor circumstances at the private nature reserves and in conservation, often failing public services and racial and socio-economic inequalities, and land ownership injustices that have historically been created under colonialism and apartheid (Ramutsindela 2015; Hübschle 2017; Morais *et al.* 2018; Thakholi 2021). One could argue that such structural inequalities are crucial causes of poaching, but that does not withhold some people to regard 'the rich' philanthropists as *the* saviors, as this manager of a collection of luxury lodges explained:

> I have this very interesting theory about rhinos and private reserves: Do rhinos belong to the poor or they belong to the rich? It belongs to the rich! All the land, game farmers and all these estates are private reserves. It's rich and super-rich. I am not talking about middle-class; I am talking about rich. My theory is: why should the public come and fund your anti-poaching? I always believe if you buy the Range Rover but you cannot afford the fuel, don't have it. If you cannot afford to look after your rhinos, then you sell it. At Thornybush [where Royal Malewani is situated] we don't have any funds for anti-poaching, it is all funded by the reserve, and [...] at Thornybush, or Timbavati, or Sabi Sands, you know, there is all billionaires. (interview, 15 November 2017)

Nonetheless, some lodge owners are very critical about 'selling' environmentourism as 'philanthropic', as the following lodge owner and rhino breeder explains:

> My estimate is that we spend about [ZAR] 150,000 to 250,000 per rhino a year.[4] At Sabi Sands […] I tell my neighbors 'we are not doing conservation', it's for commercial reasons, we want to show it to our guests. Once we have made that honest decision, we can respond accordingly. If we were doing conservation by saving a species from the brink of extinction, which we are not, then you cannot shoot people. If you are doing it for commercial imperative, then you can't shoot people. […] I do not believe that the rhino are remotely on the brink of extinction in South Africa. (interview, 24 July 2017)

[4] About US$ 11.575,- to 19.291,- at the time, based on https://www.wisselkoers.nl/calculator.

Following this line, Ramutsindela (2015: 2260) calls this type of environmental philanthropy "extractive", meaning that it achieves three interrelated objectives, namely "to push back land claims, to give wealth-generating activities a human face, and to control a labour pool for purposes of upmarket ecotourism ventures". However, an owner of various lodges in the area, who is himself involved in several philanthropic endeavors, does not consider the large-scale land privatizations (that are essentially in conflict with a variety of land claims) as problematic:

> Privatization is not a problem; Kruger park is public and provides access to larger groups of people. It is even necessary because due to private investments about 250,000 hectares to 300,000 hectares have been added to the park. This has been very important for the numbers of wildlife and the ecology. (interview, 10 November 2017)

Nature is thus often prioritized, and environmentourist activities disentangle it from socio-economic structures, especially inequality, and disregard problematic histories. By doing this, environmentourism legitimizes the existence of high-end privatized tourism, its excessive consumerist lifestyles and the land it needs. This gives the capitalist activities an 'ethical' twist and a 'conscience' (cf. Farrell 2015). Such legitimization also shows when lodge owners explain to collaborate with communities, for example by setting up community tourism camps (that operate separately from the luxurious lodges) to provide local people with jobs. One lodge owner explained:

> The industry now tries to involve the communal areas, often areas that are not being used, or being used faulty, in such a way that it does not create any benefits. So the traditional use of land for small-scale agriculture is very inefficient from an economical point of view. (interview, 10 November 2017)

Well-intended philanthropic community tourism projects consequently were set up based on the classic philanthrocapitalist idea that "the only way to make this a success is to run it as a proper business" (interview, 10 November 2017). However, one lodge manager emphasised that community tourism and the jobs that tourism generates more generally are very limited, and that structural issues are more demanding:

> Some of my lodges, I would say, you pay maybe [ZAR] 20,000 per room per night, other lodges is 30,000 per person per night,[5] there around. There is going to come a level when staff and the community are going to question: what is happening with that money? Are we making the rich richer? How much of that money is filtered back in the communities? […] You can't have this disparity between very poor people and extremely rich people literally a mile apart. (interview, 15 November 2017)

And in the highly competitive Greater Kruger Area with a growing number of high-end lodges, it becomes increasingly important to show your 'uniqueness.' Simply more luxury is not enough anymore and although it remains attractive, it clearly has its limits. The horror of an extinction crisis, however, can reinvigorate a unique tourism possibility, creating excitement and fulfilling one's search for meaning. As explained by an interviewee:

> It's […] good selling, you know, we've got a K9 unit [military or police trained sniffing dogs] and we've got 14 anti-poachers, it sells well, you know, 'cause you need to differentiate these days, you know, all these different lodges we do all the same, we do game drives, we've got a smart room, you get a steak, a massage and a pool, but you always want to do something different. (interview, 15 November 2017)

[5] About US$ 1,387 and US$ 2,079 respectively at the time, based on https://www.wisselkoers.nl/calculator.

Environmentourism activities can fill this lack by tapping into the fascination that potential tourists have about the 'repulsive' poaching crisis, thereby increasing lodges' market value. Furthermore, they bring together political and economic elites, including wealthy tourists, and are grounded in fantasies about rhinos in need of saving from 'bad' poachers. The discourse continually alternates between the pleasure (luxury, comfort, but most of all the fantasy about oneself as an important savior of African nature) one derives from fighting the horror of poaching, allowing tourists to experience *jouissance*.

Environmentourism beyond the Greater Kruger Area

The examples above are not isolated ones. For instance, the two luxury tourism companies &Beyond Phinda Private Game Reserve and Great Plains Conservation collaborate in a project called 'Rhinos Without Borders', an initiative that "calls on all members of the travel industry to join hands in order to make a difference" (RWB 2016) to be able to translocate rhinos from private game reserves in South Africa to Botswana. Similar to Wilderness Safaris, this project also presents the rhino as nearly extinct, offering tourists a "fundraising safari", to support the translocation of 100 rhino "from South Africa to safe havens in Botswana" (AfricaDiscovery 2014), which, according to the Great Plains CEO, "has an excellent security system in place" that will support the survival of the species "for future generations to enjoy" (AfricaDiscovery 2014).[6] In fact, "both Great Plains Conservation and &Beyond will announce specific fundraising initiatives to enable tourism stakeholders, travel partners, tour operators and guests to help save this iconic species" (AfricaDiscovery 2014). In this case, an eleven-day safari costs 'only' US$ 13,200 per person, including a donation for Rhinos Without Borders, but if a tourist is willing to donate between US$ 250,000 and US$ 1 million he/she also receives a nine-day safari for two people (Lunstrum 2018). Additionally, there are possibilities to book a 'rhino conservation experience' (including de-horning and rhino notching/tagging), a 'rhino notching experience' or a three or four-day 'rhino conservation safari' (including darting and notching) (RWB 2020). Just like Uma Thurman, both the CEOs of &Beyond and Great Plains Conservation felt tears welling up when watching translocation activities (see McNicoll 2018), tears that are likely a result of pleasure because one has actively reduced the 'pain of poaching.'

Such environmentourism is not limited to southern Africa or the rhino. &Beyond, for instance, has now started "more interactive itineraries such as the Phinda Impact Small Group Journey and the Oceans Without Borders Small Group Journey or our Travel With Purpose tours in South Africa and East Africa" (McNicoll 2018). Some safari lodges offer the opportunity to tourists to fit elephants with GPS collars to reduce human-wildlife conflict in Tanzania. Promoted as "safaris with a purpose", tourists can enjoy a four nights/five days full board safari, including game drives, all meals and beverages, gin, archery, wine tastings and tennis from "USD 19,464 for 4 people plus a tax deductible contribution of USD 25,000 per person" for the collaring project (Singita 2020). Moreover, tourists can also experience exposure to "high tech anti-poaching headquarters, training with the new canine unit, learning more about the Environmental Education Centre and other community outreach projects", all the while enjoying luxurious accommodation facilities (Singita 2018). Collaborations with communities, however, should, according to the CEO of &Beyond, be done with community development committees that are "as *apolitical* as possible" (McNicoll 2018, emphasis added). Altogether, this confirms findings in critical literature regarding the continued marginalization of surrounding communities and the de-politicization and de-historicization of structural causes of the rhino poaching crisis and conservation more generally (Hübschle 2017; Ramutsindela 2015; Thakholi 2021). Moreover, it disregards problematic aspects of neo-colonial, racial and ethnic power inequalities within the South African tourism industry (Koot 2016; Morais *et al.* 2018). De-politicization, in this context, refers to "the removal of public scrutiny and debate, with the result that issues of social justice are transformed into technocratic matters to be resolved by managers, 'experts', or […] celebrities" (Kapoor 2013: 3). Environmentourism thus provides for

[6] In 2020, after tourism had reduced tremendously due to the COVID-19 pandemic, the number of poaching incidents were rising in Botswana. The Great Plains CEO blames this on the absence of safari tourists and subsequent reduced human presence. As a result, in April 2020, "six poachers were killed by law enforcement", and the government of Botswana intensified its anti-poaching surveillance. Ironically, wildlife officials and Rhinos Without Borders are now collaborating to evacuate the rhinos again to a confidential location elsewhere in Botswana (Maron 2020).

unique, de-politicized and de-historicized consumption experiences, in which pleasure and pain continually interact. I now move to the discussion and conclusion of these findings in relation to philanthrocapitalism and *jouissance*.

5. Discussion and conclusion: enjoyment in the environmentourism bubble

Environmental problems such as rhino poaching are often presented in a reductionist and simplified manner, disregarding the important social, political economic and historical contexts of such problems that are the focus of political ecology (Biersack 2006). The high-end tourism industry is no exception to this, and thus its activities are relevant to the field of political ecology more generally: they need to be seen within their broader context, and the relatively powerful position of the high-end tourism industry continually mediates human-environment relations. This emphasises the importance of environmentourism for political ecology, as a niche in nature-based tourism, which contains two core characteristics. First, the tourism itself impacts a specific environmental problem, and second, this happens in an elitist environment. Regarding the latter, Hübschle (2017: 440) explained that current conservation initiatives are often based on

> …archaic and elitist preservation and conservation paradigms that discount the potential for harmonious relationships of local communities and wildlife. In the modern context, protected areas continue to present manifestations of colonial dispossession, apartheid segregation and neoliberal expansion. Conservation areas are seen as symbols of elite interests and wealth, inaccessible to the poor majority.

Subsequently, the problem, i.e. the rhino poaching crisis in this article, is commodified through the presentation of solutions, dressed-up as tourism spectacles, that people can take part in. However, the translocation of rhinos to 'safer haven' Botswana indeed used to be safer *for rhinos* due to a shoot-to-kill policy *directed at people*. Moreover, the Botswana style of tourism, which is focused on the promotion of high-end luxurious tourism, is in this case considered *the* solution against extinction, despite the creation of 'enclave tourism', the removal of profits from Botswana, the ownership of many tour operators by foreigners, and separating large parts of the rural population from natural resources (Magole and Magole 2011; Mbaiwa 2005). Nonetheless, this type of tourism is what many reserve and lodge owners envisage in the Greater Kruger Area: "a type of ecotourism that supports the conservation of the environment by minimizing the ecological impact of tourists" (Ramutsindela 2015: 2263). In line with philanthrocapitalist ideology, many people stated a broad distrust in the (South African) government, and especially interviewees from the private tourism sector articulate a similar suspicion for the many NGOs also undertaking initiatives to protect the rhino or to invest in community development, which they generally believe they can do much better.

Excessive environmentourism in the Greater Kruger Area has thus become an important form of 'ethical consumption', based on self-congratulatory rhetoric about its beneficial outcomes while obscuring environmental and social consequences (Fletcher 2014b). In fact, it goes even further when industry representatives say that wealthy tourists are *responsible* for saving the rhino through consumption, so that without doing their 'duty' by enjoying this crisis, the rhino would go extinct. In this process, conservationists "may frame biodiversity issues in ways which facilitate philanthropy, by positioning them as merely needing philanthropy, rather than more structural political and economic changes, to be resolved" (Holmes 2012: 190). This opens up avenues within philanthrocapitalist ideologies for many others to 'buy ethically', ensuring that "consumers are induced to become de facto philanthropists" (Kapoor 2013: 66), boosting corporations' brands and giving them legitimacy. The urgency of the rhino poaching crisis creates an anti-intellectual attitude that urges people not to *think*, but to *do*, unquestioningly accepting the status quo. In environmentourism then, it is important that *the performance* of the act is visible, much more than *the content* of the act (cf. Debord 1967).

The presentation of Uma Thurman as a mover of nature conservation shows how celebrities play a crucial role in reproducing elite social networks (Brockington 2009). They create opportunities for 'everyday people' to mimic the powerful and famous (Igoe 2017). Kapoor (2013), in relation to humanitarianism, argues that celebrities play an important role in the legitimization and promotion of global inequality and neoliberal

capitalism, from which they continually benefit. Typical of philanthrocapitalism is that celebrities and their charity work function as *a promotion of* capitalism as the solution to contemporary social and environmental problems, leaving the governing elites mostly unaccountable for their role in larger structural environmental and social issues (cf. Kapoor 2013). The philanthrocapitalist environmentourists in this case become "the audience, […] integral to, and complicit in, the process – through our fandom, our enjoyment of the celebrity spectacle, our consumption of charity products" (Kapoor 2013: 3-4). An important driver in this process is, of course, *jouissance*.

The role of jouissance

From a dominant position, tourists experience *jouissance*: capitalism provides them with glamorous lives, in which they can enjoy capitalism to the fullest and promote it. At the same time, their position as the dominant saviors also provides for the secret enjoyment of the pain that capitalism inflicts on many other people and the environment, creating pleasure for those in charge (cf. Kapoor 2013). *Jouissance* thus plays an important role in this when responding to the urgent call to save the rhino from the brink of extinction, as articulated by many industry actors today.

Our fantasies and desires are continually exploited under capitalism, offering new products for consumption that can never truly satisfy and thereby create a continuous (feeling of) absence. Consumption and materialism address this absence and keep capitalism going (Fletcher 2018). Because people feel "that what they have is inadequate. It creates constant pressure for people to learn and buy more – not because they actually need it, but because they want to approximate the consumption habits of richer people" (Hickel 2020a). However, this leads to us "buying more stuff in order to feel better about ourselves, but it doesn't work because the benchmark is perpetually out of reach" (Hickel 2020a). Absence is continually confirmed and activated through advertisements articulating mimetic enjoyment. Thurman's modelling for luxurious brands, aimed at wealthy tourists inspired by the African Ark story, shows how "the excess of the powerful and wealthy itself serves as advertisement, spurring mimetic consumption by those at the middle and bottom of the social ladder" (Kapoor 2020: 104). Most of the burden of an exorbitant lifestyle is put on marginalized groups around the world, e.g. through the climate crisis or abhorrent labor circumstances in sweat shops. Emotional and commodified encounters with animals might "reshape societal relations with nature, but [do so] in uneven and incomplete ways" (Duffy 2015: 529). Environmentourism thus intensifies and expands global structures of inequality and exploitation under neoliberal capitalism. *Jouissance* then also becomes a *distributor* of pleasure and pain; it directs one pain (e.g. the pain one feels when watching a poached rhino) onto others (e.g. marginalized people).

Today, the tourism industry has become "a large scale industry that sells solutions to both local social problems in the Global South and existential ethical crisis in 'the North'" (Baptista 2017: 17). By choosing a particular form of tourism, tourists affirm "their personal and socio-cultural identity" (Salazar 2004: 85). It is important that such experiences are branded as unique; they need to be authentic for the tourists and have an impact on them in various ways, including self-realization and the search for identity through consuming ethical activities (Salazar 2004). In fact, "[t]oday such imagined possibilities, opportunities to participate in philanthropic activities, are often part of the appeal of nature experiences that tourists choose between" (Igoe 2017: 30). The safe African tourist bubble created for the consumption and commodification of nature provides environmentourists with a platform on which they can have such 'authentic' experiences of doing good, a means to address their fantasies through creations in the tourism industry. In excessive environmentourism, the tourist bubble has become much more than simply a safe haven, it is mostly an environment "that elites create for themselves [...] they can feel immersed in an opaque or translucent bubble [depending on] a limit on looking in their surrounds that only confirms a particular reality" (Marcus 2018: 63-64). Tourism in these areas provides for a real, physical fence, as well as a psychological space within which one can save the world without (fully) taking part in it through evermore excessive consumption.

This article has shown how the industry provides for such environmentourist experiences through a continuous pursuit of *jouissance*, but it does not present any tourist perspectives. Such perspectives and the meanings attached to environmentourist experiences still need further exploration, not only in

environmentourism but broader in 'do good' or ethical tourism (Koot and Fletcher 2021; Malone *et al*. 2014). In the end, the pleasure that such types of tourism instigate cannot—and thus should not—be seen apart from its connection with pain, horror and disgust. The larger consequence of the 'sustainability' of such ethical tourism is, however, the expansion of neoliberal capitalism, confirming capitalism's innate 'goodness' and its consequent further progress (cf. Duffy 2015; Fletcher 2011). This generally happens without acknowledging tourism's role in socio-economic, racial and environmental problems. Overall, this leads me to argue that philanthropic environmentourist activities are based on a reductionist articulation of the rhino poaching crisis, de-politicizing it from its socio-economic and historical context, while legitimizing privatized, luxurious tourism and pushing exorbitant consumerism as a solution for social and environmental crises. *Jouissance* functions as a core motivation in this: wealthy tourists engage in touristic experiences precisely because it enables them to believe they can overcome the dark sides of their own excesses, ironically by 'doing good' while grounded in excessive consumption.

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Populist authoritarian neoliberalism in Brazil: making sense of Bolsonaro's anti-environment agenda

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Abstract

In Brazil, the looming threat of mass extinction has prompted increasingly exceptional measures to protect sensitive biomes. At the same time, such measures threaten to curtail capitalist expansion and thus Brazil's neoliberal model of economic development. Jair Bolsonaro's 2018 presidential campaign responded to these threats by fueling anti-environment sentiments and anti-environmentalist enmity. Once inaugurated, he immediately began the work of dismantling national environmental governance structures. Yet his strategies for doing so are often masked by what this article describes as a 'firehouse effect', where his tactics appear chaotic, confused, and lacking any particular goal. The article uses a combination of interviews with 35 environmental experts, participant observation, and a review of secondary sources to zoom in on Bolsonaro's anti-environmentalism within the context of the contemporary turn toward populist authoritarian neoliberalism. By focusing on how Bolsonaro's policies serve to weaken protective environmental measures that limit capitalist extraction, the article unearths the major anti-environment strategies of the Bolsonaro administration. This framework thus allows us to see through the 'firehouse effect' to make some sense of Bolsonaro's methods, further building on emerging research on the political ecologies of the contemporary populist authoritarian neoliberal turn. Moreover, the article shows the utility of applying a generalized populist authoritarian neoliberal framework to a particular context in order to identify its local processes and specificities.

Keywords: Populist authoritarian neoliberalism, environmental governance, Bolsonaro, Brazil, 'firehouse effect'

Résumé

Au Brésil, la menace imminente d'extinction massive a suscité des mesures de plus en plus exceptionnelles pour protéger les biomes sensibles. Simultanément, de telles mesures menacent de freiner l'expansion capitaliste et donc le modèle néolibéral de développement économique du Brésil. La campagne présidentielle de Jair Bolsonaro en 2018 a répondu à ces menaces en alimentant les sentiments anti-environnementaux et l'inimitié anti-environnementaliste. Une fois inauguré, il a immédiatement commencé à démanteler les structures nationales de gouvernance environnementale. Pourtant, ses stratégies pour y parvenir sont souvent masquées par un « effet de diversion », où ses tactiques semblent chaotiques, confuses et sans objectif particulier. L'article utilise une combinaison d'entretiens avec 35 experts en environnement, la participation et l'observation en 2019, et un examen des sources secondaires pour se concentrer sur l'anti-environnementalisme de Bolsonaro dans le contexte du néolibéralisme autoritaire populiste. En se concentrant sur la façon dont les politiques de Bolsonaro affaiblissent les mesures de protection environnementales qui limitent l'extraction capitaliste, l'article met au jour les principales stratégies anti-environnementales de l'administration. Ce cadre nous permet de voir à travers « l'effet de diversion » pour donner un sens aux méthodes de Bolsonaro, en s'appuyant sur les recherches

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émergentes sur les écologies politiques du tournant néolibéral autoritaire populiste contemporain. De plus, l'article montre l'utilité d'appliquer un cadre généralisé pour rechercher les processus locaux et les spécificités du néolibéralisme autoritaire populiste.

Mots-clés: néolibéralisme autoritaire populiste, gouvernance environnementale, Bolsonaro, Brésil, « effet de diversion »

Resumo

No Brasil, a iminente ameaça de extinção em massa tem levado a medidas cada vez mais excepcionais para proteger biomas sensíveis. Ao mesmo tempo, tais medidas ameaçam restringir a expansão capitalista e, portanto, o modelo neoliberal de desenvolvimento econômico do Brasil. A campanha presidencial de Jair Bolsonaro de 2018 respondeu a essas ameaças alimentando sentimentos anti-ambientais e inimizade anti-ambientalistas. Uma vez inaugurado, deu início imediato ao trabalho de desmontagem das estruturas nacionais de governança ambiental. No entanto, suas estratégias para fazer isso são frequentemente disfarçadas pelo que este artigo descreve como um 'efeito firehouse', em que suas táticas parecem caóticas, confusas e sem um objetivo específico. O artigo usa uma combinação de entrevistas com 35 especialistas ambientais, observação participante e uma revisão de fontes secundárias para analisar o anti-ambientalismo de Bolsonaro no contexto da virada contemporânea em direção ao neoliberalismo autoritário populista. Focando em como as políticas de Bolsonaro servem para enfraquecer as medidas de proteção ambientais que limitam a extração capitalista, o artigo demonstra as principais estratégias anti-ambientais do governo Bolsonaro. Este quadro permite-nos assim ver através do 'efeito firehouse' para dar algum sentido aos métodos de Bolsonaro, construindo ainda mais a pesquisa emergente sobre as ecologias políticas da virada neoliberal autoritária populista contemporânea. Além disso, o artigo mostra a utilidade de aplicar um quadro neoliberal autoritário populista generalizado a um contexto particular, com o fim de identificar seus processos e especificidades locais.

Palavras-chave: Neoliberalismo populista autoritário, governação ambiental, Bolsonaro, Brasil, 'efeito firehouse'

1. Introduction

The Amazon rainforest is the largest and most biodiverse tropical rainforest in the world, with 60% falling within Brazilian borders. Although the rainforest is most likely what comes to mind when people contemplate environmental politics in Brazil, the country is home to two other important biodiversity hotspots – the Atlantic Forest and the Cerrado (Myers *et al*. 2000). The relatively high rate of habitat loss in all three biomes – the latter up to and over 90% – has stoked a deep sense of urgency to curtail deforestation in Brazil, with conservationists using a combination of surveillance via satellite (Voiland 2019) and legal structures (Jung *et al*. 2017) to limit extractive practices in these biomes.

In what has been referred to as a judicial-parliamentary coup, Brazil's former president Dilma Rousseff of the Worker's Party (PT) was impeached in 2016 (Saad-Filho and Boffo 2020). And after the failure of her successor (and former vice president) Michel Temer's administration to address a deepening economic crisis, Luiz Inácio Lula da Silva (aka Lula) appeared likely to win the 2018 election. A founding member of the PT, Lula had previously served as president from 2003-2011 and is widely regarded as one of Brazil's most popular presidents (Saad-Filho and Boffo 2020). However, in a continued attempt to take down the PT, Lula was arrested in April of 2018 under charges of corruption (Wilkinson 2018).[2] Taking advantage of the political unrest associated with corruption scandals and the economic crisis, Jair Bolsonaro, a retired military officer and member of the conservative Social Liberal Party, ran a contentious and polarizing campaign steeped in a politics of enmity towards the environment and 'others'.[3]

In January 2019, Bolsonaro was inaugurated as Brazil's president. Congruent with Brazil's agribusiness and associated interest groups, he insisted that Brazil's economic failures are, amongst others, a result of the

[2] Lula was released in November 2019, the charges were later annulled, and the presiding judge Sergio Moro was found to be biased by the Supreme Court (Brito 2021).

[3] As McCarthy (2019) notes, the distinction of internal and external 'others' (e.g. immigrants and racialized minorities) as enemies of progress is a common tactic of populist authoritarian neoliberal leaders and assists the justification of the dissolution of democratic protections, norms, and institutions.

measures taken to combat biodiversity loss and species extinctions. He immediately began the work of dismantling national environmental governance structures and institutions. His anti-environment actions were so swift and numerous that the press had difficulty deciding which ones to headline (Gonzales 2019). For example, when Bolsonaro's initial plans to merge the Ministry of Environment (MMA) with the Ministry of Agriculture, Livestock, and Food Supply (MAPA) met opposition (Casado and Londoño 2019), he instead appointed Ricardo Salles[4] as head of the MMA. Salles, who was convicted of altering an environmental protection plan to benefit extractive industry as former head of a São Paulo state environmental agency, went to work turning the MMA into a pro-agribusiness ministry (Schipanii and Harris 2019), thus "answering the Rural Caucus' interests" (Environmental Nongovernmental Organization [ENGO] employee specializing in public policy, July 2019). Around the same time, Bolsonaro announced plans to move environmental licensing to a self-regulated scheme (Gonzales 2019). On the day of his inauguration, Bolsonaro issued a presidential decree to "supervise, coordinate, monitor and accompany the activities and actions of international organizations and nongovernmental organizations (NGOs) in the national territory." As part of this initiative, Salles immediately suspended all partnerships between NGOs and federal environmental agencies in Brazil, pending a review of all such partnerships (Stargardter 2019).

Over two years later, there continue to be signs that Bolsonaro is weakening environmental agencies, easing and privatizing environmental regulation, and diverting environmental funding to agribusiness (Branford and Torres 2021; Escobar 2021; Reuters 2021). Yet his attempts to do so have often seemed chaotic, disorganized, and haphazard, creating the appearance of a lack of strategy.[5] In part, this is due to his conflicting declarations of his love for the environment and his record of dismantling protective measures for that same environment (Fox and Lang 2019). But this perception is also due to his penchant for issuing statements that are overwhelmingly falsifiable (Aos Fatos 2019) and presidential decrees on actions that are not possible nor legal (Coletta and Faria 2019; Spring 2019a; The Associated Press 2019). Also contributing to the perception of a lack of strategy, Bolsonaro is known for 'shooting from the hip.' In his first six months in office, he issued 202 decrees compared to 94 and 174 for the two presidents before him (Harris and Schipanii 2019). From an outside observer's perspective, his actions indicate a high degree of incompetence. Yet the net effect has been that Bolsonaro has succeeded in weakening environmental governance structures in Brazil (Ferrante and Fearnside 2019; Spring 2019b).

Although the rapid ascendance of Bolsonaro came as a surprise to many, it is consistent with the more general recent turn toward populist authoritarian neoliberalism across the globe. As is the case in Brazil, this trend is widely recognized as emerging from the continued failure of neoliberal reforms to address problems of growing socioeconomic inequality, unemployment, and poverty following the 2008 economic crisis (Bruff and Tansel 2019b; Fabry and Sandbeck 2019b; McCarthy 2019). Yet there is some debate on how the shift to neoliberal authoritarianism unfolds and few studies that have examined this shift have focused their analysis on environmental deregulation. Moreover, although such works are beginning to emerge, few have sought to understand the role of antics (seemingly random and erratic behaviors and actions) in masking this shift. In this article, I address these gaps by examining Bolsonaro's anti-environmentalism within the context of the contemporary turn toward populist authoritarian neoliberalism. I do so by going directly to environmental experts, including those in academia, government agencies, and NGOs.

My reasoning for this approach was that, regardless of how participants felt personally toward Bolsonaro, environmental experts would presumably have reliable knowledge on the anti-environmental effects of Bolsonaro's policies. Building on this knowledge, I argue that there are at least five major strategies that can be identified in Bolsonaro's antics and that the 'firehouse effect' works to mask these. The strategies include the 'skeletonizing' of environmental administrative bodies, dissolution of CONAMA and other civic spaces,

[4] At the time of the latest draft of this article, Salles recently resigned after facing illegal logging probes. He was replaced by a 20+ year veteran agribusiness lobbying board member, Joaquim Alves Pereira Leite (Ennes 2021).

[5] In this article I use the term 'strategy' to refer to an overall plan for accomplishing specific goals. I thus use the term interchangeably to describe Bolsonaro's 'master plan' of removing barriers to capital accumulation, as well as his specific sets of plans for achieving this goal (e.g. 'skeletonizing' of environmental bodies). I use the term 'tactic' to refer to specific actions that are deployed as part of a strategy.

reorganizing within the ministries, defunding of NGOs and federal universities, and cooptation of exceptional environmental measures in times of crisis. I describe each of these in the below sections. Before I get to these, however, I briefly summarize the situation in Brazil and review the literature on political ecologies of authoritarian neoliberalism and the strategies employed by authoritarian neoliberal leaders with respect to the environment.

2. Extinction, exception, and enmity in Brazil

In recent history, Brazil was widely acknowledged as a global leader in combatting climate change and species extinctions (Branford and Borges 2019; Casado and Londoño 2019; Trinkunas 2014; Viscidi and Graham 2019). Through a combination of measures that included stricter legislation, law enforcement, and monitoring and surveillance to crack down on illegal logging and support reforestation, Brazil was able to reduce its deforestation rate by around 80% between 2005 and 2012, among other environmental successes (Silva Junior *et al*. 2021). At the same time, the measures that led to these results were often criticized as being too restrictive, in terms of regulations on land use for Brazil's agricultural outputs (Arsenault 2017). For example, agricultural and ranching businesses with unpaid environmental fines were prevented from receiving government subsidies until settling their debt, municipalities with high rates of illegal deforestation were "blacklisted", and the network of Protected Areas was expanded (Carvalho *et al*. 2019).

Recently, the government began to implement the Cadastro Ambiental Rural (CAR), a registry that was set up to track compliance with the part of the Brazil's Forest Code[6] that requires specific percentages of private land to be set aside for conservation (the percentage varies with location). Although Philippe Le Billon highlights how CAR has led to land grabbing by agribusinesses in some cases (Le Billon 2021), conservationists have found it to be a particularly important tool for establishing wildlife corridors, which are tracts of land that connect isolated forest patches to offset the effects of habitat fragmentation, one of the primary drivers of extinction (Crooks *et al*. 2017). To help ensure compliance with the Forest Code, CAR registrants are monitored by Brazil's National Institute for Space Research (INPE), which has made extraordinary advances in tracking deforestation through satellite imagery, allowing for more efficient and targeted responses to illegal logging and land clearing (Assunção, Gandour and Rocha 2013; Assunção and Rocha 2019; Puthuparambil 2019). All of these exceptional measures have been important for tackling high rates of deforestation and species extinctions in Brazil.

While many of the restrictions on extractive practices and land use in Brazilian forests were eased by the 2012 modifications to Brazil's Forest Code, several politicians still claim that the exceptional environmental regulations in Brazil are at the root of the deepening economic crisis (Arsenault 2017; Nugent 2021). Among these is Jair Bolsonaro, who in addition to blaming corruption for Brazil's economic woes has described Brazil's environmental protection as "suffocating" economic growth (Rachman, Blasina and Schipani 2019; Viscidi and Graham 2019) and believes that "environmental politics (is getting) in the way of business" (ENGO employee specializing in public policy, April 2019). Bolsonaro is staunchly pro-business, known for his disregard for environmental regulations (Spring and Eisenhammer 2019) and science (Escobar 2021; Tollefson 2018), and for making racist, misogynistic, homophobic remarks (Borba 2020; Kaul 2021; Lehman 2018; Da Silva and Larkins 2019). He garnered popular attention during the presidential campaign by promising to fix corruption and perceived threats to the national economy of Brazil with swift, decisive, and uncompromising action (Hunter and Power 2019; Tollefson 2018). He captured the economic angst of the 'ordinary' citizen and directed it toward internal and external racialized and 'ideological' 'others' (Borba 2020; D. Phillips 2019a; Tollefson 2018). These ideological others include all those who would get in the way of economic expansion through capital accumulation, especially environmental and social advocates, and particularly scientists that support these advocates' claims (Acebes, Wilkinson and Téllez-Chávez 2019; Pettorelli *et al*. 2019; Tollefson 2018). His campaign was steeped in anti-environment enmity with direct attacks on prominent Brazilian environmental figures (Acebes, Wilkinson and Téllez-Chávez 2019) and promises to roll back environmental regulations and enforcement to free up land for development and extraction (Bogliolo 2019; Casado and Londoño 2019; Saad-

[6] The Forest Code of 1965 is the country's main mechanism for forest protection on private lands.

Filho 2018). Once in office, he has pursued his campaign promises with fervor and total disregard for the Constitution and legislative processes, often attempting to dismantle and eradicate legal barriers to his agenda (Coletta and Faria 2019; Observatório do Clima 2020).

For these and other reasons, many analysts recognize Bolsonaro as a populist authoritarian neoliberal (McCarthy 2019; Saad-Filho 2018). At the same time, his antics make his tactics seem so chaotic and unplanned that many environmental experts have expressed difficulty with determining whether he has any strategy, or if he is just 'shooting from the hip' (Cowie, 2018; Harris and Schipanii, 2019; and as demonstrated in Section 4). Moreover, since this 'shooting from the hip' has been given so little attention in the literature on populist authoritarian neoliberal environmental governance, there is no guide for understanding how such behavior may serve to mask strategies. As the home of some of the most important areas in the world for biodiversity and climate stability, Bolsonaro's campaign promises to eliminate environmental restrictions on extraction are alarming. Moreover, it seems important to understand the anti-environmentalism of populist authoritarian neoliberal leaders and how it relates to their strategies if we hope to develop effective counterstrategies. Next, I review the literature on political ecologies of authoritarian neoliberalism and the environmental strategies of populist authoritarian neoliberals to situate Brazil and Bolsonaro within this broader context and argue that this allows us to start making sense of his antics.

3. Political ecologies of authoritarian neoliberalism

The rise of countries turning toward an 'authoritarian fix' (Bruff 2014) is rapidly becoming a focus of study and cause for alarm. Putin in Russia and Xi in China in 2012, Modi in India and Erdoğan in Turkey in 2014, Duterte in the Philippines in 2016, Battulga in Mongolia and Trump in the US in 2017, Bolsonaro in Brazil in 2019, and, most recently as of this writing, Johnson in the UK in 2019. Each of these countries has its own particularities and histories that led to the election of populist neoliberal 'strongmen.' But what they have in common is their political economic trajectories characterized by the failure of neoliberal reforms to address deepening crises of socioeconomic inequality, unemployment, and poverty (Brown 2020; Fabry and Sandbeck 2019a; Fraser 2017). Although many scholars have written about these trends and their relationship to the contemporary populist authoritarian turn, Ian Bruff (2014) is one of the first analysts to define 'authoritarian neoliberalism' and use it as a theoretical framework through which to understand the post-2008 global trend toward 'strongman' leadership (Fabry and Sandbeck 2019a).

Although the populist authoritarian strand of the aforementioned turn seems relatively uncontested in the academic literature, the neoliberal strand is not always so clear. For example, the determined attempts of leaders such as Trump and Johnson to exit international partnerships and free trade agreements may be interpreted as a withdrawal from neoliberalism by some. However, several scholars have argued that such attempts at protectionism do not signal a departure from neoliberalism (Bell and Christoph 2020; Cornelissen 2021; Cozzolino 2018; Fuchs 2017). On the contrary, analysts such as Wraight (2019) have honed in on this 'neoliberal protectionism' to demonstrate how Trump's trade policy (2017-2021) was actually a return to past neoliberal practices. Such practices are aimed at forcing other nations to fall into line with their market-based logic, with coercion operating through "the blunt use of protectionism or threats of protectionism. . . as a device by which powerful nations, like the US, can insist on the imposition of market driven norms" (*ibid*. p. 741). This, he argues, was evident in Trump's trade war with China, launched to address the threat that China's industrial policies pose to the global economic order. Meanwhile, Johnson's protectionism is driven by a need to release restrictions on UK trade (rather than to impose restrictions on other nations). As Bell (2019) argues, Johnson and other UK neoliberal leaders favored exiting the EU because they believed the regulations were too restrictive and thus harming unfettered economic growth. While these strategies may appear to reflect different goals on the surface, Johnson and Trump are (or were) pursuing the same ultimate goal as Bolsonaro, removing restrictions to capital accumulation.

In addition to discussions on what characterizes neoliberal leaders, the utility of using a neoliberal framework to analyze seemingly disparate actors, contexts, and cases such as the ones above, has been the subject of ongoing academic debate (see Cahill *et al.*, 2018 and Peck and Theodore, 2019 for summaries). This debate usually occurs as two supposedly polar opposites, where scholars tend toward one of "the twin pitfalls

of both monolithic fetishization, on one hand, and endless contextualization on the other" (Holmes and Cavanagh 2016, p. 201). However, Brenner and Theodore (2002) argue that 'actually existing neoliberalism' is best understood as series of processes of neoliberal*izations*, that interact with local realities in context-dependent ways. Thus neoliberal proponents and leaders engage different processes and strategies of neoliberalization, depending on the tools and opportunities available to them (Dawes and Lenormand 2019; Peck 2013). Following Holmes and Cavanagh, Brenner and Theodore, Peck, and others, Dawes and Lenormand (2019) attempt to find a middle ground between the two pitfalls by "accommodating a fluid and variegated appreciation of contextual difference while maintaining a structural approach that recognizes the ways in which local differences and contextually embedded forms are shaped by wider processes" (p. X). This becomes ever more important as there is clearly an increasingly authoritarian tenor to these processes; that is to say leaders of contemporary democracies are increasingly engaging in such processes without consent (whereas before there was at least the illusion of it) (Brown 2020; Bruff 2014; Peck and Theodore 2019). This article builds on this work by using a populist authoritarian neoliberal framework to tease out local manifestations of populist authoritarian neoliberal tactics that may otherwise be lost in 'endless contextualization.'

Since Bruff's (2014) foundational article on 'authoritarian neoliberalism', references to the term and its broad applications have grown – often as collaborative efforts to grapple with the problem – at multiple conferences, in edited volumes and special issues, and in stand-alone articles. Such attempts to understand and theorize authoritarian neoliberalism in all its shapes and forms have covered myriad and broad topics, but few have focused on these as they relate to the environment. There was a notable lack of such analyses in the *Oxford Handbook of the Radical Right* (Rydgren 2018), which contained chapters on multiple themes and connections. The environment is also missing from several other prominent works on authoritarian neoliberalism, including Cas Mudde's (2019) *The Far Right today,* the special issue on 'Authoritarian Neoliberalism: Philosophies, practices, contestations' in *Globalizations* (Bruff and Tansel 2019b), and on 'Authoritarian Neoliberalism' in *Competition & Change* (Fabry and Sandbeck 2019b). This is certainly not for a lack of links between the two. Indeed, "(t)he connections between the widespread rise of authoritarian and populist leaders, administrations, and movements on the one hand and destructive trends in environmental politics and governance on the other are legion" (McCarthy, 2019, p. 305). Yet, to my knowledge, the only collaborative attempt to understand contemporary authoritarianism that includes a discussion of the environment, is the recent special issue in the *Annals of the American Association of Geographers* on 'Environmental governance in a populist/authoritarian era' (McCarthy, 2019).

In the introductory article to the *Annals* issue, McCarthy (2019) argues that:

> …many contemporary authoritarian regimes are pursuing and deepening long-standing neoliberal goals with respect to the environment, removing restrictions on capitalist production by withdrawing from constraining international agreements and standards, rolling back domestic environmental protections, and appointing heads of polluting corporations to head the very agencies that are supposed to regulate those corporations. (p. 306)

Yet such practices have not occurred without dissent. And this is where authoritarian neoliberalism departs from its predecessor, 'progressive' neoliberalism. According to Bruff (2014, p. 116, emphasis in original), "(a)uthoritarian neoliberalism does not represent a wholesale break from pre-2007 neoliberal practices, yet it is qualitatively distinct due to the way in which neoliberalism's authoritarian tendencies . . . have come to the fore through a shift *toward* constitutional and legal mechanisms and *away* from seeking consent for hegemonic projects." Still, a major question remains: *How* do these shifts occur? In other words, how does one accomplish this elimination of the need for consent *without* . . . consent?

To answer this question, some have argued that authoritarian strategies include attempts to marginalize, discipline, and control "dissenting social groups and oppositional politics rather than strive for their explicit consent or co-optation" (Bruff and Tansel 2019a, p. 234). With respect to the environment, Acara (2019) discusses how the strategies of centralization and lack of transparency and clarity in water resource governance

in Turkey has normalized such processes in the country in general. Mullenite (2019) demonstrates how flood control infrastructure design and management have been used in Guyana to create and maintain ethnic divisions that served to support an ethnic nationalist authoritarian regime. Arefin (2019) describes how the Egyptian state has reframed the causes of environmental disasters in ways that support the continued control of the repressive regime. Rather than acknowledging the cause of a severe flood as a failure of environmental governance and a result of climate change, the Egyptian state claimed the floods were an act of terrorism. In this way, the state is able to simultaneously relieve itself of obligations with regard to environmental governance, while creating justifications for its continued restrictions of freedoms and use of force.

Several scholars have also noted manipulation of emotions by discursively linking values with political ideologies and agendas as a primary strategy of the far right, with some examining the specific ways this strategy is deployed with respect to ideas of climate change and energy extraction (Forchtner, Kroneder and Wetzel 2018; Graybill 2019; Lockwood 2018). Still others have observed the important role that discourses and narratives around peace and security play in helping secure authoritarian power and control over environmental resources (Kantel 2019). While studies such as these on environmental governance strategies during the shift to authoritarian neoliberalism have begun to emerge, few have addressed the antics – seemingly random and erratic behaviors and actions – that often accompany these shifts. Several studies have relied on the idea of 'spectacle' to explain how Trump's antics quickly gained him popularity and secured his win at the 2016 US Presidential election (Fuchs 2017; Hall, Goldstein and Ingram 2016; Kellner 2016). Pulido *et al.* (2019) show how Trump's rise in the use of 'spectacular racism' corresponded to an intensification of environmental deregulation. They argue that the 'spectacular' ways in which Trump deploys his racism, amongst others, functions to effectively mask the processes of environmental deregulation as they unfold. However, few studies have gone beyond the distractive aspect of 'spectacle' to examine the sense of chaos and confusion such antics create. Nor have studies interrogated how such effects add to the difficulty of identifying specific strategies, lending assistance to 'spectacle' in masking the shift to authoritarian neoliberalism and hampering efforts to stop or reverse it.

Bolsonaro demonstrates some of the same antics characteristic of Trump's campaign and presidency, and many environmental experts have struggled to make sense of his anti-environment strategies. As discussed above and in alignment with other populist authoritarian neoliberal leaders, Bolsonaro has clearly stated that he intends to remove barriers to capital accumulation. Thus, to make sense of Bolsonaro's anti-environment strategies, I begin with the assumption that such strategies are likely to proceed with the main goal of restructuring federal governance mechanisms to eliminate barriers to capital accumulation. Anti-environmentalist enmity, then, serves as a vehicle for de-legitimizing supporters of environmental safeguards and thus becomes an insurance policy against the resurrection of impediments to unrestrained accumulation. Accordingly, by asking the question "How does each strategy accomplish the goal of removing barriers to capital accumulation?" we can begin to fit Bolsonaro's strategies into a framework that allows us to make sense of his seemingly random tactics. To begin this work, I explain how the 'firehouse effect' may make it difficult to tease out Bolsonaro's strategies, but that viewing Bolsonaro's anti-environmentalism through an authoritarian neoliberal lens helps to bring these into clear(er) focus. Thus, I outline five major strategies of the Bolsonaro administration, demonstrating how they might serve the neoliberal goal of removing barriers to capital accumulation by weakening protective environmental measures and intensifying anti-environmentalist enmity to hamper advocates' ability to fight back.

4. Making sense of Bolsonaro's strategies

In order to understand and track Bolsonaro's strategies with respect to the environment, I went to Brazil three times in 2019 for a total of 12 weeks to interview, and re-interview, 35 environmental experts in government agencies, academia, and environmental/socioenvironmental non-governmental organizations (ENGOs/SENGOs). My understanding of these strategies comes from these interviews, participant observation,

and casual conversations, as well as from a review of secondary sources – particularly popular news media, which were used for verification and clarification of facts and events referred to by interviewees.[7]

When asked about Bolsonaro's anti-environment strategies and potential counterstrategies, the majority of interviewees relayed a sense of chaos and confusion. "People are totally lost and don't know what to do", explains an ICMBio employee (March, 2019). This includes employees in senior positions who were "kind of lost and confused and following orders." (*ibid*.) According to a founder of a major ENGO, Bolsonaro's strategy "changes from one day to the other without telling all of his team" as her co-founder chimes in "childish behavior" (March 2019). Another interviewee explained "We're trying to be kind of focused because there are so many threats from different directions" (ENGO employee specializing in public policy, April 2019). Even by July, the sentiment was "everybody is I think still (saying), '… This is very different. This is very strange, how do we act now?'" (SENGO executive team member, July 2019). And although several interviewees had devised ways of developing counterstrategies by October, there was still an overall sense that "we are in this completely crazy situation that things happen (all the) time . . . there are so many things that happen here, like surreal things" (Director of SENGO, October 2019).

Rather than simply referring to Bolsonaro's erratic behaviors as antics, one of the interviewees referred to these as the 'firehouse strategy', where innumerable 'fires' are set and draw out 'fire fighters', leaving the 'firehouse' empty and the 'fire fighters' mired in chaos. Or, as the interviewee put it: ". . . (the extreme right government) say(s) lots of stupid and crazy things for people to try to address these absurdities. And then, behind, they make very important changes in law" (ENGO employee specializing in public policy, April 2019). It mirrors Trump's strategy of spectacle as described above, yet it is unclear whether Bolsonaro is engaging such a strategy with intention.[8] Such an analysis is beyond the scope of this article, but the effect is nonetheless notable, and goes beyond spectacle as it carries a significant component of confusion. Thus, I argue that the 'firehouse *effect*' is brought on by at least six behaviors of a leader:

1) making statements that conflict with actions;
2) making statements about intent to do something, then retracting the statement shortly afterwards;
3) lying or making misleading statements;
4) issuing statements and/or decrees that clearly reveal an intent to perform illegal and/or unconstitutional acts;
5) making offensive statements about marginalized categories of people; and
6) doing all of these things in constant and rapid succession.

The composite of these elements is often mistaken for incompetence, but whether or not incompetence is at play, the *effect* is that it makes it difficult to identify particular strategies.

Bolsonaro's 'firehouse effect' is rich with examples of all of the above elements. His statements about the environment frequently conflict with his actions, such as his profession of "profound love and respect for the Amazon" (T. Phillips 2019) and his declaration that "protecting the forest is our duty, acting to combat illegal deforestation and any other criminal activities that put our Amazon at risk" (Fox and Lang 2019), while simultaneously weakening protection of the Amazon, leading to the highest deforestation rate in over a decade

[7] To be cited, popular news media sources had to have an Ad Fontes reliability score of 40 or above (see www.adfontesmedia.com), a Media Bias/Fact Check factual reporting assessment of "high" (see www.mediabiasfactcheck.com), or were recommended by interviewees as a known reliable news source in Brazil (e.g. Folha de S. Paulo).

[8] At a ministerial meeting in May 2020, the minister of environment (Salles) suggested that the administration take advantage of the opportunity of the media's preoccupation with the COVID-19 crisis, as the numbers of cases and deaths continued to surge in Brazil, to work on environmental deregulation "while we are at this moment of tranquility in terms of press coverage" (Bragança and Menegassi 2020; Uribe 2020). This suggests that the administration is both aware of the political advantage of distraction *and* more than willing to exploit such opportunities.

(Climainfo 2019; Uribe, Coletta and Moreira 2019). As mentioned above, he has also said that he would merge the ministries of environment and agriculture, later deciding not to (Casado and Londoño 2019; globo.com 2018). He stated an intent to leave the Paris agreement, but later withdrew his statement (Viscidi and Graham 2019). Aos Fatos, an independent fact-checking agency in Brazil, analyzed 149 statements made by Bolsonaro in the first 10 weeks of his presidency and found that 55% of those statements "were completely false or had some degree of error" (Aos Fatos 2019). He has attempted to move the demarcation of indigenous lands from the Ministry of Justice to the Ministry of Agriculture even after Congress rejected the move (Fox and Lang 2019), issued a decree to ease restrictions on guns (Harris and Schipanii 2019), and attempted to abolish the majority of civic spaces within the administrative structure for public participation (Decree No. 9,759 of April 11, 2019). All of these were rejected by either Congress or the Supreme Court as unconstitutional (Arbex 2019; Coletta and Faria 2019; Harris and Schipanii 2019). Bolsonaro's racist, misogynistic, and homophobic comments are now well known (Borba 2020; Kaul 2021; Lehman 2018; Da Silva and Larkins 2019). Although it remains unproven, several journalists have suggested that, as Trump did, Bolsonaro uses outrageous and offensive comments to distract from scandals, such as when his son was accused of money laundering (see for example Phillips, 2020; Romm, 2019).

All these elements of the 'firehouse effect' are mobilized constantly and in rapid succession, earning Bolsonaro his reputation of 'shooting from the hip' (Cowie 2018; Harris and Schipanii 2019). In the first three weeks of his presidency alone, the Bolsonaro administration announced restrictions on international NGOs and all NGO partnerships with environmental civil service agencies, moved the responsibility of the demarcation of indigenous lands from the Ministry of Justice to the Ministry of Agriculture, eliminated the responsibility of ensuring LGBT rights from the Human Rights Ministry, issued a decree to reduce national ministries from 29 to 22, reviewed government contractors and fired those who didn't share the political ideologies of Bolsonaro's administration, scaled back environmental enforcement, pulled out of a UN Migration accord with 160 signatories, eased restrictions on gun ownership, and legalized the use of 131 previously restricted pesticides. I suggest that this rapid deployment of anti-advocate measures are masked, at least initially, as advocate social movements[9] try to keep up and triage responses, by the multiple ways Bolsonaro deploys elements of the 'firehouse effect' as he dismantles measures meant to protect the environment, as well as human rights.

Below, to break through the 'firehouse effect', I explore five of Bolsonaro's anti-environment strategies and how these meet the two goals of weakening of protective environmental measures and delegitimizing supporters of those measures. Some of the strategies may not necessarily have been deployed as solely anti-environmental (i.e. they may be more anti-regulation in general), but certainly have at least a partial anti-environment agenda and are thus still notable.

'*Skeletonizing*' *environmental administrative bodies*

When Bolsonaro initially proposed to eliminate the Ministry of Environment (MMA), collapsing it into the Ministry of Agriculture (MAPA), he was met with resistance not just from the opposition, but also by his constituents who thought it was a bad idea (Rocha, 2020; ENGO employee specializing in public policy, April 2019). Without at least the appearance of environmental care, many in the sector were afraid to lose their competitive edge in the global market, especially for beef and soy (Casado and Londoño 2019). So Bolsonaro decided to keep the MMA. On paper at least (Observatório do Clima 2020). But his administration eliminated two departments in charge of climate change and mitigation, as well as one tasked with fighting deforestation (Escobar 2019a) and moved the Brazilian Forest Service (SFB), which includes the rural environmental registry (CAR) to MAPA (Observatório do Clima 2020) under the supervision of Valdir Colatto, who worked against the Forest Code (Gonzales 2019). He also transferred the management of water resources to the Ministry of Regional Development (Observatório do Clima 2020). Meanwhile, Bolsonaro's new pro-agriculture minister of the environment, Ricardo Salles, was swift to demote almost all civil servant employees who held managerial,

[9] Here, I take the commonly accepted definition of 'social movements' in Social Movement Theory literature: "collective challenges, based on common purposes and social solidarities, in sustained interaction with elites, opponents, and authorities. This definition has four empirical properties: collective challenge, common purpose, social solidarity, and sustained interaction" (Tarrow 2011, p. 9).

coordination, and leadership positions in the Ministry of Environment, as well as ICMBio – the governmental unit that provides research and monitoring of protected areas and species to guide environmental regulations – and IBAMA, the governmental unit that enforces environmental regulations (Audi and Martins 2019).

The Bolsonaro administration has also been working hard at cutting the funding to ICMBio and IBAMA, with IBAMA receiving a 24% cut in its budget and the MMA spending only $R 1.17 million (US$402,500) on policy planning and management in the first eight months of 2019, compared to $R 35.6 million (US$8.4 million) in the same period the year prior (Girardi 2019). Employees of ICMBio and its affiliated research institutions that I interviewed for this project were aware that there had been some discussion on the restructuring of ICMBio and possible elimination of several research centers but, as of October 2019, they had still not received the restructuring plans, nor the budget for 2019. Understandably, this limited their activities, with several feeling that this was an intentional move to render them ineffective. Moreover, with each of my visits to Brazil, it was clear that living under such uncertainty, where one might lose their job at any moment, was wearing down on research center employees and their resolve. Many expressed an increasing feeling of despair, and exhaustion from being in a constant state of uncertainty, to the point where they were becoming apathetic as a protection mechanism. Referencing a quote of a biologist in a report by Bernardo Esteves (2019), one of the interviewees summed up the process by declaring: "(Salles is) working like a termite. He's destroying from inside and you cannot see it from outside. And inside everything is gonna be destroyed" (ICMBio employee, July 2019). I refer to this process as the 'skeletonizing' of environmental administrative bodies, where the basic structure is left in place, but all of the 'meat', the 'muscle', has been removed.

Although such 'skeletonization' of environmental administrative bodies is not new to the neoliberal landscape and has been occurring in various contexts for some time (Peck 2001), what signifies a shift toward removal of consent (and thus the authoritarian form of neoliberalism) is the silencing of MMA employees. According to several MMA employees, many of those who dissented, were fired (if they weren't tenured) or removed from their posts and demoted and/or given positions in remote areas of Brazil (if they were tenured). Others lamented the fact that "now, (the new government) close(s) our mouth and we can't say anything about anybody" (ICMBio employee, April 2019) complete with a media blackout order, which restricted them from posting or publicizing anything about their work, including conservation successes.

Weakening of protective measures

The 'skeletonizing' of environmental administrative bodies has proven effective at weakening both the production of new protective measures and the enforcement of established ones. As of October 2019, the MMA was still 24% empty and only 21 out of 27 state superintendent positions in IBAMA remained open according to several government employees. In the first eight months of 2019, there was a 29.4% reduction in fines for illegal logging compared to the same period in 2018 (BBC News 2019a). This was not due to a decrease in illegal logging as deforestation increased 30% in the period of August 2018 to July 2019 compared to the previous year according to Brazilian Space Research Institute (INPE), which monitors deforestation by satellite (Dwyer 2019; Vaughan 2019).

Moreover, according to several employees in ICMBio, Bolsonaro eliminated the screening process for applicants for positions in national environmental agencies, which require technical expertise and experience. Instead, he encouraged environmental military police to apply (Acebes, Wilkinson and Téllez-Chávez 2019; Observatório do Clima 2020). Their main qualification then, as one interviewee pointed out, was that they knew how to take orders without question or thought. These new directors and presidents lack both in technical expertise and strategic planning for environmental stability (Acebes, Wilkinson and Téllez-Chávez 2019). Furthermore, according to several government employees, because all of the decisions are made by these new employees, and because they take orders from above rather than base their decisions on science and technical expertise coming from below, the situation has effectively rendered the MMA and all of its affiliated institutions ineffective.

Anti-environmentalist enmity

Once Bolsonaro began to secure the ineffectiveness of the MMA and its affiliated institutions he was then able to use this ineffectiveness as further "proof" that such institutions are not working and are, therefore, unnecessary (as described by several interviewees and in Esteves, 2019). This adds to his claims that civil servants in the advocate movement are inept and incompetent (see Acebes *et al.*, 2019; Casado and Londoño, 2019). In response to the INPE report on deforestation, Bolsonaro attempted to discredit Ricardo Galvão, the space agency's director (Tollefson 2019). The public dispute led to Galvão resigning even though the satellite images and their associated data, which support Galvão's claims, are open and available to the public (BBC News 2019b). When he is not de-legitimizing supporters of protective measures, he accuses them of foul play, such as when he blamed NGOs for starting the Amazon fires that made international news in August 2019 (BBC News 2019b).

Dissolution of CONAMA and other civic spaces

Going hand in hand with the skeletonizing of environmental administrative bodies is the dissolution of civic spaces. In March 2019, the Bolsonaro government issued a decree to dissolve Brazil's National Councils, terminate the National Social Participation Policy, and dismantle spaces within the administrative structure for public participation. Members who thought their councils were important were told to write a letter justifying the existence of the council within 48 days and the government would decide which councils to recreate. According to several interviewees, two of the major targets of these attempts were Conservation Unit councils and the national council for the environment (CONAMA). Fortunately, the Supreme Court limited the effects of the decree to those that were not established through legal mechanisms, but civic spaces were still greatly reduced (Coletta and Faria 2019). According to a manager of a major ENGO, "In the past . . . we have a way to talk with (environmental agency employees). Established places where we can talk . . . we don't have space anymore to talk" (October 2019).

CONAMA is a particularly important one of these spaces and included representatives from the state, private, and public sectors. In May 2019, the council was reduced from 96 board members to 23 and the selection process was replaced with a lottery-style draw for 13 of the board members (Acebes, Wilkinson and Téllez-Chávez 2019; Observatório do Clima 2020). Civil society lost the greatest number of seats, shifting the weight of the council towards the federal government, which maintains the ten fixed (non-lottery) positions. As one interviewee put it: "So now (the government has) a body that will issue rules and decisions in a way that interests them" (ENGO employee specializing in public policy, July 2019).

Weakening of protective measures

CONAMA is responsible for deliberating on and advising government policy with respect to the environment and natural resources. As such, it sets the standards for environmental practices of businesses and corporations. Thus, shifting the power on the council in favor of the pro-business federal government allows for environmental measures to be interpreted in favor of business. This was made particularly clear with the highly controversial removal by the council of three Resolutions meant to protect the environment from private interests in September 2020 (Guimarães 2021). Moreover, the elimination of public participation in the form of various forums and councils, ensures a lack of oversight by and accountability to the public. The dissolution of public participation is itself a weakening of protective measures, but it also ensures that the public will have a reduced role (via their representatives) in deciding which protective environmental measures will be compromised to accommodate the expansion of businesses.

Anti-environmentalist enmity

By reducing public participation in governance, restriction of access to information is justified and public representatives are forced to turn to secondary sources for updates on government discussions and operations. With Bolsonaro's history of publicly attacking environmental scientists and leaders (Angelo 2019; Tollefson 2019), this does not bode well for a balanced understanding of the actions of these guardians of protective measures.

Reorganizing within ministries

Another tactic of the Bolsonaro administration has been to reorganize responsibilities within the ministries, especially to open up land for agricultural development and augment agribusinesses' control over land in general. Bolsonaro attempted to move the responsibility of the demarcation of indigenous lands from FUNAI (in the Ministry of Justice) to the Ministry of Agriculture (Acebes, Wilkinson and Téllez-Chávez 2019). This attempt failed.[10] However, he did succeed in moving the body in charge of managing national forests, the Brazilian Forest Service (SFB), from the Ministry of Environment to the Ministry of Agriculture, as well as the management of water resources to the Ministry of Regional Development (Observatório do Clima 2020). The SFB is also responsible for the Rural Environmental Registry (CAR). Set up by the Forest Code of 2012, CAR requires a certain percentage of privately owned land to be set aside for conservation.

Weakening of protective measures

The relocation of CAR essentially means that 'the fox is guarding the hen house' as the head of the SFB, Valdir Colatto, is a member of the agriculture voting bloc and worked against the Forest Code (Gonzales 2019). Additionally, the movement of CAR and SFB has particularly significant implications for the conservation of jaguars (Panthera onca) and their habitats since conservationists, according to interviewees in ICMBio, ENGOs, and academia, have been working with landowners and CAR to coordinate conserved lands into corridors for jaguar use. According to an interviewee, who is an employee of ICMBio, the use of CAR for jaguar corridors is further confounded by Colatto's pro-hunting stance, as more farmers will have guns. Poaching of jaguars due to conflicts with farmers is one of the major threats to the large cat in many areas of Brazil (Paviolo *et al*. 2016). And without the ability to utilize CAR to allow for more free movement of the animals, there are few other means to mitigate conflict according to the interviewee.

Anti-environmentalist enmity

The intent behind the reorganization of ministries is clearly to allow agribusinesses to exercise control over the measures that restrict their activities (Acebes, Wilkinson and Téllez-Chávez 2019; Observatório do Clima 2020; D. Phillips 2019b). In the case of the relocation of CAR, jaguar conservationists have lost an important tool for jaguar conservation, hampering their ability to protect the jaguar from extinction. Since such processes are so complex, to the general public it may read as a simple failure of conservationists to do their jobs. Such is arguably the case with any tools for protecting nature that have been transferred to the hands of the very businesses that nature needs protecting from.

Defunding of NGOs and federal universities

The next Bolsonaran tactic actually brings us full circle in a way: the attempt to defund NGOs. On January 14, 2019 Bolsonaro's Minister of Environment Ricardo Salles shut down "all agreements and partnerships with non-governmental bodies (NGOs) which are recipients of funds managed by the MMA, IBAMA (the nation's environmental agency), ICMBio (its national park management agency), and JBRJ (the Rio de Janeiro Botanical Garden Research Institute)" (Gonzales 2019) until he could audit them all himself, another part of the 'firehouse effect.' But it turns out he couldn't legally do that with NGOs that receive international funding and after much public outcry, he walked it back to just those NGOs receiving federal funding and not those "agreements or partnerships that have been already in execution" (Gonzales 2019). Still,

[10] The reason the attempt to move the demarcation of lands failed is actually because of a recent Supreme Court case that set a precedent for presidential decrees. Presidential decrees have an expiration date, where they must be reviewed and approved by the legislative branch within 120 days. What this Supreme Court case did was establish that, if a decree expires before it can be approved, then it cannot be reintroduced in the same year. And this is also where the opposition's strength lies. Not only is the legal system strong, with sympathetic judges in the Supreme Court, but most of congress members are experienced, whereas many of the rural caucus members are new and inexperienced. For presidential decrees in particular, this works strongly in the opposition's favor. One of the biggest strategies to prevent a decree from passing before its expiration date is to talk as much as you can to kill time. Unfortunately for the newbies, they saw this as an opportunity to be seen and heard. So both sides of congress are talking hundreds of presidential decrees into expiration (Acebes, Wilkinson and Téllez-Chávez 2019).

he has made attempts at limiting and/or diverting international funding, such as the Amazon Fund. The Amazon Fund, set up in 2008, is an international partnership with developed nations, particularly Norway and Germany, to provide roughly $US87 million annually "to prevent, monitor and combat deforestation, as well as to promote the preservation and sustainable use in the Brazilian Amazon" (Amazon Fund no date).

In addition to attempting to limit funding sources to NGOs, the Bolsonaro administration also took aim at funding for federal universities in late April 2019. First announcing plans to cut funding to sociology and philosophy departments, this morphed into a 30% funding cut to Brazil's three major universities, and then a 30% cut to all federal universities (Redden 2019). The funding cuts were especially meant to target non-utilitarian disciplines in order to "focus on areas that generate an immediate return to the taxpayer, such as: veterinary, engineering, and medicine" (Bolsonaro 2019). In addition to the budget cuts, the administration also froze funding for more than 3,000 postgraduate research scholarships (Escobar 2019b).

Weakening of protective measures

According to several ENGO employees, many of the ENGOs in Brazil have been able to maintain their international funds, since such funds are not (yet) subject to government oversight. According to one interviewee in the ENGO sector, some of the ENGOs that lost funding have shifted their funding sources to Brazilian states. However, the actions of the Bolsonaro administration to dramatically redefine the rules of the Amazon Fund, particularly to restrict the use of funds by NGOs to combat deforestation and to compensate property owners for land confiscated in protected areas, has led to Norway and Germany freezing their funds (Observatório do Clima 2020). As a result, those NGOs that received funding from the Amazon Fund have had to suspend projects and reduce their staff, according to several employees of these NGOs. This inevitably has implications for their ability to combat deforestation in the Amazon.

By limiting funding to non-utilitarian disciplines in academia, the Bolsonaro administration silences the critical voices of intellectuals and by freezing funds for postgraduate research, they reduce a key source of information that drives environmental policy. Thus, defunding of federal universities serves to degrade the foundation on which protective environmental measures are built.

Anti-environmentalist enmity

When the Amazon fires raged in August 2019, increasing by 84% over the previous year according to INPE (BBC News 2019b; Taylor 2019), the fires were widely regarded by conservationists as being attributable to the rise in deforestation to clear land for agricultural development (BBC News 2019b; Spring and Eisenhammer 2019). Bolsonaro, whose policies and rhetoric likely enabled this deforestation (Escobar 2020; Londoño and Casado 2019), indicated that environmental NGOs had intentionally set the fires to garner support and bolster funding (BBC News 2019b; Observatório do Clima 2020). When these claims were found to be unsubstantiated, he doubled down, indicating that Leonardo DiCaprio played a role in inciting the fires (Observatório do Clima 2020). While Bolsonaro's claims of the involvement of NGOs and DiCaprio in the fires was unsupported by evidence, a few cursory glances at the social media pages of environmental NGOs at the time suggests that efforts to de-legitimize them was in full swing.[11]

By defunding academic institutions and especially critical social science and research, the Bolsonaro administration ensures the isolation of critical social scientists and a lack of science to support their claims. This, combined with Bolsonaro's attacks on social scientists as "cultural Marxists", who are supposedly aligned with oligarchs to undermine traditional values (Redden 2019), then serves to exacerbate the animosity towards critical social scientists and environmentalists. Our group of researchers experienced this first-hand. While eating at a restaurant in Atibaia, we were approached by the owner, who had clearly had quite a few drinks. Emboldened by his intoxication, he asked what we were doing in Brazil. We explained that we were there for research, but avoided the topic we were there to study (environment and conservation). He increasingly became more aggressive, asking us what we thought of Bolsonaro. We did our best to politely avoid the questions and state that we were simply there to enjoy a pleasant meal. Eventually he very oddly set a glass bottle down on

[11] At the time of writing, it appears that the negative and threatening comments on social media have been brought under control.

our table and let it roll off the table to smash while maintaining eye contact with us. The two men who were accompanying him urged him to step outside and get some air and, luckily for us, he did. But the whole episode served to bring the anti-intellectual and anti-environmentalist enmity into full focus. It was clear that we, and any intellectual environmentalists, were meant to feel intimidated and unwelcome.

Cooptation of exceptional environmental measures in times of crisis

In *States of Exception*, Agamben (2005) shows how governments use exceptional historical moments to increase their power by using crises to justify the suspension of constitutional rights and laws and the extension of military power. Similarly, Naomi Klein (2007) argues that capitalists also use large-scale disasters, in what she calls disaster capitalism, to extend their power by creating opportunities for new forms of capital accumulation in such a way that capitalism not only profits from the disaster itself, but from the distraction created by the disaster. In Brazil, Bolsonaro appears to be using crises of extreme forest loss to create opportunities to both extend military powers and to secure opportunities for capital accumulation.

Thus, a sixth strategy that emerged during the COVID-19 pandemic, one that was also visible during the Amazon fires in the summer of 2019, is the use of the precedence of exceptional protective measures to guard against deforestation as justification for increased military presence in sensitive forested areas. The militarization of the Brazilian Amazon is not new and dates back over a century, with various Brazilian governments setting up military forces in the biome to prevent enemy infiltration of the sparsely populated areas, as well as to open opportunities for new extractive practices (de Castro, Van Dijck and Hogenboom 2014; López 2009). However, what *is* new is the use of forest protection in times of crisis as an excuse to increase military presence in the Amazon. Although Luiz Inácio Lula da Silva (aka Lula) used the military to battle deforestation during his presidency, he did so as part of a robust environmental strategy (Brands 2011). In contrast, the need to protect the forest under Bolsonaro is a direct result of the *lack* of enforcement of environmental regulations under his administration (BBC News 2019b; Spring and Eisenhammer 2019).

When news of the raging Amazon fires generated global concern in 2019, Bolsonaro sent the army to combat the fires and they remained there until late October (Garcia 2019). Then when Bolsonaro created a new Amazon Council in January 2020, he simultaneously created a new Environmental Police force composed of state military police to support the new Council, also headed by a retired military general, Hamilton Mourão, who openly supports mining development in the Amazon (Rocha 2020). As deforestation increased under the cover of the COVID-19 pandemic with the fire season approaching, Bolsonaro deployed the military to the Amazon in May 2020 by Decree 10.341/2020, three months earlier than in 2019. Importantly, the Decree also put environmental protection of the Amazon under the control of the army. And in October 2020, the newly formed Amazon Council announced that the military would remain in the Amazon until April 2021 (Carvalho 2020). I argue that, although the use of the military to protect the Amazon from foreign infiltration and to expand extractive opportunities has a long history, what is new is that it is being done under a democracy where there should (presumably) be consent. Under military rule, there was no such presumption.

(Not) Weakening protective measures

In this case, rather than weakening of protective measures, this strategy takes advantage of such measures to secure opportunities for extraction. While the decrees to deploy the military to the Amazon stated, in part, the intent to help combat fires, others believed this to be a smokescreen to further militarize the Amazon as part of a plan to expedite the opening of the biome for extractive industry (Dias 2019). Known as the Barao do Rio Branco Plan, a project proposed by Bolsonaro shortly after taking office would introduce a new hydro-electric dam, bridge, and highway extensions to allow for easier access to areas of the Amazon. The proposed project has drawn wide criticism from socio-environmentalists due to its lack of acknowledgment and/or assessment of potential effects on important biodiversity preserves, indigenous reserves and *quilombo* communities (D. Phillips 2019a; Rocha 2019) and there has been some indication that the increased militarization of the Amazon is associated with this project (Dias 2019).

Anti-environmentalist enmity

As stated elsewhere, IBAMA is the Brazilian agency normally charged with monitoring and enforcement of environmental regulations. However, Bolsonaro's 2020 budget included a 25% cut to IBAMA's forest monitoring programs (Rocha 2020). Additionally, the creation of the Amazon Council and an Environmental Police force staffed by military personnel, as well as Decree 10.341/2020 – which among other things put environmental protection of the Amazon under the control of the army – superseded IBAMA's oversight of deforestation in the Amazon (Bonduki 2020; Soares 2020). By displacing the non-military government officials of IBAMA and defunding its forest monitoring programs, the Bolsonaro administration is simultaneously making a statement that IBAMA is not capable of performing its duties, while also ensuring that they are unable to do so.

5. Conclusion

Fisher (2019, p. 384) writes, "(E)nvironmental law engages all the institutional and legal resources of a constitutional democracy to operate—public discourse, expertise, public administration, legislation, accountability, dispute resolution, multi-level governance and much else besides." Bolsonaro is actively removing each of these resources at the national level. Meanwhile, as Brazil's forests continue to suffer from unsustainable levels of deforestation (Silva Junior *et al*. 2021) and record numbers of fires (Muniz, Fonseca and Ribiero 2020; Watanabe 2020), scientists are predicting that 40% of the Amazon rainforest could become savannah in the near future unless more is done to combat deforestation and climate change (Staal *et al*. 2020). It is thus more critical than ever to understand why and how Bolsonaro is accomplishing the dismantling of federal environmental safeguards and institutions. Moreover, while such processes are understood to occur in shifts from "progressive" to authoritarian neoliberalism, there is still a broad gap in analyses on *how* this shift occurs. This article attempted to narrow this gap by conceptualizing Bolsonaro's anti-environment antics within the broader context of the contemporary authoritarian neoliberal turn.

Following Poulantzas' (1978) analysis of 'authoritarian statism', Bruff (2014, p. 125) describes the 'authoritarian fix' as a restructuring of state institutions to remove barriers to capitalist accumulation. As such, I approach the analysis of Bolsonaro's strategies with the assumption that they aim to remove barriers to capital accumulation. I show how each strategy accomplishes this goal by either weakening environmental measures that place limits on capitalist extraction, or by strengthening measures that can be used to extend military power and expand control over resources for extraction. But Bolsonaro must simultaneously remove the guardians of the protective environmental measures to prevent their return, and I suggest that he accomplishes this by engaging anti-environmentalist enmity to de-legitimize the supporters of environmental regulation.[12]

On a final note, while this article focused on Bolsonaro's far right government, caution is warranted in assigning authoritarianism as it relates to environmental governance as a (strictly) far right phenomenon. Recent explorations of post-political trends indicate that the far right are not alone in removing dissent in favor of unrestrained capitalism. Post-politics, or the yielding of power based on global ideological visions of the world to technocratic expertise (Žižek 1999), is increasingly rearing its head in environmental politics. Fletcher (2014) describes the "orchestrating of consent" to neoliberal agendas in the 2012 International Conservation Congress, where dissent is dispensed with through multiple strategies geared toward creating the illusion of consent to the neoliberal hegemonization of international conservation. With its focus on faith in 'objective' technocratic knowledge as authority, the post-politicization of environmental governance stands in stark contrast to methods of removal of consent by authoritarian neoliberals, which often include post-truth political gaslighting to

[12] A theme that runs through many of the articles in this special issue is Foucault's conceptualization of 'biopower' and the tension between life and death. In connection with this theme, the exceptional measures that are being removed in Brazil were arguably put in place to 'make live' certain forms of life that enhance biodiversity and climate stability. By removing such measures and preventing their return via enmity, these lifeforms are essentially being made to 'let die', even to the point of extinction. More than that, it could be argued that these lifeforms will be 'made to die' to make way for other lifeforms to be 'made to live' that support capitalist extraction (e.g. corn, soy, cattle). In this sense, anti-environmentalist enmity is more than just an objective of authoritarian neoliberals such as Bolsonaro. It is also emblematic of the broader enmity of life and death struggles inherent in the struggle for 'biopower.'

systematically extinguish public faith in any 'objective' truth (Neimark *et al*. 2019). Yet the two accomplish the same foreclosure on any paths forward that do not center on capitalism. Thus, an interesting and important area for future research could include an examination of the confluences and divergences of the two methods with respect to environmental governance.

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Monitoring extinction: defaunation, technology and the biopolitics of conservation in the Atlantic Forest, Brazil

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Abstract

Due to habitat fragmentation, Brazil's Atlantic Forest is considered one of the world's most threatened biodiversity hotspots. Much of the biome has become extinct of its largest-bodied mammals, leading some to refer it as a 'half-empty forest.' One of the ways conservation actors are responding to this crisis is by utilizing Global Positioning System (GPS), camera trapping, and remote sensing satellite imagery. Together, these tools enable the collection of data at unprecedent levels. By intensifying wildlife monitoring, it is thought that better-directed actions can be taken to avoid species extinction. Although there is a nascent body of research in political ecology examining the role of these new technologies in conservation, so far there has been little exploration of what this implies for the transformation of the governance of conservation spaces. Bringing together literatures on biopolitics of conservation and conservation technologies, this article reflects on the ways new technologies are changing the biopolitical governance of conservation in the Atlantic Forest. I argue that the increase of information flows, together with the ability to process data through models and algorithms, intensifies the capability of biopolitical governance to justify claims for new protected areas, while changing ecological subjectivities. With the increased use of remote sensing technologies, some ecologists are being distanced from the field, and are consequently having less interactions with rural communities. As pressures on biodiversity increase, this may facilitate advocacy for coercive conservation measures that have adverse impacts on local communities.

Keywords: Atlantic Forest, Brazil, biopolitics, conservation, Foucault, new technologies

Résumé

En raison de la fragmentation de l'habitat, la forêt atlantique du Brésil est considérée comme l'un des points chauds de la biodiversité les plus menacés au monde. Une grande partie du biome a perdu ses plus grands mammifères, ce qui a conduit certains à parler de "forêt à moitié vide." L'une des façons dont les acteurs de la conservation répondent à cette crise est l'utilisation du système de positionnement global (GPS), du piégeage par caméra et de l'imagerie satellitaire de télédétection. Ensemble, ces outils permettent de collecter des données à des échelles et des niveaux sans précédent. En intensifiant la surveillance de la faune, on pense pouvoir prendre des mesures mieux ciblées pour éviter l'extinction des espèces. Bien qu'il existe un ensemble naissant de recherches en écologie politique examinant le rôle de ces nouvelles technologies dans la conservation, il y a eu jusqu'à présent peu d'exploration de ce que cela implique pour la transformation de la gouvernance des espaces de conservation. En réunissant les littératures sur la biopolitique de la conservation et les technologies de la conservation, cet article réfléchit à la manière dont les nouvelles technologies changent la gouvernance biopolitique de la conservation dans la forêt atlantique. Je soutiens que l'augmentation des flux d'informations, ainsi que la capacité à traiter les données par le biais de modèles et d'algorithmes, intensifient la capacité de la gouvernance biopolitique à justifier les demandes de nouvelles zones protégées, tout en modifiant les subjectivités écologiques. Avec l'utilisation accrue des technologies de télédétection, certains écologistes s'éloignent du terrain et ont donc moins d'interactions avec les communautés rurales. Comme les pressions sur

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la biodiversité augmentent, cela peut faciliter le plaidoyer pour des mesures de conservation coercitives qui ont des impacts négatifs sur les communautés locales.
Mots-clés: Forêt atlantique, Brésil, biopolitique, conservation, Foucault, nouvelles technologies

Resumen

A causa de la fragmentación del hábitat, la Mata Atlántica de Brasil se considera uno de los puntos críticos de biodiversidad más amenazados del mundo. Un gran parte del bioma de sus mamíferos de mayor tamaño se ha extinguido, lo que lleva a algunos a referirse como un "bosque medio vacío." Una de las formas en que los actores de la conservación responden a esta crisis es utilizar el Sistema de Posicionamiento Global (GPS), cámaras trampa y imágenes satelitales de teledetección. Juntas, estas herramientas permiten la recopilación de datos a niveles sin precedentes. Al intensificar el monitoreo de la vida silvestre, se cree que se pueden tomar acciones mejor dirigidas para evitar la extinción de especies. Aunque existe un cuerpo de investigación incipiente en ecología política que analisa el rol de estas nuevas tecnologías en la conservación, hasta ahora existe poca exploración de lo que esto implica para la transformación de la gobernanza de los espacios de conservación. Al reunir literatura sobre la biopolítica de la conservación y las tecnologías de conservación, este artículo reflexiona sobre las formas en que las nuevas tecnologías están cambiando la gobernanza biopolítica de la conservación en la Mata Atlántica. Sostengo que el aumento de los flujos de información, junto con la capacidad de procesar datos a través de modelos y algoritmos, intensifica la capacidad de la gobernanza biopolítica para justificar los reclamos de nuevas áreas protegidas, mientras que tambien cambian las subjetividades ecológicas. Con el uso cada vez mayor de tecnologías de teledetección, algunos ecólogos se mantienen lejos del campo y, en consecuencia, tienen menos interacciones con las comunidades rurales. A medida que aumentan las presiones sobre la biodiversidad, esto puede facilitar la promoción de medidas de conservación coercitivas que tienen impactos adversos en las comunidades locales.
Palabras clave: Mata Atlántica, biopolítica, conservación, Foucault, nuevas tecnologías

1. Introduction

The Atlantic Forest, spanning the eastern coast of Brazil, is considered one of the world's most important 'biodiversity hotspots', due to its significant number of endemic species facing extinction (Myers *et al.* 2000). Since the 1500s, colonial rule, commodity booms and urban expansion have left the forest highly fragmented (Dean 1996). Notably, around half of the remaining fragments are under 100 hectares in size, meaning they contain insufficient resources to sustain larger-bodied mammal populations (Ranta *et al*. 1998). These include jaguars (Panthera onca), white-lipped peccaries (Tayassu pecari), tapirs (Tapirus terrestris), and woolly spider monkeys (Brachyteles arachnoides) – mammals that require bigger territories to thrive. As a result, research shows that 95% of the Atlantic Forest is extinct of the ecological functions of these mammals (Jorge *et al.* 2013). This phenomenon is called *defaunation* and has been the focus of increasing research, both in Brazil and globally (Dirzo *et al.* 2014; Galetti *et al*. 2017). This is not a new scenario, but at present even some of the largest forest fragments have been left with extremely low levels of biodiversity (Metzger *et al*. 2009). If the current situation is unchanged, species extinctions are sure to follow in the future, with larger-bodied mammals being most severely at risk (Bogoni *et al*. 2018).

As this biodiversity crisis intensifies, new technologies have simultaneously emerged that promise to aid conservation efforts by transforming the flows of information in biodiversity monitoring (Ritts and Bakker 2018). Since the 1990s, there has been a surge in development of technologies that provide data on where animals are and how they move. With technological advances and costs becoming more accessible, the use of these emergent technologies has become viable and is now commonplace in biodiversity conservation. As an example, whereas earlier radio-collars used for tracking animal movement were heavier and bulkier, collars available now are more compact and satellite-based (Kays *et al*. 2015). Likewise, using film cameras to collect information on the locations of species has given way to digital cameras with infra-red sensors. Innovations have also occurred in other areas of biodiversity monitoring. Now, data can be collected through animal tissue (such as isotopes and genetic material), as well as through other remote sensing tools, such as drones (Pimm *et al.* 2015: 685). There has been a recent call for scaling up the use of camera traps and establishing a global network of cameras, researchers and citizens dedicated to monitoring biodiversity trends (Steenweg *et al.* 2017).

Similarly, the relatively new sub-field of movement ecology making use of low-cost sensors, smartphone apps and predictive capabilities of big-data analysis promises to change the status-quo of how conservation is done (Adams 2019: 2; Bakker and Ritts 2018).

There is now a growing body of literature in political ecology addressing the use of these new technologies in conservation (Adams 2019; Benson 2016; Sandbrook *et al*. 2018; Verma 2016). This runs parallel to another body of literature exploring conservation governance as an expression of biopolitics. Michel Foucault identified biopolitics/biopower as a shift in governance emerging from the 18th century onwards. The biopolitical modern state's power to "make live or let die" was juxtaposed against sovereign power's authority to "take life or let live" (Foucault 2003:241 in Fletcher *et al*. 2019:3). A characteristic of biopower is that "the population" became an object of study, and hence its onset was accompanied by the advent of research on public health and demography (Foucault 1980 in Cavanagh 2018). With this focus on populations, research began to attempt to understand their particular qualities, and how they could be improved. One of the key contributions of Foucault's biopolitics is the acknowledgement that knowledge production is itself political. This is because forms of "power-knowledge" create normative standards of how populations should be, which in turn affects the way populations are governed (Cavanagh 2018: 405). Additionally, life itself comes under the scrutiny of "explicit calculation", and knowledge is seen as the steering force through which transformation of life occurs (Biermann and Anderson 2017: 2). Although the concept of Biopolitics has now been taken up in different ways by scholars (for an overview see Cavanagh 2018), my analysis follows the Foucauldian tradition. In its original formulation, Foucault intended biopolitics to be a framework to analyze human populations, yet some argue "that we have an anemic understanding of biopower if we look only at human life" (Biermann and Mansfield 2014:259). Consequently, a growing body of work has extended Foucault's biopolitics framework to explore human-nonhuman relations (Youatt 2008, Braverman 2015, Fletcher *et al*. 2019) including biodiversity conservation (Biermann and Anderson 2017, Cavanagh 2018).

Seeing biodiversity conservation through the lens of biopolitics or 'making nature live', marks a shift away from emphasizing a purely sovereign governance over nature, where it is seen merely as a resource to be dominated and exploited (Biermann and Mansfield 2014:258). Instead, nature conservation is a biopolitical endeavor to care for particular forms of life and is a practice that has become increasingly complex through the use of database tools, population management models, and algorithms (Braverman 2015). While new technologies increasingly play an integral role in contemporary conservation governance, only Braverman (2014, 2016) has hitherto explicitly analyzed how they play into the biopolitical governance of conservation. Building on Braverman's work, I utilize Jeffrey Nealon's concept of 'intensification' and Byung-Chul Han's 'Dataism', which are both engagements with biopolitics, to add an additional yet critical component to the discussion.

Rather than focusing on algorithms, as Braverman does, I explore the implications of camera trapping and GPS collars technologies on conservation biopolitics. My main argument is that due to the increase of data flows, digital conservation intensifies biopolitics and its ability to conserve a particular type of life, which leads to claims for new conservation territory. Remote sensing technologies distance researchers from the field and local communities, which has an effect on their subjectivity. As extinction pressures grow, this may facilitate advocacy for coercive conservation measures against human subjects deemed a potential threat to endangered nonhuman life. Therefore, care must be taken in ensuring the adoption of these technologies are not detrimental to local communities around conservation-critical areas.

The research for this article is based on fourteen months of fieldwork in São Paulo, Rio de Janeiro, and Brasilia states in Brazil between October 2016 and November 2019. More specifically, the empirical data for this article was collected through two camera trapping campaigns, both of which lasted six and five days respectively (2018, and 2019). The 33 interviews were collected on two separate fieldtrips, between March-April 2019, and October-November 2019. These were semi structured interviews with relevant conservation scientists, practitioners, and university researchers from governmental, non-governmental and private organizations. Due to the participants of this research, the focus of this article rests on camera trapping and GPS collar technologies. A majority of the interviews were conducted with ecologists working with the jaguar, which is an apex predator. Jaguars are considered an umbrella species and are proxies for environmental quality and surrogates for defaunation. For this reason, research conducted on jaguars has better funding for high technology

monitoring, and the empirical data collected may vary in contrast to biodiversity monitoring of less 'charismatic' species.

The first section of the article outlines literatures on new technologies and the biopolitics of conservation and how they can be productively brought into dialogue. The second section applies this conceptual framework to outline six main themes that emerged from my fieldwork concerning the implication of new technologies for conservation in the Atlantic Forest. Specifically, I argue that new technologies have implications for conservation because they: 1) generate more data; 2) solidify claims to new territory; 3) highlight problem areas for intervention; 4) have implications for hunters and poachers; 5) distance researchers from the field; 6) have their limitations. The third section will discuss what these dynamics mean for biopolitics of conservation.

2. Emerging technologies and the biopolitics of conservation

The literature on technologies used in conservation is sparse but growing. In his book *Wired Wilderness: technologies of tracking and the making of modern wildlife*, Etienne Benson takes a historical approach in understanding the earliest wildlife tracking technologies (2010). In the 1950s, wildlife scientists utilized small radio transmitters developed by the military during the Cold War to create devices to track animals. Benson chronicles how these radio-telemetry devices were harnessed to track marine mammals, together in India, as well as bears in Yellow Stone National Park. The book shows how error-prone these early technologies were, that animal-tagging was often markedly violent, and that they starkly divided the conservation community. Some scientists reveled in the possibilities that radio-telemetry offered, whilst others, such as the naturalist Adolf Murie, said it "destroyed the very essence of the poetry of wilderness" (Benson 2010:69; Hamblin 2013: 5). Ultimately, the book draws from 'The trouble with wilderness' (Cronon 1996), in highlighting the contentious debates over the ethics of 'interfering' with nature by tracking it. These informed the early days of radio-telemetry in conservation.

Lately, radio-telemetry is being superseded by satellite-based GPS collars, geolocators, isotope-based tracking and more complex forms of tracking life (Benson 2016). These devices, in confluence with other developments like improved computational power, cheaper data storage, and the ability of transmitting data through the internet, are contributing to the production of data in unprecedented amounts and rates. Some have argued that this move towards 'data-centric', or 'data-intensive' science signals an ontological shift in conservation science (Benson 2016: 137). Moving away from previous scientific models that rely on hypothesis-testing, the vast quantities of data available now skews scientific inquiry towards 'pattern-identification' (Ibid). According to Benson, in movement ecology there is a prioritization of looking at the digital 'tracking' data, at the expense of examining evolutionary and ecological processes.

Some have argued that images produced by these technologies are increasingly used to spectacularize nature, which also serves to (further) commoditize conservation (Igoe 2010; Adams 2018). Discussion has also focused on the effects digital technologies and citizen science have on how conservation organizations monitor and visually present wildlife (Verma *et al*. 2016). Here, the digital tracking of animals is seen to create 'wildlife cartographies', enabling novel visual representations of nature which influence the public narrative and policy on conservation. By focusing on the animal census, Verma *et al.* call into question whether utilizing these technologies for surveillance merely extends human domination over wildlife. Although Verma *et al.* draw from a theoretical framework focused on surveillance and census-making, they do not include the notion of biopolitics into their analysis. Since the primary goal of biodiversity conservation is to *make certain forms of life live*, I argue that a biopolitical conceptualization is an appropriate lens of analysis (Youatt 2008).

Surveillance is a common theme in the literature on new technologies, and scholars have also looked at the social implications of camera-traps for neighboring human communities (Sandbrook *et al.* 2018). Camera trap technology is presented as devices that can increase data availability on species presence, and with this enhance conservation. At the same time, the ethics of using such technologies is called into question, as it also extends surveillance into human populations living in and around protected areas. In these scenarios, camera traps not only collect information on those breaking the law, but also those merely carrying out their lawful everyday lives (Sandbrook *et al*. 2018: 501). In certain situations, these cameras can serve to make a separation between 'natural' and human spaces. Similar issues can be seen in the use of drones in conservation (Sandbrook

2015). Sandbrook suggests that if these negative social impacts are not addressed, they could hamper conservation goals in the long-term (2015: S644).

Big data, integrated databases and increased computational processing power is also changing the way that data is analysed (Adams 2018). The collection of data through some newer technologies 'bypasses' skilled fieldworkers by being able to automatically upload GPS and time-stamped data directly to databases through web or phone systems (Adams 2017). This expands the reaches of monitoring capacities far exceeding earlier human limitations. Due to the change in the volume of data flows, data analysis in conservation is also changing. Now, automated data management, modelling, and technologies from computer science and engineering are central to conservation (Adams 2018: 1). This automation of conservation decisions by digital technology has been termed "conservation by algorithm" (Adams 2018). This is characterized by animal tracking data being used to inform land demarcation and control, surveillance technology being used in coercive conservation, and the use of digital data in the automation of conservation decisions.

Due to the evident implications of new technologies for surveillance of biodiversity as well as its human users, the connection with biopolitics is apparent. Thus Sandbrook and colleagues (Sandbrook 2015; Sandbrook *et al*. 2018) link the surveillance afforded by new technologies with notions of the 'panopticon', which Foucault (1977) used to characterize the way biopolitics operates to compel subjects to internalize a sense of self-control (see Fletcher 2010; Fletcher 2017). Building on this, Adams (2017, 2018) explicitly frames the use of new digital technologies in conservation as a shift in the biopolitical regime of conservation. While an intriguing conceptual intervention, it lacks empirical data to back up its claims. Examples that do use empirical data in conjunction with a biopolitical framework to understand the implications of new technologies for conservation governance analyze the use of databases and algorithms calculating 'species viability' (Braverman 2014, 2017). These analyses reveal that processing of databases through algorithms is making previously distinct practices of *ex-situ* and *in-situ* conservation increasingly blur with one another. Surveillance in this case means extensive records and data management, which is seen as an integral part of biopower. Algorithms calculate numbers based on these databases that symbolize species' populations risk, making it possible to commensurate, rank and classify species according to the threat levels they face.

Unlike other cases that view surveillance and technologies through a Foucauldian framework, here surveillance is explicitly framed as harnessed to *make nature live* (see Biermann and Mansfield 2014). As this process utilizes increasingly complex calculations, it also relies on a small number of experts that translate raw data. This encourages a top-down and technocratic type of conservation. Algorithms are essential in the calculation of global threatened species lists, such as the IUCN Red List (Braverman 2016). The Red List is the standard amongst governmental and non-governmental organizations, serving as a tool to assess the health of species populations, and to rationalize conservation action worldwide. The act of listing and ranking species according to their level of extinction threat is a biopolitical act, as Braverman argues, "the *listing* of life is thus also *making* life – it grants life" (2016: 134). The act of listing makes use of algorithm and automation in making complex calculations, which attempt to anticipate future threat to species.

Other studies have unpacked how biodiversity censuses function as biopolitical techniques (Youatt 2008), and how different conservation approaches embody multiple forms of biopolitics (Biermann and Anderson 2017). Biopolitical conservation has also been situated within social contexts that are in a constant state of development, demonstrating that social changes have a mutually constituting relationship with conservation governance (Cavanagh 2018: 409). Despite these initial interventions, the scholarship on conservation biopolitics has devoted little attention to the emerging technologies that promise to alter the *status quo* of conservation thus far. Pimm *et al.* (2015: 689) characterize emerging technologies as a "toolbox" of diverse instruments that contribute to distinct stages of the "analytical pipeline." These stages are: data collection through devices, the connection of this data through cloud computational systems, the analysis of this data through algorithmic automation, and the execution of actions. The few studies that have sought to bring together discussions of biopolitics and new technologies thus far have focused on the implications of the algorithms and data analysis automation on biopolitical regimes (Adams 2017; Adams 2018; Braverman 2014; Braverman 2017). By instead focusing on the role of camera traps and GPS collars in conservation research, my study adds to this discussion by focusing on the devices that collect data for algorithms and experts to analyze.

In order to help understand the phenomenon of the biopolitics of technology and conservation, I draw especially from Jeffrey Nealon and Byung-Chul Han's interpretation of biopolitics. Jeffrey Nealon argues that Foucault views 'intensification' as the driving force for social change (Nealon 2008). For Foucault, the imperative of biopower is to "first, obtain the exercises of power at the lowest possible cost (economically, by the low expenditure it involves; politically, by its discretion, its low exteriorization, its relative invisibility, the little resistance it arouses); secondly, to bring the effects of this power into their maximum intensity and to extend them as far as possible, without either failure or interval"(Nealon 2008: 39; Foucault 1975: 218). I argue that new technologies serve the purpose of bringing the power of biopolitical conservation to its maximum intensity, precisely by "lowering the cost" of extending its power. Yet, as Benson (2016) argues, the use of these technologies affects the ontology of science, and has its consequences.

Byung-Chul Han characterizes the current confluence of digital technology and neoliberal capitalism as 'Dataism' (2017). Han explores how the rise of Big Data has led us to a 'Second Enlightenment', which is "the age of purely data-driven knowledge" (Han 2017: 58). At its core, Dataism is the belief that everything should be measured and quantified, revealing hidden correlations and the ability to foretell the future. Data fetishism signifies a shift from theory-based causality to correlation-based knowledge, which Han argues is "driving Spirit from the realm of knowledge" (2017: 68). Much like Nealon's conceptualization of intensification, Han argues that biopolitical data-centric systems have a compulsion to eliminate and calibrate the resistance of 'The Other' that may interfere with the smoothness of its operation (Han 2015: 2). This loss of 'Spirit' in knowledge production and the compulsion to calibrate 'The Other', are two key concepts that I will return to later in the article, as they will help to explain how new technologies are shaping the subjectivities of ecologists, and what implications this may have for conservation's relationship with local communities in face of species extinction.

Next, I will briefly outline the current biodiversity crisis in the Atlantic Forest to contextualize the pressures on the forest's fauna, which scientists are working hard to alleviate. Much of the literature on defaunation is relatively recent, and the effects of fragmentation and defaunation on species remain uncertain. Hence, in efforts to prevent extinctions in the biome, a current focus of conservation actors is to expand ecological research on the effects of environmental pressures on the health and behavior of the biodiversity in the Atlantic Forest biome.

3. Biopolitics of biodiversity monitoring in the Atlantic Forest

Depending on sources, estimates of the remaining Atlantic Forest cover range from 7-12% (Ribeiro *et al.* 2009). Yet, despite its loss of forest cover, it still holds a similar biodiversity per kilometer squared as the Amazon, and is designated as one of the world's most threatened biodiversity *hotspots* (Joly *et al*. 2014; Myers *et al.* 2000). In recent years, the deforestation rates have slowed, yet the remaining fragments have been left with a level of biodiversity unviable in the long run (Halley *et al.* 2016). Taking this into account, the Atlantic Forest currently has an 'extinction debt', where extinction will follow, but *the extent and rate* are not known yet (Metzger *et al*. 2009). In fact, there is evidence that even the biggest and best-protected fragments of the Atlantic Forest are losing their larger mammals (Galetti *et al.* 2017). The first species that are affected by the fragmentation of habitat are the larger bodied mammals, who require larger tracts of lands for their territory. Not only are their prey base more scarce, forcing them to travel further for sustenance, but also inaccessibility between fragments leads to isolation of populations. With populations being confined to specific fragments, their DNA becomes dangerously unvaried, leading to birth abnormalities, and eventual local extinction. Therefore, genetic variability of species has become important for scientists when speaking of fragmentation and defaunation. There has been some literature exploring *minimal species viability,* which estimates the smallest number of species populations needed to prevent local extinction (Paviolo *et al.* 2016). For example, it is thought that to maintain a viable population, jaguars need at least 50 individuals. Unfortunately, if trends align with current projections, they could be extinct from the biome by 2050 (*Ibid*).

According to scientists, the primary reasons for this are habitat loss, fragmentation, and the illegal hunting of wildlife throughout the Serra do Mar, which some have called a "war zone" of conservation for this reason (Galetti *et al*. 2017). Therefore, the primary means of combating defaunation are efforts to connect to make law enforcement more effective in curbing poaching rates. Likewise, creating new protected areas and

connecting fragments through biodiversity corridors through initiatives like the Forest Code, are the priority for addressing habitat loss. Whilst the pressures on wildlife amplify, a succession of governmental administrations have consistently cut environmental funding (Azevedo *et al.* 2018). Most dramatically, the election of Jair Bolsonaro in early 2018 has seen an overtly anti-environmental platform pushed by federal powers. Together, these separate components make up a situation in the Atlantic Forest that is highly pressurized, wherein the local and absolute extinction of species is a real possibility – and in some cases an eventuality. These are elements that need to be factored in when understanding the politics of conservation in the region. One of the primary ways that conservation actors deal with these pressures is through monitoring biodiversity. The knowledge compiled through digital devices enables directing actions to species and areas that need it the most. Effective prioritizing of resources is essential, especially given that organizations must operate with budgets that have suffered from sustained cuts.

Biodiversity monitoring is a primary activity that conservation actors operating in the Atlantic Forest carry out in order to understand forest life. As defaunation and its effects continue to claim wildlife numbers, these actors are utilizing increasingly more sophisticated technology to focus on the minutiae of remaining life. The remainder of the Section introduces and discusses empirical data on how this process interrelates with biopolitical governance in the biome. The empirical material shows six important dynamics of new technologies that have an effect on the biopolitics of conservation. Firstly, the increase of data digital technologies generates in comparison with earlier analogue and radio-based technologies. Secondly, this data allows for a finer-grained analysis, which helps to make claims for new conservation territory more robust. Thirdly, these technologies highlight *sinks* and *sources* of biodiversity, highlighting priority areas for action. Fourthly, there are considerations for avoiding cameras to be damaged or stolen by palm poachers and hunters. Fifthly, a side effect of the use of remote sensing technologies is the separation of (some) ecologists from the field. And lastly, the limitations of utilizing both camera traps and GPS collars in the context of the Atlantic Forest's thick vegetation and difficult topography.

More quantity, more quality of data

Knowledge production is a central steering force propelling biopolitical conservation action. The most direct shift that new technologies have on conservation is the ability to produce more wildlife data. As was shown in the literature review, digital technologies produce substantially more data than their earlier analogue and radio iterations. When speaking about the difference between previous methods and trapping, a field ecologist explained:

> What did people used to do? They used to go to the forest and look to see if there were footprints, or not, and then they would identify the species. These were the older techniques. So, you would have to study what the form of the animal's footprint was, and with that you could answer some things about the animal with this methodology. With camera traps, you can say exactly what animal walked through the area and what time it passed. With a footprint you can only say that the animal was in the area, but not if it was night-time, or if it was windy, for example. So, with camera traps you can also say if the animal was reproducing or not, because sometimes there are cubs. Sometimes you can also have an idea of the behavior too. We have videos of jaguars and their cubs grooming each other. Or at times we have gotten footage of an animal eating a specific fruit we didn't know they ate. So, we are able to collect an enormous richness in animal behavior, which we wouldn't have been able to without camera traps. This is why I say we really have a lot of data.[2]

Similarly, the shift from radio to satellite-based collars has dramatically increased the number of locations collected by scientists. Here, one of the veteran jaguar specialists talks about the difference between two studies done in the same site, but twenty years apart:

[2] Ecologist, interview by author, April 6, 2019.

> It's wonderful. Because you learn so much more about the animals, so much. Just to give you an idea, when I finished the project after four years studying jaguars, we had a total of the six jaguars that we had radio tracked through VHF telemetry. We had less than 500 locations. When [another researcher] did her work with GPS collars 20 years later, in the same location, she had an average of, I think it was 2,500 or 3,000 locations, *per animal* that she monitored. So, there's no comparison and the level of detail that you can study and that is extremely positive.[3]

These digital technologies change the way that nature is perceived by biologists. Not only can they now know the presence of certain species, but additionally, they can learn much more about how they behave and what environmental conditions were present at the moment the footage was captured. Likewise, whilst using GPS collars, the movement of animals is not dependent on field ecologists being within reach of the signal from the tagged animal. Now incredibly accurate, real-time data is automatically collected on the animal's movement. This information gives a clearer idea of what sort of terrain the animals prefer, and moreover what territory each individual occupies. All in all, this advancement in the quantity *and* quality of data collection greatly refines the biopolitical gaze has on nature, giving more fodder to conservation actors to make claims for new protected areas.

Claims to territory expansion

An essential part of biopolitical conservation is the need for classification and categorization. The more finely grained analysis afforded by camera traps and GPS collar technology is used to recommend priority areas for the expansion of protected areas. Much like the practice of threatened species lists, species occupation and other data considerations are used for "affirming and justifying which [territories] are most important to save" (Braverman 2016: 136). As this quote from a researcher working with pumas demonstrates, by placing GPS collars, they are using the animals themselves as 'landscape detectives', in order to understand what environments and conditions are viable for the particular animal. This data, triangulated with other methodologies, creates more convincing and scientifically backed claims for biodiversity corridors and protected areas. Data is collected on the environmental preferences of threatened species, the spatial necessity for particular forms of life is then delineated, and consequently the areas which should be prioritized for conservation are interpreted:

> What we're doing with pumas for example is trying to use them as tools for conservation. In other words, by placing radio collars on their necks and finding out where they are and how much they walk. And not only that, we were pretty lucky because we caught young individuals, and they're traveling all over the place. But the idea is to use them as landscape detectives. Through this we find out where are the places that could be used as restoration areas, preservation areas, creation of corridors and everything. So, by doing that we can help in the CAR [Rural Environmental Registry] by saying, well, if you are going to create your reserve, it's better to do in this area than in that area.[4]

By using animals as 'landscape detectives', conservation actors can make a strong case for which areas of land should be protected. In order to avoid defaunation, it is important to connect genetically isolated populations, and therefore this data is fed into algorithms to determine which areas would be most effective in creating corridors connecting fragments. Due to the Forest Code in Brazil, rural dwellers in the Atlantic Forest are obligated to set aside 20% of their property as forested land. The CAR (Rural Environmental Registry) that the research participant mentioned in the above quote is a project by the government to create a registry of rural properties throughout Brazil. Hence, what the interviewee was referring to was the possibility of taking

[3] Ecologist, interview conducted by author through skype, April 6, 2019.

[4] Conservation NGO employee, interview by author, October 7 2019.

advantage of the mandate for rural property owners to set aside forested land, and to use their data to coordinate biodiversity corridors.

While GPS collars track the movement of animals, camera traps also provide useful information for legitimizing the expansion of protected area by providing animal distribution data. The same researcher explained that in a previous project in the Paranapiacaba Continuum, she evaluated how an area's management affected the occupancy of jaguars. She did this by setting up camera traps in both a private and a publicly protected area. Surprisingly, whilst there were only few registers of jaguars in the public park, they captured 62 pictures of jaguars in the private areas:

> When we worked in this area, this wasn't a park yet. It was just private ranches and stuff. [pointing] … And here's a state park. This wasn't even a park. This was horrible. You know, it was like several properties, and people coming from all over the place. When we did this work there, we worked with a team of people… And then I went into this area and worked with one guy, the owner of this ranch, and two of us went into the bush every day and he knew exactly where to go and everything and we did this work. I placed cameras here in private ranches, and they place cameras there, in the state park, in areas that were similar in size. This is very important for conservation. And we were able to photograph in this area private reserve, we took 62 pictures of jaguars. And in the state park we only got one picture of a jaguar.[5]

This researcher explained how the significant presence of jaguars in the privately owned area contributed to the area being turned into an officially protected park. This also demonstrates how data gathered through digital technologies can be used in evaluating the efficacy of different management systems. For example, this same researcher attributed the highly unequal jaguar distribution to the fact that the private area had a more funds to spend on security to keep palm poachers and hunters out. Conversely, the state park lacked a budget or enough park guard personnel to carry out adequate surveillance. A government employee working with protected areas also spoke enthusiastically of how camera trap data could be used with programs such as the Green List of Protected and Conserved Areas. This is an International Union for Conservation of Nature (IUCN) program to create an evidence-based certificate to set the standard of best practice for protected areas (IUCN 2020). Monitoring devices will be utilized in the evaluation process to make sure parks are complying with the strict criteria, and expert guidance will be given on how parks can "improve their performance and impacts" (IUCN 2020). This move towards 'evidence-based' conservation is very much emblematic of biopolitical conservation, and would not be as effective without widespread use of new technologies. However, an over-emphasis on 'data-centric' conservation can potentially have an 'anti-political' effect, where there is an elimination of political participation, debate or contestation (Sadowski and Levenda 2020). This can prove especially dangerous given that conservation must also deal with human populations.

'Sumidouros' – Sources and sinks of species

As well as intensifying the prioritization of territories for conservation, new technologies also intensify community engagement and law enforcement. According to some researchers palm poaching, and hunting have negative effects on the occupancy of some mammals like the jaguar in protected areas (da Silva *et al.* 2018: 55). The presence or absence of certain species proves to be an especially important aspect for conservation in the Atlantic Forest. As mentioned earlier, under the effects of defaunation, the Atlantic Forest has been labelled a 'half empty' forest (Bogoni *et al*. 2018). The remaining fauna is unevenly distributed throughout the biome and between fragments. Some areas, such as Foz do Iguaçu National Park in Paraná state, are larger fragments that have a relatively healthy population of jaguars, and better connectivity with other biomes like the Pantanal. However, this was not always the case and in the 1990s, the jaguar population in Foz do Iguaçu National Park was dangerously low. That being said, censuses carried out since have shown a steady rise in the population of

[5] Conservation NGO employee, interview by author, October 7 2019.

jaguars. In contrast to the rest of the Atlantic Forest, where jaguar populations are highly threatened, its growing population makes Foz do Iguaçu a source for jaguar populations. The hope is that if sufficient connectivity is created with other fragments, the Foz do Iguaçu jaguars can help to repopulate other regions in the biome.[6] Equally, due to hunting and other reasons, there are areas empty of certain species. These 'empty spaces', or *sinks*, signal to biopolitical conservation that something is preventing a species from inhabiting those areas. As a tapir ecologist explains:

> With this [camera trap] information we know where they avoid. Not only where they inhabit, but where they avoid [sic]… So, in this monitoring project we are trying to do in this region, we have big gaps of forest without animals. Even though there is a big forest, we have a gap. And we need to understand why that is. Is it because of hunting, or maybe is it because of fruit production? We don't know exactly. Just because there is a forest, doesn't mean there is animal occurrence there. But we need to understand deeper, why they are in some areas and not in others… with this information, we can make some decisions. And, with the human dimensions we can even reach the communities surrounding where we have these gaps. So, we have a gap here, where we have no tapirs, we have no peccaries, and probably no jaguars, and we know that there are a lot of communities around there. We would like to maybe reintroduce or reforest the animal population in this area. So how will the community perceive this?[7]

From the interviews I conducted, these *sinks*, or empty holes, seem to be attributed by conservation actors primarily to the presence of hunting activities in the regions, sometimes exacerbated by insufficient law enforcement and surveillance. Some researchers, such as Mendes *et al.* (2020), have used camera traps to argue that human activities like hunting cause 'landscapes of fear' for animals, leaving them to be more active at night, or avoid certain areas altogether. For locally endangered species like the jaguars, maintaining movement between fragments is key for their survival in the biome. By avoiding particular routes, they may be forced to traverse areas more densely populated by humans – thereby increasing the chance for conflict or predation. When a jaguar was collared close to the Carlos Botelho State Park, the researcher said that the track indicated they couldn't cross a certain section close to the park: "one animal couldn't cross this. so, it is probably a village of hunters, or palm harvesters. So, I think this is a *sumidouro*. But jaguars are animals that need to cross big distances to survive."[8] These *sinks* indicate to the researcher that they should prioritize efforts in that area. Depending on the case, this could be in the form of an environmental education program, or stricter law enforcement around the region. This reaffirms the case that new technologies are used to exercise biopower over human communities, in order to *make charismatic species live* (Cavanagh and Benjaminsen 2015, Sandbrook *et al*. 2018). This is a particularly sensitive issue, as the Paranapiacaba Continuum is within the Vale do Ribeira, the region of São Paulo with the most vulnerable communities. This makes it clear that although monitoring devices are able to show the environmental conditions a species population needs to be *made to live*, the spatial implications of this, especially when it comes to dynamics with neighboring human communities, need to be considered.

Camera traps, palm poachers and hunters

There are some hunters and palm poachers traversing the forest that encounter camera traps and resist biopolitical surveillance in various ways. Most of the researchers working with camera traps that I spoke to confirmed recording footage of palm poachers or hunters:

[6] Conservation NGO employee, interview by author, October 7 2019.
[7] Ecologist, interview by author, March 22 2019.
[8] Ecologist, interview by author, March 22 2019.

> One of our cameras disappeared. In another campaign, the hunters took the SD card out, turned it off and left the camera there. So, they knew how to use it. In another park, they stole two cameras, and in another protected area they stole two more. I remember there were certain locations we got video of some men with rifles. There was also another location where they took the batteries for their flashlights. Another clip that had a guy with a huge machete.[9]

These researchers have a close relationship with protected area management, and this data, alongside information on palm poacher and hunter's camps and tracks, are usually relayed to them. Undoubtably, the ecological research conducted in protected areas ends up becoming an extension of park surveillance against wildlife crime. However, instead of actively trying to gather information on palm poachers or hunters, researchers I spoke to try to conceal camera traps to avoid damages or losses:

> We know that people walk in some trails. Those are areas where they can steal the cameras, so we try to avoid setting them up in those places. We set them up about 20 meters from the main path and note down the GPS coordinates. We try to not make any trail (*picada*). We also hide the cameras so people cannot see. If we feel secure that the camera won't be stolen, then we can make it more visible. Because otherwise, the people kick, shoot at, or open and take the cards from the camera.[10]

Although technologies like camera traps have become more affordable, each camera can cost as much as US$500. Especially considering recent drastic cuts to environmental funding and research, losing even one camera can be very detrimental for a laboratory or organization. However, some private reserves, particularly those owned by large extractive companies, do have surplus money to spend on monitoring technology. Referring to one of these private reserves, the same field ecologists said: "they bought camouflaged cameras that do not trigger a flash. And they bought three of those cameras specifically to try to catch people. They left them in strategic places, and because it doesn't flash the chances of catching people is better, right?" This is to say that although camera trapping technology in the Atlantic Forest is not widely used directly in the surveillance against wildlife crime, there is a possibility of its adoption becoming a more common occurrence in the future. Beyond the potential for digital technologies to be used in the surveillance of human subjects, they also have other effects on the researchers and practitioners, and how they carry out data collection.

Remote data and separation from the field

Another important theme worth exploring is how the use of digital devices is shaping the subjectivities of the ecologists themselves (Asiyanbi *et al.* 2019). The nature of fieldwork itself is now markedly different, and this alters the relation the researcher has with the ecosystems and species they study. With camera traps, GPS collars and other remote sensing devices, a distinction emerges between field ecologists that carry out campaigns and collect data, and scientists that are primarily laboratory-based and run analysis through models and algorithms on datasets. Those that twenty years ago spent a vast amount of their time tracking animals via radio telemetry, now see a new generation of ecologists that have a wholly different experience of fieldwork. One of the veterans in jaguar research reflects on this:

> In between computers, cell phones, satellites, GPS, telemetry color, and so many other gadgets that today have transformed fieldwork into something much more impersonal aiming much more at efficiency than the pleasure of being in the field. Amongst so much technology, modern technology, I consider myself privileged to have been working with one of the people that made fieldwork as a result of our connection with nature through the heart.[11]

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[9] Ecologist, interview by author, April 6 2019.

[10] *Ibid*.

[11] Ecologist, interview by author over Skype, April 6 2019.

This suggests that the experience of fieldwork may have changed, and that it may have also shifted the connection to nature away from one of the 'heart', towards being increasingly mediated by more complex technology. The same researcher speaks of this phenomenon by relating it to an advertisement he had come across:

> I quote an advertisement I had seen: You have a picture of a biologist who is all sweaty and tired, and dirty. Coming back from the field, and after a hard day in the field gathering locations the hard way. Like I used to. I used to work my entire life in the field. And then there was another picture, and it said: "Do it the right way." and then there is a biologist with an air-conditioned office, with both feet on the table, receiving all the information on the computer. So, it is more or less that…The field biologist is not in the field anymore. He stays in the office and receives the information, and I think that takes away the romanticism, and all that brought the scientists together with nature. And I think that is a great loss. I would never like to lose that.[12]

This critique of increasing reliance on technology to conduct remote conservation research could be viewed as an expression of what Foucault calls 'counter-conduct', which is "a subtle and sly attempt to subvert and 'escape direction by others'" (Asiyanbi *et al.* 2019: 129). There is a sentiment expressed here that something, a 'romanticism', has been lost through the integration of technology in ecology. Some of the ecologists I interviewed mentioned that some of their most important epiphanies they have had, occurred during fieldwork. Whilst accompanying a camera trapping expedition, the two biologists I was with discussed the distinction between field biologists, and those that stay in the lab. They often get field ecologist apprentices to accompany them in campaigns, and many of them are not used to the long days walking on 'unpaved' hilly forest paths. Apparently, there were many occasions where those apprentices gave up and decided to stay behind instead of helping set up camera traps.[13] The same jaguar researcher earlier shared his perspectives on this:

> I think people don't want the hardship anymore of life in the field. They won't go into the field if there is no internet connection, or if they don't have a four-wheel drive. Or they won't go if the roads aren't bad. Nature is not like that – whenever you can get to nature like that, with internet connection and asphalted roads, it just isn't nature anymore.[14]

Of course, this does not comprise the ecologist's experience across the board. However, this does highlight a potential emergent trend in modern ecology, and certainly calls to question how the change in the way fieldwork is conducted affects ecologist's subjectivity and relationship with nature and the object of their research. Further, it could also be influencing the type of person that is attracted to the field of ecology in the first place. Moreover, it touches on the discussions of the nature/culture dichotomy in the literature, anxieties of wild nature becoming too domesticated (Whitney 2014), and recent conservation approaches seeking to minimize the impact of human interventions through 'rewilding' (Lorimer *et al.* 2015).

Data limitations

As powerful as new technologies at the hand of biopolitical conservation may seem, life itself resists being fully integrated into the biopolitical knowledge production. Foucault himself stated that "it is not that life has been totally integrated into techniques that govern and administer it; it constantly escapes them" (Biermann and Mansfield 2014: 260; Foucault 1990: 143). Despite the game-changing role that new technologies have in biodiversity monitoring, there are circumstances where they run into limitations. This is especially the case

[12] *Ibid*.

[13] Ecologist, interview by author, February 28 2018.

[14] Ecologist, interview by author over skype, April 6 2019

when they are confronted with the challenging topography and vegetation of the Atlantic Forest. Biopolitics relies on the rationalization of 'life', which is steered based on knowledge production. Yet, a question that emerges is what happens within biopolitical regimes when there is insufficient knowledge to direct and prioritize action? When it comes to collecting data, the steep hills and dense vegetation of the Atlantic Forest make navigating the forest terrain a grueling endeavor. According to an interviewee, the scientific method calls for 90 days of footage collection, spread over 60 locations with two cameras each, all running simultaneously. Realistically, two field ecologists are able to set up 20 locations in seven days, meaning it would take up to three weeks to set up all 60 locations: "we would need a big team to be able to do this all at once. Today we have 120 cameras, but we are also trying to monitor different regions at the same time. So, we break the grids up into sections, and do 20 locations at a time."[15] This demonstrates that having access to the technology is not enough, but there are also budgetary constraints in terms of labor, time, and numbers of camera traps available.

GPS collaring also comes with its own complications. Besides the fact that capturing and tagging an animal can be difficult and expensive to orchestrate, the topography and climate of the Atlantic Forest can prove taxing to the equipment. A researcher working with pumas and jaguars explained the complications of using the GPS collars:

> The collars have to read the sky. But with these gullies, sometimes they can't read all the satellites in the sky. So, the connection is pretty bad. The collars are programmed to connect with the satellite every day, in a particular time of the day. If the cat is sleeping with the head down pointing to a rock or tree, or if he is in a very deep area, he doesn't have a connection with the satellite long enough to send the information. So, it keeps back logging.[16]

When the collar cannot connect with the satellite after a given number of days, it goes into a power saving mode. Once it enters this mode, instead of sending one signal per hour, it sends one *per day* – significantly diminishing the efficacy of the study.

These complications have made getting data on animals like the jaguar and puma particularly difficult. With digital technologies, much more is known about species than before. Nonetheless, after much effort, scientists have not had as much success with collaring jaguars as they would have hoped. When considering how defaunation affects these animals in the Atlantic Forest, the science is not yet conclusive:

> Because of the issues with the collars, we don't know if the jaguars behave differently in the Atlantic Forest. We don't know if because food is scarce, and they normally have to walk more, and individuals have to overlap their home ranges [territory] more. We don't know if that is just their normal way of living in the Atlantic Forest. In this case, we can't be certain if they need larger protected areas and reserves.[17]

In saying this, this scientist was referring to a young jaguar which moved across an abnormally large distance whilst being tracked, in comparison to jaguars in other biomes. If this is a pattern repeated across other individuals, they would need to account for that when advocating and creating new protected areas. The problem is that they have not been able to collar enough jaguars in their project to state show this is the case.

This uncertainty when it comes to defaunation was also voiced by a government employee working with carnivorous species:

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[15] Ecologist, interview by author, April 6 2019.
[16] Conservation NGO employee, interview by author, April 12 2019.
[17] Ibid.

> We don't work much on the effects of defaunation. We have been trying to work on this with some other groups. This research has been conducted by some university groups, that gather information on the fragments throughout the Atlantic Forest. But we're still at stage of gathering information... So, we're not even bringing this to the action plans because we don't know where to act, where to prioritize the resources. But we still are looking at lots of other information that is being published... We are trying to work together with other researchers to generate information. But I also see that [defaunation] is being talked about much more broadly nowadays.[18]

This nicely exemplifies the biopolitical nature of conservation and its relationship with knowledge production. Yet, especially in a dense and hilly environment like the Atlantic Forest, collecting data on some species still remains a challenge. Without adequate scientific knowledge, conservation actors do not have solid grounds on how to direct their biopolitical interventions. Though, with an increase of attention to defaunation in the scientific, governmental, and non-governmental arena, this may begin to change.

4. Discussion

Taking into consideration the empirical material above, what follows will be a discussion of how the camera traps and GPS collars relate to the biopolitics of conservation. Drawing from Jeffrey Nealon and Byung-Chul Han's engagement with Foucault's work, I argue that the use of remote sensing technologies contribute to the intensification of biopower in conservation. As corroborated by other studies, this intensification aids in the argument for new conservation territories and the commodification of nature (Verma *et al.* 2016). Simultaneously, the data collected also highlights problem areas where biopolitical intervention should be prioritized – potentially playing into coercive conservation. The remote collection of data distances the researcher from the object of study, which may also have consequences for conservation's relation with local communities.

Emerging technologies play the role of intensification of knowledge production within a biopolitical conservation regime. This is primarily because remote and automated data collection hyper-accelerates the flow of information. As such, this intensified pace of data collection, coupled with increased capacity for analysis, means that digital devices are bringing the effects of biopolitical conservation into their *maximum intensity* and *extending them as far as possible* (Nealon 2008: 39). As Verma *et al.* point out, the data collected is processed and rendered into wildlife cartographies, which are used to shift public narrative and policy towards conservation ends (2016). In an example above, I demonstrated how camera trap and tracking data is used to advocate for the expansion of protected areas. Hence, the use of these technologies is also harnessed to spatially extend the reach of conservation governance as far as possible. With ongoing technological developments, information flows in the biopolitical regime of power are constantly streamlined, leading to a lowering of 'cost', and what Foucault calls "economic" growth (Nealon 2008: 39). Nealon argues that in Foucault's work, the dynamic of intensification is the catalyst to social change: "I'd argue that the logic of intensification *is* Foucault's primary mechanism for explaining historical change: the emergence of new modes of power happens through the lightening, saturation, becoming-more-efficient, and transversal linkage of existing practices" (Nealon 2008: 38). It appears that the culmination of the use of different technologies has reached a tipping point where some scholars diagnose that conservation's mode of power may be shifting from biopolitics towards 'ontopolitics' (Büscher 2018) or 'conservation by algorithm' (Adams 2017).

The risk of extinction in the Atlantic Forest brought by defaunation and fragmentation increases the pressure surrounding conservation in the region. Yet, tracking technologies make for a finer-grained understanding of how animals behave, move, and are distributed throughout the biome. As large-bodied mammal populations continue to decline in the Atlantic Forest, the biodiversity monitoring technology has become increasingly complex, focusing on the minutiae of the remaining life. Biopolitical authority justifies its governance because it acts by prioritizing the health of its target population (Foucault 2003). In the case of this

[18] Governmental conservation employee, interview by author, October 7 2019.

defaunated forest, the target populations continue to die off despite conservation efforts. Logically, it then follows that conservation actors will intensify their efforts to hamper extinction threats. For Braverman, since surveillance and biopolitics are symbiotically tied, an intensification of biopolitical efforts is accompanied by increased surveillance and knowledge production (2014). In the Atlantic Forest, scientists are reacting to the threat of species extinction precisely by intensifying their monitoring efforts in order to have clearer knowledge on which to ground future conservation interventions. With the Atlantic Forest being 'half-emptied' of its fauna (Bogoni 2019), conservation's gaze and attention increasingly focuses on dwindling animal populations. This dynamic *de facto* increases the intensity of biopolitical conservation on its subjects, as the maxed-out apparatus and focus of digital power is funneled into smaller populations. Simultaneously, as trophic cascading within fragments continues, the forest further empty of larger mammals, making the urgency to safeguard individuals and populations increase exponentially. These dynamics come into confluence, increasing the pressures in crisis conservation scenarios, and will lead to unpredictable outcomes.

Current global conservation strategy is built around protecting charismatic umbrella species like the jaguar. Being large mammals, they necessitate a complex ecosystem to sustain them. The thought is that by conserving these charismatic species, other species living within the same area are protected by proxy. Consequently, significant occupancy of jaguars in a region may justify claims for territorial expansion or an increase in financial resources for already-existing protected areas. Species distribution data is also used to calculate the population viability numbers for different fragments within the biome. Due to defaunation and extinction debt in the Atlantic Forest, the population viability for the jaguar shows that if new protected areas and biodiversity corridors are not established, jaguars may not have a future in the biome further than 2050 (Paviolo *et al.* 2016). Given this, the monitoring carried out by these digital technologies effectively dictates where conservation actors should prioritize their actions and makes appeals to donors for where they should direct funds and attention. This affirms Verma *et al.*'s argument that wildlife cartographies are utilized to secure funding and to marketize conservation (2016; Igoe 2010). In these instances, digital instruments are employed as a mechanism for attracting capital, because "values accrues only insofar as objects are seen" (Han 2015: 9). In this instance, recording the presence of charismatic species gives conservation capital to a protected area or property owner. Likewise, calculating potential desirable areas to 'make certain species live' also creates value, and depoliticizes the expansion of conservation territory (Sadowski and Levenda 2020).

The presence of species is not the only notable characteristic that conservationists look for in a landscape. Within conditions of defaunation, emptiness reveals which human settlements are unfavorable to fostering charismatic life. In this case, wildlife cartographies also spatially represent regions where animals do not feel safe inhabiting. In doing so, they allow conservationists to calculate and categorize how favorable specific human communities are to making wildlife 'live', and assessing whether they are engaging in hunting, poaching or deforestation. As stated earlier, Byung-Chul Han contends that a data-centric system has a compulsion to conform and eliminate 'the Other', or 'the Deviant' (Han 2015: 76). Individuals and communities that transgress biopolitical conservation's norms are antagonistic to its core goals, and thus need to be 'calibrated' (Han 2015: 2). For this reason, biopolitical conservation extends its governance beyond nonhumans and must engage with human communities in order to *make charismatic life live* (Cavanagh and Benjaminsen 2015). Further, although it is not commonplace in Brazil yet, the prospects of camera trap and tracking technologies being used more explicitly against human populations is a real possibility (Sandbrook *et al.* 2018). This is especially the case given that algorithms are now being used to counter illegal poaching in other regions (Adams 2018). As stated earlier, palm poaching and hunting levels in the biome already make ecologists refer to parts of the Atlantic Forest as "war zones" (Galetti *et al.* 2017). If the pressures from defaunation persist in the biome, conservation could skew towards 'neoprotectionism' – an intensified return to 'fortress conservation' models (Büscher and Fletcher 2020). In this scenario, digital technologies could be progressively adopted within coercive and militarized modes of conservation, as actors intensify their efforts to save species from extinction (Büscher and Ramutsindela 2016). Given the recent approval of Law 16.260/2016, which allows the franchising of public use services in state parks in São Paulo to private companies, coercive measures could be progressively enforced in the Atlantic Forest in order to protect 'natural capital' (Lopes *et al.* 2019; Fletcher *et al.* 2019).

Byung-Chul Han also argues that "data-driven quantification of reality is driving *Spirit* from the realm of knowledge" (2017: 68). As stated earlier, here he is referring to the way technology and Big Data are

changing knowledge from being based on *causality* to *correlation*. Extending this idea, I argue that this loss of *Spirit* is also expressed by ecologists when they say there is a loss of romanticism in contemporary ecology and fieldwork. Framed in this way, I posit that 'Dataism' is driving *Spirit* away from biopolitical conservation (Han 2017). Fieldwork used to be an integral part of being an ecologist. Yet, automated data collection and Big Data are decoupling fieldwork and ecology, physically separating (some) researchers from their object of study. Indeed, the number of fieldwork-based publications since the 1980s has decreased by roughly 20%, "with modelling and data analysis studies increasing by 600% and 800%, respectively" (Ríos-Saldaña *et al*. 2018: 2).

Much of the current work in ecology comprises of applying models and analysis to extensive datasets. The effects of the distancing of researchers from the embodied subjectivity in the ecosystem they study is currently under-explored. How, and if, their perspective and relation to nature is affected through this transformation in ecology labor should be researched. In relation to the potential for 'neoprotectionism' (Büscher and Fletcher 2020), I would argue that the distancing of the researcher from the ecosystem may have implications for their relations and perspective of rural communities living close to nature. Similar to the use of drones in warfare, distancing may make it easier to advocate for more coercive conservation approaches (Espinoza and Afxentiou 2018; Gregory 2017). Without field immersion and interaction with neighboring communities, conservationists may more readily advocate for sovereign environmentalities (Fletcher 2010) applied to human populations to curb rising extinction threats.

With all the knowledge generated by camera traps, GPS collars, and other devices, ecologists still run into limitations. Despite ongoing research on defaunation, this knowledge is not yet being translated into concrete action plans in the Atlantic Forest. Even as biopolitical conservation collects unprecedented amounts of data with highly complex technology, it does not mean sound conservation policy automatically follows. This is made apparent by the rise of "authoritarian neoliberalism", such as is the case in Bolsonaro's Brazil (Deutsch 2021; Saad-Filho and Boffo 2021). In these contexts, the authority of technocratic, biopolitical conservation is challenged. Although conservation knowledge and actors calling for certain priorities and agendas, environmental policy seems to be steering directly counter to this (e.g. environmental budget cuts [Magnusson *et al.* 2018]). Future research should examine this dynamic closer, and its implications for the biopolitics of conservation. Further, even with the use of new technologies, life resists being fully incorporated into biopolitics, and there are elements of defaunation in the Atlantic Forest that remain unknown to conservation biology. At the same time, with the future survival of species at stake, conservation actors must take some form of action to address defaunation. Since biopolitics is a data-centric mode of governance, another avenue of inquiry could understand how conservation regimes act in the absence of concrete knowledge. This would not only be useful in the context of the Atlantic Forest, but also in other regions where data on certain species or ecosystems is sparse but biodiversity is in a state of crisis.

5. Conclusion

This article has brought together literature on new technologies and biopolitics in order to analyze the consequences of digital technologies in biodiversity conservation. This was addressed via a case study of conservation in the Atlantic Forest, a biome undergoing a critical biodiversity crisis where animal populations are suffering from the effects of fragmentation and defaunation. If current conditions in the Atlantic Forest remain unchanged, extinctions at the biome level are sure to follow. As such, a foundational element in the response by conservation actors has been to monitor wildlife closely. New technologies like camera traps and GPS collars play a key role in understanding how to prioritize and direct biopolitical action. There are several implications of this for the biopolitics of conservation.

I have argued that by dramatically increasing the quality of data flow of information, these technologies are maximizing the intensity of biopolitical conservation (Nealon 2008). This transformation in information flow, alongside the automated analysis through algorithms, also provides fodder for claims to new conservation territories and funding. When species occurrence and movement data are rendered into wildlife cartographies, they highlight problem areas where conservation intervention should be deployed (Verma *et al.* 2016). The approaches to neutralize and 'calibrate' extinction threats from human subjects may come in the form of disciplinary, sovereign, or neoliberal environmentalities (Fletcher 2010, Han 2015). Thus, digital technologies

categorize local communities according to their level of environmental conformity or transgression, and mediates biopolitical governance over human populations. Moreover, remote sensing technologies are distancing researchers from their field site and object of study, which I argue signifies a loss of *Spirit* in the realm of ecological science (Han 2017). I have argued that this distancing shapes the subjectivity of ecologists and means that some are potentially less exposed to interactions with local communities. I hypothesize that with mounting pressures on wildlife, this could facilitate the implementation of increasingly sovereign tactics against local communities, in efforts to prevent species extinction (Büscher and Fletcher 2020).

My aim is not to be deterministic with the arguments presented in this article. Rather, I follow Kranzberg's first law of technology, that "technology is neither good nor bad; nor is it neutral" (Kranzberg 1986: 545). Depending on the underlying 'mission' behind the use of the technology, it can have outcomes on either end on the spectrum of emancipation and coercion (van der Wal *et al.* 2015). Nature conservation has had a mixed record concerning its social impacts, and it is important to be conscious of the power dynamics between stakeholders in the implementation of digital technologies (Sandbrook *et al*. 2018). Ultimately, for conservation to be effective, it must have the backing of local communities around protected areas. Big Data and complex technologies are excellent at analyzing the *how*, but they are less equipped at understanding *why* phenomenon occur (Han 2017: 68). Conservationists should not, then, abandon causal and theoretical ways of knowing in their scramble to technologically develop their methodologies and practices. Consequently, to ensure long-term success in conservation goals, new technologies should be used in amplifying genuine inclusion and tackling the roots of environmental problems, rather than perpetuating structural, or physical, violence amongst local communities – who face the brunt of conservation responsibility and impacts.

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Crisis conservation and green extraction: biodiversity offsets as spaces of double exception

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Abstract

Extraction and conservation seem to be polar opposites, yet they entertain multiple relations as the 'greening' of extractive activities mobilizes conservation efforts to address the 'extinction crisis.' Drawing on a review of the literature and two case studies, this article discusses the politics of affinity and enmity shaping the extraction-conservation nexus, and partnerships. As crisis conservation and green extraction receive increased attention, the article suggests that the convergence of extraction and conservation is not only pragmatic, but also reflects shared discursive imaginaries and valuations of nature, practices materialized through spaces of 'double exception', and common politics of enmity directed at local communities that legitimize exclusionary practices rather than solve capitalism's contradictions.

Keywords: extraction, conservation, biodiversity offsets, land grabs, green grabs

Résumé

L'extraction et la conservation semblent être aux antipodes, mais elles entretiennent de multiples relations car le « verdissement » des activités extractives mobilise les efforts de conservation pour faire face à la « crise d'extinction ." S'appuyant sur une revue de la littérature et deux études de cas, cet article traite des politiques d'affinité et d'inimitié qui façonnent le lien extraction-conservation, et les partenariats. Alors que la conservation de crise et l'extraction verte reçoivent une attention croissante, l'article suggère que la convergence de l'extraction et de la conservation n'est pas seulement pragmatique, mais reflète également des imaginaires discursifs partagés et des évaluations de la nature, des pratiques matérialisées par des espaces de « double exception » et des politiques communes d'inimitié dirigée contre les communautés locales qui légitiment les pratiques d'exclusion plutôt que de résoudre les contradictions du capitalisme.

Mots-clés: extraction, preservation, compensations de biodiversité, accaparement des terres, rafles vertes

Resumen

La extracción y la conservación parecen ser polos opuestos, sin embargo, mantienen múltiples relaciones a medida que el "enverdecimiento" de las actividades extractivas moviliza los esfuerzos de conservación para abordar la "crisis de extinción." Sobre la base de una repasada de la literatura y dos estudios de caso, este artículo analiza las políticas de afinidad y enemistad que dan forma al nexo de extracción-conservación y las asociaciones. A medida que la conservación en crisis y la extracción verde reciben una mayor atención, el artículo sugiere que la convergencia de la extracción y la conservación no solo es pragmática, sino que también refleja imaginarios discursivos compartidos y valoraciones de la naturaleza, prácticas materializadas a través de espacios de 'doble excepción' y políticas comunes de enemistad dirigida a las comunidades locales que legitiman las prácticas excluyentes en lugar de resolver las contradicciones del capitalismo.

Palabras clave: extracción, conservación, compensaciones por biodiversidad, acaparamiento de tierras, agarra verde

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1. Introduction

Walking into Texaco's office in Angola in 1998 as part of an investigation on corruption in the oil sector, I was struck by a corporate poster promoting the company's oil rigs as a marvel of marine conservation. Arguably, oil rigs can serve as fish habitat and marine mammal observation platforms. But it's not their primary purpose. There were few justifications for Texaco to be in war-torn Angola other than profits. Conservation claims, I presumed, were there to inform visitors about the 'green' side of an industry mostly known for its catastrophic spills. Though not new, claims of biodiversity protection by extractive companies have increased over the past two decades and partnerships with conservation organizations are now frequent. While far from universal, conservation has become an intrinsic part of the ways many extractive companies portray themselves in the context of the contemporary 'extinction crisis.' After defending their corporate interests through denial and litigation, an increasing number of companies are repositioning themselves as unlikely 'defenders' of the environment (Adams 2017; Chapin 2004). Beyond environmental reclamation and carbon taxation, many are now pursuing green credentials through 'biodiversity offsets' and 'natural climate solutions' mobilizing conservation practices, including biodiversity and carbon sink protected areas, to reduce the environmental and emission impacts from their core operations (Maron *et al.* 2015). Denounced by some as "little more than an accounting trick to permit development" (Sweeney 2016: 13), these *green extraction* practices purport to achieve 'no-net-loss' or even 'net-positive-gain' biodiversity and emission impacts;[2] with the financing of protected areas not only making up for, or exceeding the ecological devastation brought upon through extraction, but also creating new forms of capital accumulation (Adams 2017; Büscher and Fletcher 2015; Kelly 2011).

Extraction-conservation partnerships connect a wide array of organizations, objects, narratives, and practices, including extractive companies, conservation organizations, local communities, government authorities, geological formations, ecosystems, protected areas, carbon sinks, and endangered species lists. As discussed below, extraction and conservation partnerships have a broad set of costs and benefits (Adams 2017) and create unevenly distributed potential and realized values (Enns *et al.* 2019). Building on a growing political ecology literature investigating the articulation of extraction and conservation, I focus on the transformation of affinities and enmities across these two sectors. The strategic repositioning operated by select extractive companies and conservation organizations has first entailed a partial redefinition of allies and enemies, especially with regard to environmental organizations. It has also meant a reshaping of the exclusionary terrain of their (joint) operations, including through the combination of degazettement and biodiversity offsetting, enabling the production of spaces of exception where conservation and extraction regimes rule. This process, however, does not unfold without contention, contributing to a politics enmity often pitting local communities against as conservation and extraction interests frequently backed by the state.

Political ecology studies have extensively considered both resource extraction and biodiversity conservation, but more rarely their interactions (Huff and Orengo 2020). Here, I seek to contribute to the growing literature addressing this gap through a discussion of the political ecologies of extraction *and* conservation (Adams 2017; Büscher and Davidov 2016; Enns *et al.* 2019; Norris 2017; Purwins 2020; Symons 2018;). Building on studies from within political ecology and other disciplines (see Sonter *et al.* 2018), I hope to help map out – both conceptually and literally – some of the main extraction-conservation relations.

From a conceptual perspective, I draw on political ecology – including inputs from 'new materialism', 'post-developmentalism', and epistemic 'decolonization' efforts (Schulz 2017) to discuss relations between extraction and conservation, with a focus on the ways extractive corporations and conservation organizations co-create spaces of double exception to secure their activities and realize value out of 'nature', whether out of commodity extraction, carbon credits, or ecotourism (Enns *et al.* 2019). For this, I briefly review some of the main current paradigms and trends in extraction and conservation, focusing on relations of affinity and enmity between the two and towards 'Others', focusing on local communities standing in the way of industrial extraction and neoliberal conservation. I then examine the effects of combined extraction and conservation

[2] 'Green extraction' refers here to discourses and practices seeking to represent extractive activities as environmentally benign, sustainable, or even beneficial (i.e. this is not to be confused with 'green minerals' extraction which includes deals with the extraction of metals and minerals for renewable energy technologies).

logics, praxis, and consequences of these relations in specific places. Empirically, I seek to show how 'biodiversity offsets' and other 'natural climate solutions' represent dangerous tools of land reallocation, creating spaces of exception and annihilating 'traditional' socio-environmental forms of life. The main argument is that the politics of mutual affinity and common enmity between conservation and extraction mobilizes shared narratives and practices undermining opposition to neoliberal conservation and extractivism (i.e. logics of development through extractive activities), including false narratives of hope for the planet and conservation-driven spatial fixes to the damages of extraction, as well as new domains of capital accumulation from extinction and climate change mitigation.

Following this introduction, Section 1 provides a brief historical overview of relations between extraction and conservation. Section 2 outlines and conceptualizes the various spaces of exception articulated through these partnerships and their impacts on local communities, focusing on biodiversity offsets as conservation-driven 'natural solutions' to extraction and climate change. Section 3 briefly examines two case studies of biodiversity offsets, on coal mining in South Africa and agro-industrial plantations in Brazil, to illustrate some of the points made in this paper. The conclusion summarizes the main arguments, discusses major implications for conservation-extraction relations, and suggests areas for further research.

2. Extraction and conservation

Mostly identified as mining or oil and gas activities, extraction is more generally understood as the extirpation of select 'natural' materials for human purposes, including export-oriented commodity trade and industrial production such as logging, fishing, agriculture, and wildlife. Here, I follow a broader conception of extraction as transformative processes of dispossession and accumulation enabled by and exacerbating inequalities at the expense of pre-existing socio-environments (Douglas and Alie 2014; Van Vliet *et al.* 2016; Ye *et al.* 2020). I must note however that, first, most of the literature reviewed here more narrowly engages with the extraction of minerals and fossil fuels; second, many different forms of conservation and extraction exist (e.g. community-driven and multiple-use conservation areas intregrating small-scale extraction of forest products) with varying degree of conservation and extractivist pressures (Kröger 2020); and third, that local communities – and their individual members – are not 'automatically' opposed to conservation or extraction schemes (Andrews et al. 2017; Büscher and Fletcher 2020). Extraction and (neo)extractivism are increasingly used as concepts in the study of exploitation and subjectification within contemporary logics and practices of 'development' (Acosta 2013; Junka-Aikio and Cortes-Severino 2017; Veltmeyer 2016). Facing a negative public image and frequent resistance from local communities, some extractive companies have sought to advance claims of sustainability and contributions to climate change mitigation and biodiversity conservation (Boon 2019; Dahl and Fløttum 2019).

Many studies of extraction come from, or relate to political ecology approaches, especially as a result of the commodity boom initiated in the early 2000s (Bridge 2004), exposing uneven power relations in resource control and extractive governance (Peluso 1992), the ambivalent attitudes and effects of extraction (Bebbington 2008; Bridge 2008), the various forms of violence associated with extraction (Navas *et al*. 2018; Watts 2001), the numerous struggles against extractivism (Condé and Le Billon 2017; Temper *et al.* 2015), and increasingly common biodiversity conservation partnership between extractive and conservation actors (Enns *et al.* 2019). Following a brief background description of extraction and conservation, I then provide an overview of their interactions.

Growth in extraction and conservation

The past three decades have seen major reforms and debates around both extraction and conservation. Extraction 'boomed' during the period as mining outputs increased from 10 billion to 17 billion tons between 1990 and 2017 (Word Mining Data 2019), deforestation and agriculture further expanded in the tropics (Song *et al.* 2018), fishing efforts accelerated (Steneck and Pauly 2019), and a growing number of extractive projects affected high biodiversity areas and Indigenous peoples (Bebbington *et al.* 2018). Long present on the international agenda out of supply security concerns (Le Billon 2012), resource extractions received renewed attention as a result of diverse, and at times contradictory arguments and processes, such as the liberalization

of mineral sectors, fears of 'peak oil', fast rising demand from 'emerging economies', developmental concerns over a 'resource curse', critiques of 'land grabbing', widespread struggles against extractive projects, and broader concerns over climate change (Bridge and Le Billon 2017; Temper *et al.* 2020). While faint hopes of a transition to a 'low carbon economy' may reduce fossil fuel exploitation by mid-century (Le Billon and Kristoffersen 2020), mining of 'green transition' minerals is intensifying (Sovacool *et al.* 2020).

Conservation activities also increased over the past three decades. Worldwide terrestrial and marine protected areas grew from 8.2% to 15% and 0.4% to 7.6% between 1990 and 2019, respectively (PPLR 2020). The conservation agenda experienced major upheavals, including over broader concerns for biodiversity loss (e.g. the 1992 Convention on Biological Diversity), as well as forceful conservation practices and transnational conservation instruments using market mechanisms (e.g. REDD+). Political ecology critiques have exposed the neoliberalization of conservation and its growing militarization, denouncing the exacerbation of uneven power relations and the creation and capture of new values at the expense of others, mostly those of traditional communities, especially Indigenous groups (Büscher *et al.* 2017 ; Colchester 2004; Duffy 2014; Peluso 1993). Conservationists have stressed efforts to advance multiple-use conservation areas, attention to human rights dimensions, and support for in-situ and community-driven conservation projects (Jonas *et al*. 2017; Newing and Perram 2019; Shaw 2021). Examples of community-based conservation *and* extraction, include Brazil's 'extractive reserves' (RESEXs), originally designed to protect sustainable extractive processes by small-holders but increasingly threatening forested landscapes through more severe forms of communitarian logging schemes (see Kröger 2018; 2020).

Despite the apparent contradictions or dichotomies between extraction and conservation, both share many similarities including common dialectical imaginaries and materialities, reshaping landscapes for their own purposes (see Table 1; Bridge 2001; Davidov and Büscher 2013). As Norris (2017) points out, both sectors seek to commodify nature and calculate the value of these commodities (proven mineral resources and protected areas marketed for tourism) in order to persuade landowners to accept these new land use regimes or surrender their lands through a mix of (false) promises, ontologically incompatible compensation schemes, and outright coercion (Adams 2017; Brock 2020; Watts 2000). Both extraction and conservation work, at times together, in order to bring about new imaginaries of places and re-territorialize them through regimes of exception that seek to rule and legitimize particular forms of exclusion or inclusion, in particular for local communities.

As discussed here, extraction and conservation share in this regard some common enmities, notably towards local communities, migrants, land uses and livelihoods that are seen as incompatible with large-scale extraction and mainstream forms of conservation. As a result, growing affinities between extraction and conservation have resulted in a flurry of initiatives on both sides (see Table 2). For critics, these affinities are in effect not only '*sustaining extraction*' through green washing, engagement in conservation, or post-extraction rewilding, but also '*sustaining extinction*' through the continued promotion of extraction.

Extractive footprints and tensions with conservation

Extraction and conservation entertain multiple and complex relations. Many extractive activities are taking place in conservation-valued areas, such as with mining and oil extraction in the Western Amazon (Butt *et al.* 2013; Finer *et al.* 2008; Sonter *et al.* 2017). About 86% of industrial mines for key metals around the world are located in areas of high or intermediate plant diversity (Murguia *et al.* 2016), and about a third are either inside or within 10 km of a protected area (see Durán *et al.* 2013). This threatening proximity, or blatant overlap, is pushing some major conservation organizations to work with extractive companies and their financiers, often based on the argument that "minerals will still need to be mined, even in a fully renewable age. Any extractive activity must [therefore] be conducted in an environmentally and socially responsible way, causing the least possible damage" (WWF 2019). The damages of extraction have indeed been extensively documented (Butt *et al.* 2013; Fisher and Burton 2018; Meijaard *et al.* 2005; Radford 2012). The numerous socio-environmental impacts of extraction have generally pitted local communities and allied environmental organizations against extractive projects (see Temper *et al.* 2015). In turn, many extractive companies have coercively pushed against resistance to their projects, generally with the active support of host country

authorities and local elites (Condé and Le Billon 2017). Discourses of enmity and coercive types of practices have been deployed by parties on all sides, with civil society groups denouncing companies, boom-town speculators (including pro-extraction local elites) as reckless, heartless and greedy (Dahlgren 2019; Wouters 2020); companies criticizing environmental and land defenders as subversive anti-development radicals (Middeldorp and Le Billon 2019) and local pro-extraction groups attacking environmental activists (Welker 2009); and governments portraying local – often Indigenous – communities as backward people in need of modernity (Dunlap and Jakobsen 2020; Prause and Le Billon 2021; Purwins 2020). The result has often been escalation of conflicts over extractive activities, leading in turn to grave human rights abuses including murders (Le Billon and Lujala 2020). Yet, not all 'stakeholders' in extraction/conservation debates have pursued a confrontational approach in extraction/conservation relations. As documented below, many major western extractive companies and conservation NGOs have come to closely collaborate for the purpose of advancing extraction *and* conservation.

Category	**Extractive companies**	**Conservation organizations**
Operational goal	Extraction	Protection
Economic perception	Promised development	Wasted potentials
Environmental image	Destructive	Protective
Financial motivations	Profits	Charitable funding
Material interest	Subsoil resources and agro-productive soil and water	Surface biodiversity and ecotourism
Areas of interest	Resource frontiers and commercial deposits	High biodiversity and critical ecosystems
Spatial logics and forms of control	Erasure of previous land use and exclusion or integration of local residents; Concession and surface/sub-surface terra-transformation	Re-naturalization of land ('without use') and exclusion or co-management with local residents; Protected areas and Other Effective Area-based Conservation Measures (OECMs)
Security	Militarization and community pacification through Impact Benefit Agreements, Corporate Social Responsibility projects, and repression	Militarization and community enrollment through eco-tourism, 'sustainable' livelihoods, REDD+, and repression

Table 1: Comparison of extraction and conservation.

Growing affinities between extraction and conservation

As the 'professional' embodiment of biodiversity protection, conservation organizations (COs) have increasingly partnered with extractive industries. As an often already corporate-friendly branch of the broader family of environmental non-governmental organizations (ENGOs), COs are frequently funded by high-earning individuals and their foundations (Holmes 2012; Spence 1999; Tsing 2005), build their programs on the legacies of (extractive) colonial conservation practices, and do not hesitate to use a 'firm' (and deadly) hand with local populations protecting their traditional livelihoods or resisting relocation as a result of 'fortress conservation' (Duffy 2014). Some conservation projects have extended or even directly benefited from the dispossession of traditional residents, including Indigenous people, as in the case of gold mining in Yosemite National Park (Spence 1999). Conservation can be instrumented as a 'green alibi' to displace communities and more easily access mineral resources, as reported in the case of diamonds for the Basarwa in Botswana (Boonzaier 2011; Mosweunyane 2017). Many COs have long welcomed funds from extractive companies (Chapin 2004). Direct funding from extractive corporations rose from the mid-1990s onward, often with

different purposes in mind. Rather than green philanthropy perhaps assuaging the guilt of old deeds and dreams of 're-wilding' places, the more recent corporate funding is 'future oriented' and often seeks to secure future environmental licence for extractive activities as well as producing future (and new) values out of 'nature.'

Taking the form of public relations campaigns, hired consultancy, operational sub-contracting, and strategic partnerships, these 'new' relations have thus been more instrumental in enrolling conservation within on-going and future extractive activities. In this regard, COs have been able to facilitate the conservation claims and projects of extractive companies through their 'green' brand, conservation expertise, and extensive networks. At its most basic, these relations have allowed extractive companies to populate their sustainability reports with images of charismatic wildlife, ecofriendly 'natives', and the green logos of conservation. At its most elaborate, extraction-conservation partnerships have created and run vast protected areas, or led to the co-design of corporate strategic plans on future climate policies. By the mid-1990s, the interest of major conservation NGOs in further engaging extractive companies found an echo in the interest of a number of large Western mining companies to improve their environmental practices and image (Adams 2017; see Table 2).

Year	Initiative name and main proponents
1997	*Reinventing the Well* – Conservation International
1998	Global Mining Initiative (GMI)
1999	Mining, Minerals and Sustainable Development (MMSD) project and creation of the International Council on Mining and Minerals (ICMM)
2000	*Lightening the Lode* – Conservation International
2001	Energy and Biodiversity Initiative (EBI) – BP, ChevronTexaco, Shell and Statoil / Conservation International, Fauna & Flora International, the Nature Conservancy and the Smithsonian Institution
2004	Business and Biodiversity Offset Program (BBOP) – CI, Forest Trends/Newmont
2006	Good Practice Guidance for Mining and Biodiversity – ICMM
2011	Toward Sustainable Mining and Biodiversity Conservation Framework reporting – Mining Association of Canada
2013	*Independent Report on Biodiversity Offsets*. The Biodiversity Consultancy, International Council on Mining and Metals (ICMM), International Union for Conservation of Nature (IUCN).
2019	*Forest-Smart Mining* – World Bank / Fauna and Flora International

Table 2: Timeline of major reports and initiatives articulating extraction and conservation
Sources: Adams (2017); author.

Beyond individual relations between extractive companies and COs, major national mining associations also called for greater engagements with stakeholders, and in particular partnerships with conservation organizations (Bowles and Prickett 2001; ICMM 2006). A 'Triple A' rating on biodiversity within the Mining Association of Canada, for example, required "a commitment to *actively partner* with other organizations for biodiversity conservation" (MAC 2017, emphasis added). Asked how she would respond to critiques of a US$50 million partnership with Australian mining giant BHP,[3] CI's senior director for responsible mining and energy responded that "[T]he world needs the expertise, agility and funding the private sector brings to the table to tackle and scale conservation solutions" (Evans 2019). In 2011, a sting operation by journalists exposed the apparent willingness of CI corporate relations staff to help 'greenwash' a (mis-represented) US arms company through conservation areas in the Middle East that would be associated with the company's

[3] BHP is a Top 20 Global Carbon Major (Taylor and Watts 2019) with 177 million tons of embedded CO_2e/year from its Australian coal mines (Moss 2019).

"Endangered Species Mascot" (Lewit 2011); companies could sit on CI's Business and Sustainability Council for a US$100,000 fee (DPL 2012).[4] Extractive funding of conservation has been allocated to various purposes, including biodiversity research, training wardens, and extending parks (see below, Table 3). Such funding can also be part of counterbalancing specific negative media coverage of an extractive company, as suggested by Hamann and Kapelus (2004) in the case of First Quantum in Zambia, which announced conservation funding shortly after facing criticisms for low tax payments. In short, the past two decades have seen a growing affinity between extractive companies needing green credentials and expertise, and conservation organizations needing access and finance.

Despite these growing affinities and accompanying critiques, not all researchers working on links between extraction and conservation agree. Based on their extensive review of studies on mining and biodiversity, Sonter *et al.* (2018: 2) argue that there is fact a lack of *long-term* collaboration between mining and conservation interests, and scientific uncertainties have so far "resulted in a *simplification* of complex and often controversial issues" (emphasis added). False or questionable arguments by extractive companies and partnering organizations include prognoses that improving extractive technologies and resource recycling will drastically reduce future biodiversity loss, that extractive activities will have insignificant consequences compared to other processes such as agriculture, and claims by extractive companies that they are now fully committed to environmental protection when efforts still in part depend on market conditions. Sonter *et al.* (2018) thus suggest that greater and higher quality engagement between extraction and conservation may help prevent biodiversity loss from extraction, including through financing conservation efforts and alternative paths for environmentally damaging local livelihoods that could improve 'sustainable development' performances (see also WWF 2019). Yet, some concerns remain about both the motives and effects of closer affinity between extraction and conservation.

Explaining extraction and conservation partnerships

Mobilizing insights from critiques of 'neoliberal nature', Enns *et al.* (2019: 969) have argued that not only "extraction and conservation activities increasingly occur in the same spaces and make use of similar logics, strategies and technologies", but that "biodiversity conservation is increasingly being carried out through partnerships between extractive and conservation actors in pursuit of shared or complementary interests" (see also Büscher and Davidov 2013; Norris 2017; Seagle 2012). Several factors or motives explain these partnerships.

The **first** explanation is the neoliberalization of much of conservation, which "shift[ed] the focus from how nature is used in and through the expansion of capitalism, to how nature is conserved in and through the expansion of capitalism" (Büscher *et al.* 2012:4). Lured by market-based neoliberal forms of conservation and the promises of a green economy, Adams (2017: 245) argues, many conservationists have been willing to "sleep with the enemy … turning a blind eye to their own past and to the working of neoliberal capitalism, showing a remarkable willingness to entertain future risks to biodiversity from the outworking of neoliberalism." Seeing in this relationship a Faustian Bargain, Adams (2017) sums it up by suggesting that conservation organizations passed a deal with corporations to "acquire power in exchange for the soul… giving up their innocent objection to the destructiveness of capitalism." Rather than 'failing' state-funded conservation, neoliberal conservation, and capitalist expansion more generally, is seen by these organizations as offering the promise of effective biodiversity conservation through a green economy (Igoe *et al.* 2010).

Secondly, this neoliberalization provided the extractive sector facing a double crisis of legitimacy and exhaustibility with a spatial fix, opening up new lands and reserves, and an ecological fix, flipping conservationists from opponents to partners through market solutions (Enns *et al.* 2019; O'Connor 1988). In short, conservation organizations could save nature by helping corporations bring it to markets (Adams 2017; Büscher *et al.* 2012). For Dempsey and Suarez (2016: 267), neoliberalization logics mean that conservationists "must now court, rather than confront" extractive companies. Such courting, in turn, could lead both sectors to

[4] According to its own annual financial reports, CI had raised US$36.1 million directly from corporations in 2013 (CI 2014). By 2018, CI counted support from 5 fossil fuel companies, 7 mining companies, and 3 agro-industrial (palm oil) companies; with Chevron, Exxon, and Shell as Business and Sustainability Council members (CI 2019).

profit from the official (re/de)valuation of nature (Dempsey and Collard 2017). In short, conservation organization and extractive companies mutually help each other to produce new "capitalist natures" (Kay and Kenney-Lazar 2017: 306), and through this "secure the foundation upon which their production and accumulation is based" (Enns *et al.* 2019: 970).

Pragmatically, this means, for example, that conservation organizations partner with extractive companies because their model requires more funds and access to higher-level power-holders. Among environmental organizations, conservation organizations are more likely to partner with extractive companies as they seek the support of government authorities, rather than challenge them. Conservation organizations with large budgets are also more likely to partner with extractive companies (Hoffman 2009),[5] something that not only reflecs their greater capacity but also their need to secure large and diversified revenue streams. Funding from extractive companies can also help COs pursue approaches that would alienate more 'traditional' conservation donors, with for example companies being more willing to support agricultural and livelihood schemes for local communities to increase their cooperation in conservation activities, while traditional conservation donors may refuse to fund programs supporting local community residence and activities (see Hance 2016).

Extractive companies partner with conservation organizations in part because they need to improve or protect their reputation through green credentials; to prevent or remediate environmental harms; to secure their activities through a controlled perimeter/buffer zone; and to create new ways of valuing their investments. For this, they need to access conservation 'expertise' (e.g. biodiversity conservation and carbon offsetting), recognized policy advice, field capacity and networks, as well as trust-building intermediaries to reach out to local authorities and select communities. Furthermore, partnerships also result from similar approaches that develop assets frequently against the will and traditional livelihoods of local residents, and they can also benefit from mutual communication (Read and Diehl 2018). Their logistics can be facilitated when they work in the same geographical areas.

Finally, conservation can render land around extractive sites 'investable' (Le Billon and Sommerville 2017), notably through eco-tourism (Büscher and Davidov 2016). Without conservation, local residents may be seen by extractive interests as a threatening 'surplus population' in need of costly pacification. Through their partnership, conservation and extraction can render the land 'investable' not only for extraction – by reassuring investors through increasing the green credentials of the project and lowering reputational risk – but also for conservation, as environmental organizations benefit from a source of funding and benefit from some of the extractive infrastructure, such as roads and local air strips, to develop ecotourism (Smith 2013). This new source of value, in turn, can be used to the advantage of extractive companies to buy in local communities through new livelihoods and 'co-management' as well as keep migrants at bay through stricter human settlement rules, including at times with the support of local elites asserting exclusive ethnic/tribal entitlements (Wouters 2020).

Enmity and the Extraction-Conservation nexus

In *Necropolis*, Achille Mbembe (2019, 16) explains how the "state of exception and relation of enmity have become the normative basis of the right to kill… [as] power … continuously refers and appeals to the exception, the emergency, and a fictionalized notion of enmity." Enmity, he continues, "now constitutes the spirit of liberal democracies, and how hatred gives them the impression of experiencing a pure present, a pure politics, using means that are themselves pure." In the case of the extraction-conservation nexus, such politics of enmity are mostly directed at individuals and groups resisting extraction and conservation projects. More recently identified in the literature through the term 'environmental and land defenders' (Menton and Le Billon 2021), these individuals and groups are often Indigenous and traditional agrarian communities facing a criminalization of their land uses (e.g. shifting agriculture), livelihoods (e.g. artisanal mining, hunting), and practices of resistance (e.g. refusal to relocate, protests, blockades) – echoing coercive processes anchored in

[5] One could also hypothesize that conservation organizations with a low ratio of membership to budget are more likely to partner with extractive companies, although this remains untested.

colonial and racist 'rationalities' (Mbembe 2001) that have been well documented within the political ecology literature (e.g. Neuman 2004; Walker 1998).

As Hill *et al.* (2016: 310) summarize, political ecologists "recognize that relationships among big-business operations and local resource management institutions are complex and interactive in the context of historically and politically contingent circumstances of protected area designation and management." Seemingly benign forms of inclusion into extraction and conservations schemes – such as ecotourism funded through extractive companies as part of their corporate social responsibility programs – can, for example, result in deeper intra-community inequalities and conflicts (Palmer and Chuamuangphan 2018), pointing to the importance of post-development approaches (Duffy 2006; Büscher and Fletcher 2020). At least seven major conservation activities associated with extractive companies can be identified, from the commissioning of conservation research to the creation of new protected areas. While some of these activities can have positive impacts for some communities, or at least for some of their members (e.g. easier access to health services and additional sources of livelihoods reducing out-migration, see Smith 2013), they also – if not mostly – have potential negative impacts (Enns *et al.* 2019; Table 3).

Conservation activities of extractive companies	**Potential negative impacts on local communities**
Commissioning conservation research	Shift in understandings of value for 'nature' and potential land use for area; extractive bioprospecting
Raising community awareness about conservation initiatives	Shaming of traditional practices and closure of alternative 'sustainabilities' to those allowed by conservaiton
Initiating captive breeding and rewilding programmes	Increased risk of damage from wildlife
Establishing community-based conservancies and resource management programs	Increase in inequalities, including uneven distribution of revenues increasing intra-community inequalities and tensions
Training and equipping park rangers	Increase in fines and human rights abuses
Building new security infrastructure in and around protected areas	Further loss of access to land and resources
Establishing new protected areas	Restriction of a land and resource access; displacement; loss of assets; increase in tourism

Table 3: Impacts of extraction-conservation partnerships on local communities. Sources: Enns *et al.* 2019; author.

To sum up, by fixing some of the crises of extraction, conservation enables its reproduction, or in other words helps to 'sustain extraction.' While conservation initiatives may help to counterbalance some of the 'bads' resulting from extraction, the resulting extraction-conservation system also extends its own impacts onto communities and the world at large – including the planet's ecosystems. The predictable endgame of these phyrric victories is unlikely to be the win-win that many conservationists are claiming to pursue, but rather the incorporation of conservation into extractivist logics. To use Dunlap and Jakonsen (2020)'s take on violent technologies of extraction, the conservation organizations that are participating in this Faustian bargain may be at risk – intendedly or not – of paradoxically constituting one of the "insatiable forces that transform, convert and consume the world."

3. Extraction, conservation and spaces of exception

If affinities between extraction and conservation can take shapes, they are increasingly translating on the ground into the formation of various types of spaces of exception. As presented in Figure 1, initial exceptions creating conservation or extraction areas, are reworked through relational assemblages bringing in their supposed 'polar opposite.' Although this matrix oversimplifies more complex relations, with four main categories being identified when considering the initial spaces of exception – whether conservation or extraction – and the pursuit of purposes through practices. Each of these create particular spaces of 'double' exception related to conservation and extractive regimes of rule; noting that this 'double' aspect generally does not come out of direct, simulataneous and overlapping *co-occurrence* of conservation and extraction in time and space, but rather through various processes of chronological succession or indirect spatial relations between these regimes of rule.

First, existing conservation areas can be de-gazetted for the specific purpose of extraction, creating nested spaces of exception within (former) conservation areas that had already imposed rules of exception evicting local populations or severely restricting livelihoods and land uses (see Figure 1a); in this case one regime of exception (extraction) chronologically succeeds the other (conservation), possibly to serve as a spatial fix of extraction elsewhere (e.g. the exhaustion of a company's ore deposits in other mined areas). **Second**, the outer perimeter of an existing extraction area can be turned into a conservation area for the specific purpose of securing extractive activities in the core area through a peripheral regime of exception (see Figure 1b); in this case a new regime of exception (conservation) is spatially juxtaposed with the area under the extraction regime in order to protect and partially extend it (e.g. serving as a 'natural' – and possibly lower-cost – equivalent of 'social' perimeters through which extractive companies seek to pacify nearby communities to protect their core activities).[6] **Third**, current or former extraction areas can be turned into conservation areas, such as one combining, for example, a 'reclaimed' high biodiversity conservation area overlay atop a previous zone of extraction, thereby maintaining a regime of exception and avoiding possible future liabilities through preventing a re-settlement of the area (see Figure 1c); in this case the conservation regime temporally follows the extractive one over the same spatial 'footprint', preventing the return of populations and their liability claims (e.g. 'rewilding', environmental reclamation covering up for environmental liabilities and participating in economies of accumulation through restoration, see Brock 2020). **Finally**, new conservation areas can also be created specifically for the purpose of offsetting extraction, there creating a space of double exception *at a distance* from the existing area of extraction (see Figure 1d); in this case an off-site conservation regime is imposed or reinforced in order to 'compensate' for the impacts of an extractive one, with the result of doubling the total area coming under either of these two regimes of rule – noting that each legitimates and justifies the other.

Degazetted PAs

The most common form of double spaces of exception is the exception made by authorities for extractive projects to take place within conservation areas, themselves spaces of exception given their restrictive land access and land use rules. The proportion of designated protected areas increased from about 8% to 15% of terrestrial areas and from 1% to 10% of marine areas between 1990 and 2016 (UNEP-WCMC and IUCN 2016). The rate of protection has been decreasing however, with protected areas downgrading, downsizing, or degazettement (PADDD) becoming increasingly frequent, in large part to allow for resource extraction activities (Kroner *et al.* 2019; see also Mascia and Pailler 2011). Of 3,718 PADD events identified between 1892 and 2018, 78% were enacted between 2000 and 2018, while several countries, such as Bolivia, also authorizing extractive activities within some protected areas from the onset of their establishment (Kroner *et al.* 2019).

[6] On the concept of 'pacification' of communities including corporate counter-insurgency approaches mixing repressive and cooptation mechanisms, see Dunlap and Jakobsen (2020) and Huff and Orengo (2020).

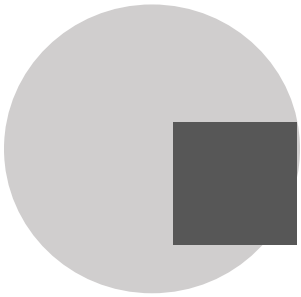
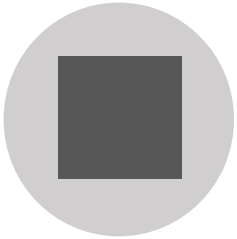
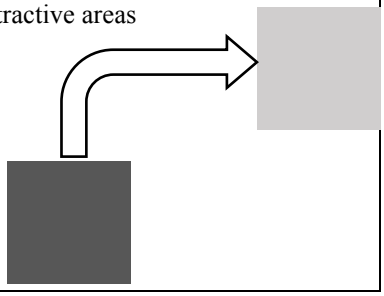
Spaces of double exception Initial spaces of exception	Extraction overlaid on or underlaid below conservation	Conservation appended to extraction
Conservation areas	*Degazetted PAs* Spaces of extraction within protected areas  1a	*Conservation perimeters* Spaces of conservation around extraction areas  1b
Extraction areas	*Extractive cover-up PAs* Spaces of conservation overlaid on (former) extractive areas  1c	*Extraction offsets* Spaces of conservation 'offsetting' extractive areas  1d

Figure 1 – Extraction, conservation and types of spaces of double exception.

Overall, while the trend of future gazettement of terrestrial protected areas is unclear, it seems likely that greater accommodation of extractive activities will take place in high biodiversity areas, both for lands and oceans, whether formally (and practically) protected or not (Ali *et al*. 2018). On land, continued growth in fossil fuel extraction, increased mining targeted at green energy transition, as well as extensive agro-industrial projects point to sustained pressure on high biodiversity areas (Díaz *et al*. 2019). For oceans, there is a major concern that 'blue growth' – the pursuit of economic growth through marine spaces and resources, will result in major socio-environmental impacts (see Bennett *et al*. 2019). The influence of resource reserves has not been tested, but is likely a factor and deserves further research. Enacted PADDD events in the Amazonian region between 1961 and 2017 were overwhelming associated with industrial-scale resource extraction and development (83%) compared to local land pressures and claims (9%). Of these events 67% were later reversed and 5% were offset (Kroner *et al*. 2019). As Naughton-Treves and Holland (2019, 833) remark "some park downgrades, such as those granting access rights to long-term residents, may be pragmatic steps to help build local constituencies for conservation or encourage more sustainable harvest levels… Far greater concern should

be given to the permanent changes brought by extractive industries and infrastructure in and around protected areas."

Conservation perimeters and extractive-areas-turned-PAs

Extraction has not only led to PA degazzettements, but also to the funding and creation of PAs. This has taken several forms, including the funding of new or already existing protected areas, the conservation of industrial landscapes tied with environmental objectives, as well as the environmental remediation and turning of extractive zones into PAs. These areas often constitute new spaces of exception, as the exclusions brought by extractive companies are replaced or complemented by those of conservation. In Germany, the 'lake' created by the Haselbach 1 coal mining has been turned into a protected area, its toxic waters being covered with coconut fiber mats seeded with reeds to create an artificial 'pleasant wetland' that is strictly off limits to local populations, in part because of drowning risks (Mudroch *et al*. 2002). Some companies have also established 'conservation perimeters' *around* core mining areas to protect and legitimize their extractive activities (Zambian Eye 2018), as well as advertised conservation areas *within* their concessions (i.e. 'set-asides') to attract and recruit expatriate workers (e.g. 'careers' section of First Quantum website for its Kansanshi and Sentinel copper mines[7]).

Extraction offsets (aka 'biodiversity' offsets)

Conservation area offsets allow for extraction in conservation-valued sites in exchange for the application of conservation regimes in other (supposedly near-equivalent) biodiverse areas (Bull and Strange 2018). Rather than calling for less extraction, some conservation organizations instead called for extractive companies to fund large 'biodiversity offsets' (Virah-Sawmy *et al*. 2014); noting here that the correct term should instread be 'extraction offset' since it is extraction (and its narrow ontological perspective and valuation of nature and life) that these schemes are trying to compensate for, and not the biodiversity that is being ravaged (on the ontological dimensions of extraction and compensation, see Lassila 2020; Le Meur *et al*. 2020; Li 2015). This risks not only legitimating and even further promoting extraction, including in high biodiversity areas since offsets supposedly offer a compensatory mechanism, but some critiques have warned that governments misuse offsets to reach their CBD protected areas commitments, thereby promoting extraction while pretending to advance conservation (Maron *et al*. 2015).

Biodiversity offsets are generally operationalized through the creation or extension of *private* protected areas, often with ownership held by conservation organizations (Büscher 2021; Thakholi 2021). In Canada, Shell purchased about 18,200 hectares through several conservation organizations, including the Alberta Conservation Association, Ducks Unlimited Canada, and The Nature Conservancy Canada (Shell Canada 2019). Teck similarly funded TNCC to the tune of US$2 million for conservation offsets (TNCC 2013). Seeking to offset unconventional oil and gas or large-scale mining projects, some of these initiatives turned settler ranches on unceded Indigenous lands into 'private conservation properties', raising issues about entrenching Indigenous dispossession (Hackett 2015). Some of these conservation organizations, however, have also bought out extractive companies to prevent possible gold and coal development, combining compensation of extractive licence cancellation with new 'no-go' area regulation by legislators (Chaney 2011). Partnerships with Indigenous groups over offsets also occur, but while some form of community engagement generally takes place, the respect of a right to free, prior and informed consent (FPIC) is often complex and constrained (see Macintyre 2007). FPIC for example can be restricted to officially-recognized Indigenous groups rather than traditional or local communities, consent itself not secured before projects are implemented, and prior consulation may be used as means to carry out extraction rather than veto it (Jenner and Balmforth 2015; Hackett 2015; Middeldorp and Le Billon 2021).

Offsets remain relatively rare in relation to existing Protected Areas. Out of 268 enacted PADDD with planned offsets, only 13 were actually carried out (Kroner *et al.* 2019). This suggests that offsets could be misused as a planning approval diversion, with companies only pretending that they will provide offsets. There

[7] See https://www.first-quantum.com/English/careers/work-and-lifestyle/zambia/default.aspx.

are also documented cases of offsets that have been themselves 'offsetted', leading to a string of extraction-conservation-extraction-conservation across landscapes. Biodiversity offsets are becoming more common for projects taking place outside of PAs, with a recent study identifying 12,983 offset projects extending over around 150,000 km^2 across 37 countries (Bull and Strange 2018), and more research is needed in regard to actual implementation levels and the long-term status of offsets. So far, relatively few studies have examined the social impacts of biodiversity offsets (see World Bank 2019). Among these, research on the Ambatovy nickel mine offset projects in Magagascar have found that the more immediate costs of conservation restrictions on affected populations have not been addressed through alternative livelihood benefits or compensation. Examples are the loss of access to nearby forests (Neimark and Wilson 2015), and the uneven distribution of costs and benefits within communities (Bidaud *et al.* 2017).

Offsets are presented as a way to compensate for biodiversity losses in areas undergoing extraction. They frequently take place at the expense of two categories of local populations: those whose lands are being directly affected by extractive activities, and those whose lands are turned into offsets (or 'offsetteered'). In turn, these populations have been framed as representing a challenge for the extraction-conservation nexus. A review of five mining-related biodiversity offsetting schemes commissioned by the World Bank (2019) clearly identified the 'common enemies' of the extraction-conservation nexus. Among the eight "practical challenges encountered in offset implementation" identified by the report, seven related to the presence and practices of local communities, including charcoal production, fuelwood collection, small-scale logging, hunting for bushmeat, fire-based land management, agricultural encroachment, and more generally 'access' to protected forests. The only non-community related challenges was the slow biodiversity recovery observed in restored landscapes where topsoil had been removed or highly impacted. The report left little to the imagination, other than local people being the main impediment to successful offsetting by large-scale mining. In Ghana, Newmont 'offsetted' its Akyem mine in Ajenjua Bepo Forest Reserve through funding for increased enforcement by park rangers in Mamang Forest Reserve via BBOP to reduce land 'squatting', 'illegal' logging, and 'poaching' by the local population (MacDonald 2008). In Madagascar, a managing officer charged with implementing a new offset regime described some affected people as lazy "parasites" with "primitive minds" unwilling to work on the alternative livelihood schemes proposed by his organization (Vyawahare 2020). Biodividersity offsets have frequently displaced farming livelihood options and thereby populations, acting in effect as a tool of dispossession (Hackett 2015, 2016).

One of the major issues with biodiversity offsets is the problematic ways of assessing the 'biodiversity loss' associated with projects. Such assessments often fail to adequately consult local communities and the values that they put on this biodiversity, and on land more generally. In Laos, critics have pointed to dam biodiversity offset schemes as one more way the government tries to end shifting agriculture practices, with drastic consequences for traditional livelihoods and food security (WRM 2017). Because offsets facilitate the issuance of extraction permits, while at the same time expanding lands under restrictive conservation rules, there is a risk of seeing a general acceleration and amplification of the process. Some conservationists have called for biodiversity offsets to follow a precautionary approach and for example to double the size of the biodiversity offset area compared to the extraction area (Virah-Sawmy 2014). This would mean that for every hectare granted to an extraction project, communities could in effect lose three. In South Africa, Anglo-American/De Beers has committed to create 45 hectares of conservation area (mostly in the form of game reserves) for every hectare of land used for mining, its website proudly claiming to have 'strengthened' already 'robust' anti-poaching measures to protect wildlife (De Beers 2018).

Looking at the case of Rio Tinto/QMM's ilmenite[8] mine in Madagascar, Seagle (2012: 447) concludes that the commodification, economic valuation and objectification of nature coming out of the extraction-conservation nexus enabled a process of inversion whereby the extractive project's threat to biodiversity paradoxically enabled the company's claim "to be 'saving' biodiversity from local Malagasy people." Examining the same case nearly a decade later, Huff and Orengo (2020) conclude that "[the offset] has triggered serious social, environmental and legal conflicts since its inception, including allegations of a 'double land grab' to accommodate mining activities and compensatory biodiversity offsetting", and they add that the 'pacification'

[8] Titanium is refined from ilmenite.

of local communities works "…through the re-ordering of socio-nature, underwrites the forms of 'security', 'stability' and even 'sustainability' that facilitate multiple and overlapping strategies of value extraction in the territorial and extra-territorial spaces occupied by the QMM mine partnership."

This is made in part possible through a process of offsets reframing nature as isolated and exchangeable biodiversity units, obfuscating the social dimensions of biodiversity and deep local entanglements between the human and non-human, commodifying and financially valuating biodiversity, and recasting biodiversity as a positive by-product of economic growth and land development rather than as a negative impact (see Apostolopoulou and Adams 2017; Thakholi 2021). Biodiversity offsets are also often seen by large-scale extractive companies as providing an edge against competing firms, as well as a way to further delegitimize, if not criminalize, certain livelihoods. As early as 2008, industry specialists anticipated that biodiversity offsets would help large-scale operations be "seen as the preferred development option compared to unregulated and poorly run operations... includ[ing] artisanal and small-scale mining" (Nazari and Proebstel 2008: 43). Below, I briefly look at two examples of offsets, and the politics of affinity and enmity animating them.

4. Extraction offsets, fossil fuels and climate concerns

The extraction-conservation nexus is largely animated by a common politics of affinity and enmity; one that reinforces neo-liberal forms of territorialization that materialize valuations of 'nature' as 'extractable' resources or 'substitutable' biodiversity, rather than as embodied socio-natures with unique histories, cultures, practices and aspirations. In this regard, policies of 'ecological compensation' are on the rise as they gain support among some conservationists and become mobilized by corporations (e.g. Anglo American to try to break EU Natura protections) in order to open mines in ecologically sensitive areas through the promise conservation biodiversity 'equivalents' in areas elsewhere.[9] These politics can be harmful for local communities through regimes of 'double exception' imposing restriction on their settlements, livelihoods, and socioenvironmental relations. Whereas the socioenvironmental outcomes of these extraction offsets and natural climate solutions may not always be negative for communities, they reflect uneven power relations that often result in limited forms of prior consultation, selective forms of compensation and exploitative forms of inclusion, as well as outright forms of oppression. The two cases selected here seek to illustrate some of these dimensions. I do not claim that they are representative of more general trends, but I seek to show how the extraction-conservation nexus can involve a politics of enmity and processes of double exception that harm some local communities. The first case study, in South Africa, highlights the ways in which biodiversity offsets can pave the way to the opening up of new spaces of coal extraction. The second briefly exposes the context through which supposedly well-intentioned 'biodiversity offsets' compensating for the devastation of agro-industrial projects can turn into a process of further dispossession and repression of historically marginalized Indigenous and Afro-Brazilian communities.

Coal mining offsets in South Africa

Coal is a key target of climate change mitigation efforts to curtail fossil fuel production (Gaulin and Le Billon 2019). Yet, despite more than a decade of staunch local and international opposition to an open-pit coal mine in the buffer area of the Mapungubwe National Park and UNESCO World Heritage Site, the South African government issued a license to the Vele Colliery, using the condition of a 'biodiversity offset' to legitimate its much-decried decision. Signed in 2014 – four years after the mining company was allowed to start operations[10] – the offset agreement unlocking 720 million tons of coking coal gave way to self-congratulatory statements by high ranking South African officials. For the Acting Director General of Environmental Affairs, the agreement marked:

[9] I thank a reviewer. See also Lassila (2020).

[10] Jenner and Balmforth (2015: 20) note in this regard that such retrospective offsets "have the potential to disproportionately influence perceptions of transparency and accountability within the system."

> …a momentous stage in our country's development, where sectors originally perceived to have competing mandates, have realised the *common vision of growth and prosperity* for our country, and are beginning to walk this path towards sustainability together. (GoRSA 2014)

For the Chairman of the board for South African national parks (SANParks), this politics of affinity between government-led conservation and extractive corporations was seen not as something new, but rather as the logical outcome of a long-held policy of supposedly establishing parks for (rural) development, arguing that:

> There are those who have insisted on seeing conservation as being opposed to development and job creation, but this is certainly not the case. SANParks has long held the view that our national parks should serve as catalysts for local economic development, particularly in some of the more isolated rural areas where opportunities are limited. (*ibid*)

Posing as a 'win-win' solution for conservation and extraction under the banner of *sustainable* growth and prosperity, the first statement sounded more hollow when considering that the mine's reserves would not only affect the local environment but also potentially unlock the equivalent of 2 billion tons of CO^2, about five times the annual fossil emissions of South Africa. The second statement was also objectionable when considering the racist history of dispossession by conservation areas in the region and the broad coalition of local communities and land owners that had vocally opposed the mine out of concerns for its impacts on their livelihoods (see Leonard and Lebogang 2018; Sinthumule *et al.* 2020).

Beyond the discursive imaginaries of this offset, assessments of its material impacts were all the more difficult as only the legal framework of the agreement was (at least initially) publicly released, but not the key annexures detailing the agreed-upon activities (SMC 2014). Furthermore, the offset did not actually consist of a physical offset – in the sense of an additional area set aside for conservation purposes – but rather in payments to SANParks supposed to be made by installments over the estimated 38 years of mining operations. While such an absence of spatial offset may reduce its impacts on local populations by avoiding further dispossession, previous experiences of offsets made by budget support have tended to see local populations experience more forceful forms of conservation enforcement, as noted above. Following suit on the offset-based government approval process for the Vele Colliery, as well as De Beers's success in getting UNESCO to exclude its Venetia diamond mine from the Mapungubwe buffer area, more companies pushed for mining projects in the area. By early 2020, at least 23 mining prospecting licences had been granted in close proximity or even within the Mapungubwe National Park (Groenewald 2020). This suggests that offset schemes can not only or actively promote extractive schemes with major socio-environmental and climate impacts,[11] but also reinforce systems of value production, deepening logics of extraction and increasing greenhouse gas emissions. As suggested below, the contradiction of instrumenting biodiversity conservation for the purpose of fossil fuel extraction should push COs to ban such partnerships. In contrast to claims of 'win-win' sustainable development bringing about 'green extraction' in support of 'crisis conservation', the extraction-conservation nexus entrenches the deadly logics of extractivism and colonial forms of environmentalism.

Agro-extraction offsets in the Brazilian Cerrado

Large-scale industrial farming is a key threat to biodiversity, carbon sinks, and traditional agrarian communities (Marques *et al*. 2019). The agro-industrial extraction of land and water for the purpose of extensive cash crop plantations has drastically affected ecosystems and traditional livelihoods in the Cerrado, a high savannah area mostly consisting of extensive plateaus cut by valleys. The second largest biome in Brazil after Amazonia, the Cerrado is a remote and biodiversity rich area (Klink and Machado 2005), traditionally inhabited by Indigenous people, Afro-Brazilians (*quilombolas*), and white settlers (*geraizeros*). The traditional populations, dwelling in valleys zones, mostly relied on hunting, fishing, free-range cattle raising and some agriculture. Land conflicts increased from the 1970s onwards, notably as a result of large-scale agri-businesses

[11] For climate change impacts on Mapungubwe, see for example Taylor and Bertrams (2020).

and ranching, some of which tied in with irrigation projects and eucalyptus plantations (Shankland *et al.* 2016). By the mid-1990s, soja (Glycine max), sold mainly as an agro-industrial feedstock, saw growing international demand and production boomed, enabled by 'green revolution' technologies that extensively transformed landscapes, ecosystems and the social worlds of a region extending from the southern fringes of the Amazon to the Argentinian Chaco (Oliveira and Hecht 2016).

Initially focused on the rainfed plateau that provided hunting and grazing grounds for traditional peoples, agri-businesses have increased their pressure on local communities as they further extended the cropped area, polluted the watershed through pesticides, and restricted freedom of movement across vast areas. The agro-industrial lobby pushed for Forest Code reform on environmental restrictions to grant amnesties and legitimate illegal clearings. Among seemingly environmental progressive reforms, the Forest Code required agri-businesses to set aside an area representing 20% of their cultivated areas for conservation purposes, within the same biome category and hydrographic basin (Alves *et al.* 2018). While some agri-businesses did limit land clearing for cultivation within their existing concessions, others have taken advantage of this policy to further assert dubious land titles or acquire areas over traditional community lands. Conservation thus enabled the further extension of cultivation on the flat areas of the plateau, while further constraining or even displacing traditional communities in the valleys. Communities and social movements have denounced this conservation-driven process as 'green grabbing', "nothing more than a way to regularize, by means of the new environmental legislation, land grabbing" (Alves 2018: 564).

In the municipality of Formosa do Rio Preto, Bahia, an agro-industrial group operating a 305,000 ha estate has come under heavy criticism for land grabbing and the persecution of local traditional communities (Jordan 2019). Dubbed as a form of 'agro-terrorism', the pressures put on traditional communities have included travel restrictions, abduction and harming of cattle, illegal detentions, and brutalities towards community members. In January 2019, a community member was shot and injured by the estate's security company as he attempted to get his cattle back (Milhorance 2019). Local police have generally sided with the estate, arresting and bullying community members expressing their grievances. While the agro-industrial group mostly grows soja and cotton on the plateau, it is also seeking to control the valleys to satisfy conservation requirements without reducing more economically productive areas of the farmed plateau. The conservation rules associated with these biodiversity offsets also offer the agro-industrial group opportunities to further coerce local communities into limiting their traditional livelihood activities and possibly evict them from their ancestral territories (on the broader situation in Brazil under Bolsonaro, see Deutsch 2021).

5. Conclusion

Crisis conservation and green extraction have produced seemingly odd partners. Conservation is supposed to fend off extraction, but neoliberal logics have led many conservation organizations to hypocritically embrace extractive corporations eager to revamp their image as defenders of the environment. Beyond opportunistic funding and green-washing, affinities between conservation and extraction also rest on a readiness to dispossess in the name of a 'greater cause', whether through de-humanized understandings of biodiversity or false promises of economic development. While potentially progressive, the agenda pursued by the conservation-extraction nexus is at risk of facilitating the opening up of lands to large-scale extraction, while closing others to traditional livelihoods and communities. In this respect, I have attempted to make several contributions.

The **first** one is to help explain the paradoxical yet increasing convergence of extraction and conservation and their growing mutual dependence. The neoliberalization and growth of extractive and conservation activities mean that extraction increasingly needs to partner with conservation to access land and show environmental credentials. In turn, conservation projects benefit from extractive industry funding, its land-base, and its support by the ruling elite. These relations are not only pragmatic, but also reflect shared discursive imaginaries and material practices regarding (future) valuations of nature. As such the extraction-conservation nexus is not only a marriage of convenience, but also a mutually reinforcing system of value production (and destruction). The closer the ties, the more likely it is that this system can overrule existing alternatives – such as independent conservation organizations openly criticizing and opposing extractive

corporations, or local communities able to resist rather than being disposessed and selectively integrated through extraction/conservation social responsibility programs.

The **second** contribution is to clarify a typology of spaces of 'double exception' in relation to extraction and conservation. As suggested here, extraction-conservation partnerships notably take shape through extractive areas within protected areas ('degazetted PAs'); protected areas within or around extractive areas to legitimize and/or secure extractive activities ('integrated or adjoining PAs'); conservation areas overlaid on (former) extractive areas ('reclaimed or cover-up PAs') and zones of extraction being offsetted through protected areas ('biodiversity offsetting PAs'). Empirically, I briefly illustrated some of the spaces, including biodiversity offsets for agro-industrial projects and fossil fuel companies.

The **third** is to contrast the politics of affinities and enmities between conservation and extraction, with a focus on their shared enmity against local populations constituting a threat to their valuation of 'nature', their model of 'sustainable development', and their reproductive interests. Whereas the extinction crisis in part results from unfettered capitalism, runaway resource extraction, and environmentally devastating forms of consumerism, the common politics of enmity between extraction and conservation is creating new forms of value from nature. These include conservation opening up of new lands and providing legitimation narratives for extraction. Many local communities, from this perspective, pose a threat to both conservation and extraction through their land rights, traditional livelihoods, and defense of agrarian cultures and landscapes. As conservation and extraction partnerships seek to 'harness nature' through spaces of double exception, a common politics of enmity directed at local communities yet again legitimizes exclusionary practices rather than solving capitalism's contradictions.

Beyond these contributions, there are several broad implications that deserve attention, including (i) conservation movement strategies: what strategies (and tactics) should conservation movements adopt in order to reduce the undue influence of extractive interests on their funding and programming? Strategies could include a common set of principles and guidelines for COs *vis à vis* extractive companies and projects (e.g. reiterating the basic notion of conservation in relation to extraction; excluding certain extractive sectors, such as fossil fuels given the climate crisis, and projects, such as those involving open pit mining, tailing dams, or heavy metals effluent given their broad and long-lasting environmental impacts, or those displacing traditional communities). They could also operate due dilenge on the social, environmental and economic track record of the extractive corporations they are dealing with and offer full disclosure of any agreements and financial relations between COs and extractive companies. Secondly (ii), relationships between conservation, extraction and communities, especially with regard to prior consultation and consent processes. How to avoid the instrumentalization of conservation schemes to advance extractive projects at the expense of local communities, or vice-versa? FPIC principles should be applied to both extraction and conservation projects, with clear and accessible information and consultation on the likely outcomes of their relationships. (iii) Epistemologies of the corporate form: how can COs prevent their further corporatization? Reducing the influence of extractive corporations and extractivist logics, including with regard to board membership, finances, 'business models' and programmes. At the same time, COs can increase their assistance to (potentially) affected communities. This is key to advancing or maintaining convivial conservation that is both people and biodiversity focused (Büscher and Fletcher 2020). Lastly, state-society-business relationships. How can COs use their capacity to redress some of the deep inequalities that enable extractive activities to take place? Solidarity with marginalized populations can involve informing state authorities and the general public of the consequences of extraction, as well as holding extractive companies and authorities to account in terms of promises made or abuses committed.

Further research and policy consideration could help better understand some of these implications. This includes systematic comparative research on the types of relationships between extractive and conservation projects to help identify the potential determinants of partnerships, including the characteristics of firms and conservation organizations. Also, to investigate the (perceived) impact of their operations among local communities, national and international environmental groups, consumers, and investors. The responsiveness of national authorities to conservation agendas needs investigation, including whether companies need to 'take charge' or can argue that the government is sufficiently well-funded and capable of running its own

conservation. Lastly, there is leverage among the demands of communities, including those that do not want conservation. In terms of policy, community-focused conservation could inform principles and practices of (dis)engagement from extraction.

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