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Abstract

The increasing relevance of deforestation and its role in global climate change demands that we continue to revisit this topic and problematize previous attempts to address the issue. This paper utilizes discourse analysis and a framework informed by the concept of the "commons" to understand the history of land use, environmental degradation, and efforts to curb deforestation in the Brazilian Amazon.

Within Brazil, the state and the military have had a large impact on national discourse around environmentalism and traditional land managing communities, including indigenous peoples. Meanwhile, international discourse has focused on the Amazon's resources (both their exploitation and protection) and economic development. The combined force of these two often inter-connected discursive realms has greatly impeded the effectiveness of counter-hegemonic movements within Amazonian communities to protect their land, culture, and way of life. Only by removing the discourses around management of the Amazon from their power structures are we able to understand historically disempowered land management systems and embrace their empirically proven effectiveness in limiting deforestation.

Keywords: Deforestation, Amazon Rainforest, Indigenous Peoples, Environmentalism, Brazil, "Commons," Rondônia, Neoliberalism, Land Demarcation

Zusammungfassung

Die zunehmende Relevanz von Entwaldung und die Rolle, die sie für den globalen Klimawandel spielt, verlangt nach einer stärkeren Auseinandersetzung mit und vor allem einer kritischen Betrachtung von bisherigen Beiträgen zu diesem Verhältnis. Diese Arbeit nutzt die Diskursanalyse und das Konzept der „commons"/des „Gemeinguts" um ein besseres Verständnis für die Geschichte von Landnutzung, Umweltzerstörung und Bemühungen gegen die Entwaldung im brasilianischen Amazonas Regenwald zu entwickeln.

In Brasilien haben vor allem der Staat und das Militär einen großen Einfluss auf die nationale Debatte um Umweltschutz und Landnutzung traditioneller Gruppen, inklusive indigener Gruppen. Indes hat sich die internationale Debatte auf die Nutzung, Ausbeutung, und den Schutz

der Ressourcen des Amazonas und seiner wirtschaftlichen Entwicklung fokussiert. Beide Diskurse sind oftmals eng miteinander verwoben und haben dazu beigetragen, dass entgegengesetzte Bemühungen der Amazonas Gemeinden, ihr Land, ihre Kultur und ihre Lebensart zu schützen, konterkariert wurden. Nur wenn die dominanten Diskurse rund um die Nutzung des Amazonas durchbrochen werden, kann es gelingen ein Verständnis für die über die Zeit entmachteten Landnutzungssysteme und ihrer wissenschaftlich nachgewiesenen Effektivität in der Limitierung von Entwaldung, zu entwickeln.

Schlagwörter: Entwaldung, Amazonas Regenwald, Indigene Völker, Umweltschutz, Brasilien, „Commons", Rondônia, Neoliberalismus, Landabgrenzung/Demarkation

Resumo

A crescente relevância da desflorestação e seu papel mudança climática global exige que continuemos a revisitar esse assunto e problematizar tentativas anteriores de se abordar essa questão. Esse estudo utiliza análise de discurso e uma estrutura informada pelo conceito dos "comuns" para entender a história de uso da terra, degradação do meio ambiente, e esforços de frear a desflorestação na Amazônia brasileira.

No Brasil, o Estado e o exército tiveram um grande impacto no discurso nacional sobre ambientalismo e comunidades que tradicionalmente cuidam da terra, incluindo comunidades indígenas. Enquanto isso, o discurso da comunidade internacional tem se focado nos recursos da Amazônia (exploração e proteção) e desenvolvimento econômico. A força combinada desses dois lados do discurso comumente interconectados tem impedido em larga escala a efetividade de movimentos contra-hegemônicos dentro das comunidades amazônicas para proteger sua terra, cultura e modo de vida. Só através da remoção dos discursos em torno da gestão da Amazônia de suas estruturas de poder podemos compreender sistemas de gestão historicamente desempoderados e adotar sua eficácia empiricamente provada em se limitar desflorestarão.

Palavras-chave: Desflorestarão, Floresta Amazônica, Povos Indígenas, Ambientalismo, Brasil, “Comuns”, Rondônia, Neoliberalismo, Demarcação de Terra

Chapter 1: Introduction

Even after decades of deliberation by biologists, World Bank project managers, and many other members of the "concerned" global community, the issue of deforestation in the Amazon rainforest remains as relevant, if not more so, than ever before. Considering the sheer amount of energy and money that have in some capacity gone towards the common goal of "protecting the forest," the state of the Amazon rainforest today suggests nothing short of failure on behalf of those involved in efforts to protect it. So why have institutions including ones as powerful as the World Bank, armed with seemingly decisive expertise on science and conservation biology and endless amounts of funding, failed?

Thesis and Arguments

In the following pages I will argue that the crucial mistake was one of a failure to recognize counter-hegemonic perspectives on deforestation prevention efforts. I will also argue that recognizing these counter-hegemonic worldviews will lead to only one, somewhat straightforward conclusion regarding the path forward in the Amazon. The aforementioned "concerned" community, for as much as they may still be concerned with the core issue of protecting the rainforest, must demand that the Brazilian federal government officially recognize the indigenous lands still currently in any phase of application for recognition and subsequent demarcation.[1] These indigenous communities also ought to be provided with sufficient financial and institutional support so that they can enforce their own demarcated boundaries and land-use stipulations.

Using discourse analysis, this paper will examine different visions for the protection or "sustainable development" of Amazonia, which have dominated not only the conversation around issues in the Amazon but also the actions taken to address these issues. This analysis will reveal both the dominant discourse and some of the counter-hegemonic forces at play in policy discussions. The powerful wave of neoliberal development has over decades introduced its own solutions to the issue of deforestation, including a type of green science or green neoliberalism which the World Bank has since fully incorporated into their sustainable development formula. Often working in tandem with neoliberal institutions and arguably equally as discursively powerful

[1] As described by Brazil's Fundação Nacional do Índio (FUNAI); "BRASIL TERRAS INDÍGENAS SITUAÇÃO FUNDIÁRIA," 2020.

is the world of conservation and natural science. Conservationists concerned with the state of the world's forests have often turned to the tried and trusted U.S.-American environmentalist approach of fortress conservation. As I will discuss in greater detail later, this sharp division between the human and non-human worlds has carried with it a caravan of problematic assumptions, implications, and exclusions. Meanwhile, scholars interested in the concept of the "commons" have introduced their own discursive alternative to both the neoliberal and conservation science versions of addressing environmental issues. Touching upon discussions of the commons, some scholars have more directly emphasized the potential effects of community forest and land management. Finally, I will also examine the discursive influence of law and, especially, international law's capacity, or lack thereof, to address issues of deforestation.

What the analyses of the above areas of discourse surrounding deforestation in Amazonia reveal is the further need to examine more closely the way in which issues surrounding indigenous peoples and the people themselves are discussed. In indigenous communities we find the convergence of nearly every area of intervention and discussion. While suffering the most from the direct effects of climate change, indigenous peoples worldwide also face the direst consequences of neoliberal and conservationist approaches to addressing climate change.[2] Therefore, it is worthwhile to understand the role indigenous peoples play in the Amazon as well as the ways in which both Brazilian society and the wider international community discuss indigenous communities.

In order to gain an understanding of the issues at play in the Amazon, I will also go into detail about the general recent history of the Amazonia region in Brazil, including the postcolonial histories of indigenous peoples and of the forest itself—how Brazilian society interacts with the forest and recent developments both in its destruction and protection. Indigenous peoples' efforts towards land recognition revolve primarily around demarcation, a term and practice with its own complicated history. To the global "concerned" community, the question of effectiveness in preventing deforestation has also entered into the conversation of indigenous lands and their protective effect. I will introduce some of the findings regarding this effect and how it compares to other methods of deforestation prevention. Amazonia itself occupies a large space in Brazil's

[2] Tebtebba Foundation, *Indigenous Peoples and the Green Climate Fund* (Baguio City, Philippines: Tebtebba Foundation, 2017).

history as an evolving nation-state. Looking more closely at this history reveals myriad discursive battles within Brazil.

I will also explore the case of the state of Rondônia in western Brazil. Rondônia provides some fascinating examples of both relative successes and failures in attempts to develop the Amazon economically as well as attempts to stop deforestation. With this closer examination of a specific region inside of Amazonia, I will attempt to provide an additional dimension to the discussion of the battling discourses surrounding the Amazon's rainforest and indigenous peoples.

Although this paper is not a policy paper, it will conclude with a potential path forward in efforts to protect the Amazon; one which embraces counter-hegemonic perspectives on Amazonia. This will once more highlight the importance of the indigenous peoples living in Amazonia. While many recommendations for deforestation prevention often dance around the idea of "cooperation" or "inclusion" of indigenous peoples and other traditional land managers, the real effective ways to protect the Amazon rainforest occur directly through, not in partnership with or on behalf of, indigenous communities. As much of a challenge as it may be to the dominant discourses of green neoliberalism or conservation science, there simply is no "sustainable" future for the Amazon should we (the international community) and the Brazilian state continue to fail to recognize indigenous communities' autonomy over their land.

Relevance and Importance

Before discussing the discourse around deforestation prevention in the Amazon, it is first important to establish the relevance of the issue of deforestation today, specifically in Amazonia. Deforestation plays a major role in accelerating the warming of the earth's climate.[3] Similar to coal burning or automobile fuel combustion, deforestation is a process by which stored carbon dioxide is released into the atmosphere. Biospheres such as the forest or the ocean are called carbon sinks for their ability to absorb carbon dioxide. Deforestation (as well as destruction of ocean ecosystems) has the effect of both releasing stored carbon dioxide and taking away a deforested or destroyed section of a forest's ability to absorb carbon dioxide in the future.

[3] Grantham Research Institute on Climate Change and the Environment, "What Is the Role of Deforestation in Climate Change and How Can 'Reducing Emission from Deforestation and Degradation' (REDD+) Help?," 2018, https://www.lse.ac.uk/granthaminstitute/explainers/whats-redd-and-will-it-help-tackle-climate-change/.

Recent History of the Brazilian Amazon and Deforestation

The largest rainforest and the largest continuous section of forest in the world is the Amazon rainforest. The Amazon also currently suffers from the highest rate of deforestation.[4] Although the Amazon rainforest technically stretches across nine different South American countries (Bolivia, Brazil, Colombia, Ecuador, Guyana, French Guyana, Peru, Suriname, and Venezuela), a majority of the Amazon (61.8%) exists within Brazil's borders.[5] The Amazonia region is also more than just forest: Patrick Comer et al.[6] broke down the different types of vegetation into 6 different categories, and while "forest and open woodland" accounts for the vast majority of Amazonia, significant portions also belong to the category of "shrubland and grassland," as well as "aquatic vegetation," "desert or semi-desert," "rock vegetation," and "polar and high montane scrub and grassland."[7]

History of Amazon settlement

The 1960s. Despite some attempts to occupy the Amazon on a large scale as far back as in 1912,[8] migration of Brazilians from coastal cities to the far less densely populated areas to the West and North began in earnest in the 1950s with a colonization program called "March to the West," promoted by then president Getúlio Vargas.[9] A combination of increased demand for raw materials in the cities and the fact that the growth of more technologically advanced agriculture kept the wages of rural workers low drove further investment into agriculture in newly settled areas.[10] Brazil's nearly twenty-one years of military dictatorship, which began in 1964, also strengthened efforts from the government to promote migration into areas previously unoccupied by non-Indigenous people. Throughout the 1970s and into the 1980s the military dictatorship

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[4] World Resources Institute, "Forest Pulse: The Latest on the World's Forests," 2021, https://research.wri.org/gfr/forest-pulse.
[5] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure" (São Paulo, 2020), 9.
[6] Patrick J. Comer et al., "Long-Term Loss in Extent and Current Protection of Terrestrial Ecosystem Diversity in the Temperate and Tropical Americas," *PLoS ONE* 15, no. 6 june (2020): 1–23, https://doi.org/10.1371/journal.pone.0234960.
[7] Comer et al.; Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure."
[8] Dennis J. Mahar, *Frontier Development Policy in Brazil: A Study of Amazonia* (New York, NY: Praeger Publishers, 1979); Marcos A. Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," *Landscape and Urban Planning* 38, no. 3–4 (1997): 149–57, https://doi.org/10.1016/S0169-2046(97)00030-3.
[9] Andrew Miccolis, Renata Marson Teixeira Andrade, and Pablo Pacheco, *Land-Use Trends and Environmental Governance Policies in Brazil - Paths Forward for Sustainability*, 2014, 4, http://www.cifor.org/library/5435/land-use-trends-and-environmental-governance-policies-in-brazil-paths-forward-for-sustainability.
[10] Miccolis, Andrade, and Pacheco, 4.

offered huge tracts of land at low cost or even no cost at all. While this process of virtually handing out land to settlers from urban areas ended in the 1980s with the onset of a public debt crisis, enough migrants had at that point already established farms in newly settled areas so as to permanently alter those regions and how they would develop in the future. The "frontier" for settlement in a sense had been pushed significantly Northwestward.

A series of government initiatives in the 1960s through the 1980s also played a role in spurring on migration to and the growth of agriculture in previously less populated areas. For example, in the 1960s the military government set about modernizing food production within Brazil in order to decrease the amount of imported foodstuffs.[11] In 1967, the Superintendência do Desenvolvimento da Amazônia (SUDAM) was created by the government as an institution focused solely on the organization of the investment of public funds into the further occupation and development of the Amazon.[12]

The 1970s. In another effort to wean Brazil off of imported goods, the government in the 1970s set up a program called Pro-Alcool in an eventually successful attempt to increase domestic production of ethanol derived from sugarcane.[13] Around this time the federal government also attempted to invest in transportation connections between increasingly remote centers of agricultural production and urban markets nearer to the coast.[14] This initial attempt at expanding occupation of the Amazon via a road network proved unsuccessful at incentivizing significant migration into the Amazon's interior. In turn, the federal government altered its approach to promoting migration through a program aimed more towards propping up larger investments into logging, mining, and cattle ranching. The program, called POLAMAZONIA, tapped both public coffers as well as private investors for funding. POLAMAZONIA was a powerful indication of where the Amazon rainforest and the federal government's policies towards its development were heading; namely, expansion of occupation through the financial support of industries which could profit off of the vast "untapped" natural resources and sheer amount of space offered up by Amazonia. Although Brazil's democratization of the late 80s brought about powerful references

[11] Miccolis, Andrade, and Pacheco, 4.
[12] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 150.
[13] Miccolis, Andrade, and Pacheco, *Land-Use Trends and Environmental Governance Policies in Brazil - Paths Forward for Sustainability*, 5.
[14] Miccolis, Andrade, and Pacheco, 4.

to indigenous rights and environmental protections, the inertia of an ever-expanding agricultural frontier showed no signs of slowing.

Land use

Ethanol. What followed in the decades between democratization and today was a gradual shift towards large-scale production of a smaller number of increasingly important agricultural products. The push towards domestic ethanol production, for example, has since brought about a unique automobile fuel pricing system in Brazil through flex-fuel cars. In principle, this system, in which a majority of Brazil's automobile fleet can run on both gasoline and ethanol, allows for prices of both fuels to fluctuate depending on international oil prices and domestic sugarcane production. Although this system has not always avoided political meddling in price-setting, it has offered an interesting niche for growth in Brazil's intellectual capital in the area of flex-fuel vehicles.[15]

Soybeans. Another all-important crop in Brazil's recent agricultural and trade history is soybeans. Soybean production accounts for 5% of Brazil's overall GDP and a quarter of their agricultural GDP. In addition, Brazil's healthy trade surplus of USD 69.8 billion in 2011 was due in large part to their export of soybeans—Brazil produced nearly an entire third (31%) of all of the world's soybeans that year.[16] The rest of that 2011 trade surplus was also from agriculture (enough to offset a deficit in all other sectors) and another important product involved in that surplus was beef. Again nearly one third (28%) of the world's beef was produced in Brazil in 2011. Some of the other products of which Brazil is the leader in exporting are tobacco, coffee, and sugar.[17] "The expansion of agribusiness was largely policy-driven in the 1970s and 1980s," Andrew Miccolis, Renata Marson Teieira de Adrade, and Pablo Pacheco of the World Agroforestry Centre, the Biofuels and Climate Change Governance Group, and the Center for International Forestry Research, respectively, explained, whereas "in the decades since it has been driven mainly by private-sector players."[18]

Affected populations. While the more recent history of land use in Brazil of the last two decades did begin to place a greater emphasis on supporting small "family" farms, the Brazilian

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[15] Jack Szumski, "Lessons Learned from India and China: How the Flex-Fuel Auto Industry Could Break Brazil Out of Stagnation," 2019.
[16] Miccolis, Andrade, and Pacheco, *Land-Use Trends and Environmental Governance Policies in Brazil - Paths Forward for Sustainability*, 6.
[17] Miccolis, Andrade, and Pacheco, 6.
[18] Ibid.

government at no point forgot about the importance of its large scale agricultural sector.[19] Despite efforts to prop up smaller farms through the Ministry for Agrarian Development, as well as a 21st-century awakening of efforts to avoid deforestation and reckon with the negative externalities of large scale monocrop farming, conflicts due to these externalities and clashes with small landholders as well as indigenous and other community farming collectives have been on the rise since 2000.[20] A study from the IPEA[21] (Instituto de Pesquisa Econômica Aplicada) in Brazil in 2012 found that the populations most affected by the ongoing changes in Brazil's rural areas were small landholders and family farmers, *quilombolas* (descendants of escaped African slaves who live in long-established self-sustaining communities), and indigenous peoples. The most common source of conflict was land occupation, followed by water pollution and finally conflicts over indigenous land demarcation.[22]

Threats to the forest

Infrastructure. Looking more closely at the most pressing threats to the Amazon rainforest, the Amazonian Georeferenced Socio-environmental Information Network[23] (RAISG) identified three main culprits for increased pressure on the rainforest in a report published in December 2020: infrastructure, industries involving extraction, and agriculture. In the 1980s cities' demands for agricultural products were crucial in affecting the development of agriculture and the expansion of settlements in the Amazon.[24] This inextricability of urban demand and rural land use change and development relies of course on the infrastructure to supply urban areas with rural products. Specifically, newly established and expanded road systems through previously underdeveloped areas have proved to be a consistent harbinger for future deforestation.[25] In 1970, the federal government even attempted to get ahead of this trend through a policy called the National Integration Program (PIN). PIN set out to establish a vast transportation network that would "link the Atlantic coast to the Peruvian border."[26] As previously eluded to on page 11, by the end of the following decade an unexpectedly low number of migrants had actually reached the

[19] Ibid, 7.
[20] Miccolis, Andrade, and Pacheco, *Land-Use Trends and Environmental Governance Policies in Brazil - Paths Forward for Sustainability*, 7.
[21] "Políticas Sociais. Análise Acompanhamento" (Brasília, Brazil, 2012).
[22] Instituto de Pesquisa Econômica.
[23] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 20–42.
[24] Amazonian Network of Georeferenced Socio-environmental Information, 14.
[25] Ibid, 20-22.
[26] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 150.

Amazon's interior via new road networks.[27] The decades since have proved, however, that road networks would nonetheless turn out to be a significant factor in predicting future deforestation—PIN was simply ahead of its time in seeking to incentivize migration via roads. Recent studies have found that the impact of roads on the land around them can range from 5 kilometers to 50 kilometers, with 4.6 million km² of all of Amazonia (including areas outside of Brazil) affected in some way by road networks.[28] Perhaps most concerning is the fact that the number of planned roads is more than four times higher in areas referred to as "Intangible Zones" by RAISG than in other indigenous territories. "Intangible Zones" are defined as areas occupied by indigenous communities living in isolation where nearly no road infrastructure has previously existed.[29] While any planned infrastructure in protected areas or indigenous territories should raise concern, the rate of planning of new roads in these particularly "untouched" areas offers the threat of even more rapid deforestation.

Hydroelectricity. The construction of hydroelectric plants has also played a crucial role in infrastructure's effects on the Amazon rainforest and its inhabitants. In total, 833 hydroelectric plants exist within the Amazonia region, 52% of which are in Brazil.[30] Between 2012 and 2020, the number of hydroelectric plants in protected areas in the Amazon across all countries increased by 77%. The number of plants in indigenous territories also increased by four times. While the number of plants planned for future construction has fallen in that same time period, the recent increase of plants in protected areas and indigenous territories has already demonstrated an allowance of the encroachment of infrastructure with well-studied ecosystem and environmental externalities[31] into previously "protected" areas or territories belonging to indigenous peoples.

Extractive industries, oil. Another significant threat to the health of the Amazon is that posed by the growth of extractive industries, namely oil and mining. Oil extraction, where implemented, has demonstrated huge effects on the soil, water, and air of the surrounding environment.[32] The threat of oil extraction is, however, most densely concentrated in Ecuador, where the government has even gone so far as to have previously offered to stop oil extraction

[27] Pedlowski et al., 150.
[28] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 20–21.
[29] Amazonian Network of Georeferenced Socio-environmental Information, 22.
[30] Ibid, 24.
[31] Ibid, 27.
[32] Ibid, 28.

altogether in exchange for direct funding from Global North countries in the amount of the revenue that the stopped oil extraction would have provided.[33] While this concept—that of Global North countries, which have already profited from generations of fossil fuel consumption, directly funding the avoidance of future oil extraction in the Global South—offers an intriguing way forward in such issues, it does not comprise the main focus of this paper. Oil extraction efforts in the Brazilian Amazon are far less common, with only two areas of prospective oil extraction reported by RAISG in 2020.[34]

Extractive industries, mining. While oil extraction may not be as much of a factor in the deforestation of the Brazilian Amazon as it is in, say, the Ecuadorian Amazon, another extractive activity, mineral mining, has indeed played an important role in Brazil's rainforest. During periods of increased migration towards the interior of Brazil, mining (particularly gold mining) was a popular option for migrants whose attempts at agriculture were either no longer profitable or had failed altogether.[35] This was due to the low level of capital needed to get involved in gold mining. The significant challenge and pitfalls of establishing profitable and sustainable farming in newly settled areas resulted in a continuous stream of individuals shifting their efforts from agriculture to mining.[36]

In total, as of 2020 17% of the entire region of Amazonia has been or is currently being affected by mining in at least one of the following stages: "under exploitation, under exploration, concession without activity, application, and potential."[37] The large majority of this affected area exists within Brazil—75% of all Amazonian land affected in some way by mining is there. Most concerning is the fact that the vast majority of affected land in the Brazilian Amazon falls into the category of "under exploration" or "applied for."[38] This suggests that, should a number of mining projects in the application or exploration phase gain approval, the negative environmental externalities to the Amazon due to mining are in Brazil's future, not just in its past.

One such externality of mining is contamination of nearby water sources. Many studies in the 1980s documented this effect in detail, mainly stemming from the use of mercury in multiple

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[33] Pamela L. Martin, *Oil in the Soil: The Politics of Paying to Preserve the Amazon* (Plymouth, United Kingdom: Rowman & Littlefield Publisher, Inc, 2011).
[34] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 29.
[35] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 154.
[36] Pedlowski et al., 154.
[37] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 30.
[38] Amazonian Network of Georeferenced Socio-environmental Information, 31.

stages of the gold mining process.[39] The presence of mercury in cloth used to filter gravel and water plays a crucial role in separating heavy and fine particles in a process called agglutination.[40] Later, during amalgamation, mercury is once more introduced to a sediment mix before the mixture is burnt, separating gold particles from the other minerals. From 1979 to 1985, around 100 tonnes of mercury were apparently released into a major river, the Madeira River, in the state of Rondônia.[41] Studies conducted in the area during and after this period found significant impacts on fish and plants.[42] What makes mercury particularly dangerous to ecosystems is the way in which, due to its chemical properties, it can "readily accumulate in biological tissue and quickly reach the upper levels of the food chain,"[43] including human consumers of fish. Whenever gold extraction using the method described above ceases to be profitable enough, miners may turn to digging for gold in a river's banks, as occurred with the Madeira River.[44] Digging for gold in a riverbank has its own additional set of somewhat obvious effects on the river and its ecosystem, altering hydrological systems to the point of threatening the very existence of a river's ecosystem.[45]

Agriculture and ranching, land conversion. Although infrastructure changes and the growth (especially potential growth) in mining pose significant threats to the Amazon, including in Brazil, by far the greatest pressure on the Amazon comes from agriculture and ranching. Between 2000 and 2020, the total area of Amazonia (across all nine countries) converted into agricultural land increased from 794,429 km² to 1,441,840 km² (an 81.5% increase).[46] A large majority of this newly converted land (71%) could be characterized as forested land prior to 2000. This data point indicates a clear process of deforestation inherent in land conversion and the expansion of agricultural activity in Amazonia. 84% of all recent deforestation in Amazonia is attributable to agricultural activity according to RAISG and MapBiomas.[47] In the few years leading up to 2012, data around land conversion indicated a significant decline in deforestation due to

[39] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil."
[40] Pedlowski et al., 154.
[41] W.C. Pfeiffer and L.D. Lacerda, "Mercury Inputs to the Amazon Region, Brazil," *Environmental Technology Letters* 9 (1988): 325–30.
[42] O. Malm et al., "Mercury Pollution Due to Gold Mining in the Madeira River Basin," *Ambio* 19, no. 1 (1990): 11–15; R.L. Martinelli, L.A., Ferreira, J.R., Forsberg, B.R., Victoria, "Mercury Contamination in the Amazon: A Gold Rush," *Ambio* 17 (1988): 252–54.
[43] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 154.
[44] Pedlowski et al., 154.
[45] Ibid.
[46] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 33.
[47] Amazonian Network of Georeferenced Socio-environmental Information, 33; Proyecto MapBiomas Amazonía, "Colecciòn 2.0 de Mapas Anuales de Cobertura y Uso Del Suelo Del 1985 a 2018 de La Pan-Amazonia," 2020.

agricultural activity. Any optimism around this data at the time was short-lived, as the rate of deforestation and land conversion for agriculture at the end of 2018 had reached nearly double that of 2012. Agriculture's responsibility for deforestation in the Amazon rainforest is approaching record numbers once again.[48]

Agriculture and ranching, farm size. The precise effects of agricultural activity on the rainforest and its habitats vary greatly depending on many factors including farm size, the method of farming and land clearing, crop diversity, and aggregation (or disaggregation) of farmlands. The migration of Brazilians into the Brazilian Amazon began mainly through smaller farmers, who, in the 1970s, often cleared their land as proof of occupation.[49] The main direct threat small farmers have historically posed to the Amazon is not necessarily widespread deforestation, but rather forest fragmentation, resulting in habitat loss. Due to the disaggregation of small farms, newly settled areas deeper into the Amazon are often marked by an inconsistent appearance alternating between cleared and forested land. These patches of cleared land have the effect of fragmenting existing forests and their habitats. Studies[50] have for a long time documented the negative impact that fragmentation has on natural habitats. The "edge effects" of these patches of deforestation—that is, the effect on the forest directly surrounding the deforested area—are an additional negative externality of forest fragmentation.[51] Another exacerbating effect of small farmer settlement is the fact that the majority of land clearing occurs adjacent to roads which seldom follow natural breaks in the forest. Therefore, forest fragmentation often cuts through, rather than follows, existing habitat and forest boundaries.[52]

Other landowners in settlement or frontier areas, such as cattle ranchers, have used different strategies to clear and use new land. In the 1980s in Rondônia, some studies found that when small farmers' profits dipped below a certain critically low level, they were often inclined to sell their

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[48] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 33; Proyecto MapBiomas Amazonía, "Colecciòn 2.0 de Mapas Anuales de Cobertura y Uso Del Suelo Del 1985 a 2018 de La Pan-Amazonia."

[49] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 152; Scott M. Dale, Virginia H., Pearson, "Quantifying Habitat Fragmentation Due to Land Use Change in Amazonia," in *Tropical Forest Remnants: Ecology, Management, and Conservation of Fragmented Communities*, ed. R.O. Laurance, W.F., Bierregaard (Chicago, Illinois: University of Chicago Press, 1997), 402–3.

[50] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil"; Kurt Riitters et al., "Global-Scale Patterns of Forest Fragmentation," *Conservation Ecology* 4, no. 2 (2000): 1–24; Dale, Virginia H., Pearson, "Quantifying Habitat Fragmentation Due to Land Use Change in Amazonia."

[51] Riitters et al., "Global-Scale Patterns of Forest Fragmentation."

[52] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 153; Dale, Virginia H., Pearson, "Quantifying Habitat Fragmentation Due to Land Use Change in Amazonia," 402.

land to a cattle rancher with greater capital.[53] This trend of cattle ranchers buying clusters of smaller lots has led to land aggregation. Ranchers with these larger aggregated farms tended to clear their entire property, meaning that not only their land was aggregated, but the subsequent deforestation was as well[54]—in contrast to the inconsistent, fragmented deforestation caused by smaller farms.

An additionally damaging feature of cattle ranchers' land use is their conversion of cleared land to pasture—a change which virtually guarantees that the land which they deforest will remain deforested. This amounts to permanent habitat destruction where land is cleared, whereas fragmentation punctures and damages, but does not necessarily destroy, the existing habitat. In the 1980, Brazil's cattle officially numbered 250,286. By 1992 the number of cattle had already increased more than ten fold to 2,773,896.[55] As of 2019, there were more than 214,700,000 cattle in Brazil,[56] which is slightly more than its current human population (214,646,044).[57]

Summary of impact. Considering these three significant sources of threats to the Amazon rainforest—infrastructure expansion, mining and oil extraction, and agriculture—RAISG[58] concluded that a total of 65.8% of the entire Amazon region currently faces some sort of pressure from these threats. 26% of the entirety of Amazonia is under "high" pressure, while 7% is experiencing "very high" pressure from infrastructure, extraction, and agriculture.[59]

Deforestation data paints an equally worrying picture, especially given the current trend of growth in yearly deforestation. In 2003 total deforestation within Amazonia peaked at more than 49,000 km² of forest lost. Yearly deforestation decreased thereafter, reaching a post-2000 low of just 17,674 km² in 2010. In the years since 2010 however, the rate of deforestation has once more begun to climb—every year since 2012 the amount of deforestation each year has increased, and in 2018 more than 31,200 km² of forest was cut down or burned.[60]

From the period of 2000-2018, Amazonia lost a total of 513,016 km² (51,301,600 ha or 126,769,014 acres) of its forest. Protected natural areas (PNAs) and indigenous territories (ITs),

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[53] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 153.
[54] Pedlowski et al., 153–54.
[55] Pedlowski et al., 154.
[56] statista, "Number of Bovine Livestock in Brazil from 2008 to 2019," 2021, https://www.statista.com/statistics/758526/ending-stocks-beef-cattle-brazil/.
[57] As of 18:57 CET, 12.11.2021; worldometer, "Brazil Population (LIVE)," 2021, https://www.worldometers.info/world-population/brazil-population/.
[58] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 42.
[59] Amazonian Network of Georeferenced Socio-environmental Information, 42.
[60] Ibid, 47.

which are meant in principle to be protected from deforestation and its detrimental effects, also did not escape unscathed during this period. 87.5% of the deforestation took place outside of PNAs and ITs, while 7.5% occurred within PNAs and 5.3% within ITs. More worrying has been the fact that while total deforestation was greater between 2000-2012 than from 2012-2018, total deforestation within PNAs and ITs has actually been greater in the latter 6 year period than in the prior 12 years (3,369 km² of forest loss from 2000-2012 and 3,984 km² from 2012-2018),[61] meaning the proportion of deforestation occurring within these "protected" areas has significantly increased in recent years.

Recent updates

With the rate of deforestation once more on the rise, the 2018 presidential election in Brazil was an important moment for Brazil in determining its path forward in either protecting or further damaging the Brazilian Amazon. Since his swearing in on the first day of 2019, eventual winner and current president Jair Bolsonaro has indicated both in his rhetoric and in his policy that his administration views protection of the rainforest and of protected areas and indigenous territories as an impediment to Brazil's future prosperity.[62] During his presidential campaign, Bolsonaro declared that he would abolish Brazil's ministry of the environment.[63] Once in office, Bolsonaro opted instead to simply move the agency responsible for addressing deforestation from the environmental ministry to the agriculture ministry. While abolishing the environmental ministry outright posed the threat of international retaliation in the form of sanctions, placing deforestation under the umbrella of the agriculture ministry guaranteed that Brazil's large landholder lobby—a political supporter of Bolsonaro and powerful player in Brazilian politics—would gain more control over efforts to stem deforestation. Tereza Cristina, the head of the ministry of agriculture appointed by Bolsonaro, was herself a "ruralista" (as representatives of large landholders are referred to).[64] In other words, those with the most power to stem deforestation are now directly connected to the special interest group least interested in actually doing so.

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[61] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 46.
[62] Lucas Ferrante and Philip Fearnside, "Brazil's New President and 'Ruralists' Threaten Amazonia's Environment, Traditional Peoples and the Global Climate," *Environmental Conservation*, 2019, 2, https://doi.org/https://doi.org/10.1017/S03768929190002.
[63] Ferrante and Fearnside, 2.
[64] Ibid, 2; Governo Federal, "Ministério Da Agricultura, Pecuária e Abastecimento," 2021, https://www.gov.br/agricultura/pt-br/composicao/tereza-cristinatereza-cristina-correa-da-costa-dias.

Bolsonaro's election to the office of president also signaled a decrease in the enforcement of existing protected area and indigenous territory boundaries against opportunistic loggers, land grabbers, and miners. One study[65] showed that within one year of the election there was a noticeable increase in "acts of vandalism and attacks on environmental and indigenous agencies by loggers, prospectors and ruralists." The Bolsonaro administration's approach to the Amazon has since been marked by a practice of turning a blind eye towards illegal occupation—and its accompanying violence in many cases—of tracts of forest, including within officially recognized protected area and indigenous territory boundaries.

Now more than two years on from Bolsonaro's election, data regarding changes in patterns of deforestation in Brazil's Amazon indicate a realization of Bolsonaro's promises to ignore rainforest protection. In the last two years, total deforestation in Brazil has increased almost 50%, and in 2019 the number of illegal incursions onto indigenous land increased 135% from the previous year.[66] Meanwhile, fines levied against violators of environmental protection laws in Brazil dropped by 42% within Brazil's section of Amazonia. Enforcement of those laws also took a hit, having received 27.4% less funding from the federal government in 2020 compared with the previous year.[67]

The COVID-19 pandemic, which has continued to grip the world since early 2020, offered the Bolsonaro government an opportunity to further weaken environmental protections in Amazonia. As of January 2021, the Bolsonaro administration since its inauguration has passed 57 major laws aimed at weakening environmental protections.[68] 49% of those laws were put in place after COVID-19 was declared a pandemic in March 2020. Also since the onset of the pandemic, environmental fines in Brazil have dropped 72%.[69] Brazil's environmental minister, Ricardo Salles, went so far as to admit outright in a meeting covered by the press that the pandemic had provided a rare opportunity for environmental deregulation while press coverage was focused predominantly on COVID-19.[70]

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[65] Ferrante and Fearnside, "Brazil's New President and 'Ruralists' Threaten Amazonia's Environment, Traditional Peoples and the Global Climate," 4.
[66] Flávia Milhorance, "Jair Bolsonaro Could Face Charges in the Hague over Amazon Rainforest," *The Guardian*, January 23, 2021.
[67] Milhorance.
[68] Mariana M. Vale et al., "The COVID-19 Pandemic as an Opportunity to Weaken Environmental Protection in Brazil," *Biological Conservation* 255, no. January (2021), https://doi.org/10.1016/j.biocon.2021.108994.
[69] Vale et al.
[70] Donna Lu, "Brazil Is Using the Pandemic to Weaken Environmental Protections," *NewScientist*, February 2021.

Conclusion

In light of the previously discussed threats to the Amazon rainforest as well as the discussion of recent trends in deforestation data in Brazil, the pertinence of the issue of the loss of forest in Brazil's Amazonia should be beyond debate. The next step in attempting to constructively evaluate the many facets—environmental and social alike—of deforestation in the Amazon is to question the very framework of past and current efforts to stem deforestation. To put it simply, the discussion in the upcoming chapters will revolve around the question of for and by whom environmental protection in the Brazilian Amazon is carried out. An honest answer to this simple question may upset many entrenched institutional structures involved in "protection" of the forest, but it is this upheaval which may lead to arguably the best path forward in protecting and restoring the Amazon rainforest of Brazil.

Methodology

While deforestation clearly involves many forms of empirical data—whether that be satellite imagery or simply a record of net forest loss—this paper does not attempt to add any quantitative analysis to the existing pool of scientific studies of deforestation in the Amazon. As the introduction to this paper made clear, utilizing existing empirical data surrounding deforestation is vital to understanding the breadth and severity of the issue at hand. Such data will continue to be an important reference point going forward.

This paper will instead engage in a qualitative analysis of previous or current interventions in the Brazilian Amazon which have had at the very least a stated aim of addressing deforestation. Specifically, this paper utilizes the theory of discourse analysis to approach the issue of deforestation.

This analysis will include primary materials from national government sources, international governing bodies and non-governmental organizations. The analysis will also refer to a variety of perspectives introduced through secondary resources in the form of scholarly journal articles, books, discussion papers, and policy papers. For the purpose of this master's thesis, I found this combination of empirical data, primary correspondence from governing bodies and intervening NGOs, and secondary analyses to be the most fruitful in arranging my own problematization of interventions in the Amazon rainforest to date.

The methodology for the following analysis follows a type of discourse analysis inspired in some respects by Michel Foucault[71] as well as the writings of Antonio Gramsci.[72] Neither Foucault nor Gramsci laid out any precise, step-by-step approach to discourse analysis, and therefore my analysis attempts to approach the subject and material of interest with Foucault and Gramsci's critiques and problematizations in mind rather than follow any strict rules for analysis.

By attempting a form of discourse analysis inspired by Foucault, this paper does not focus solely on specific language used at a specific time, but rather on the historical context and dominant forms of (sometimes institutionalized) knowledge at play. Foucault was not focused precisely on how language was used in one or another example, but rather the "rules, divisions and systems of a particular body of knowledge."[73]

Similarly, the analysis will investigate what Foucault might call "forms of resistance against different forms of power."[74] It is at these points of departure from dominant discourse and forms of power where Foucault suggests one must begin their analysis of said forms of power – where they exist, and how and why they have formed. In the issue of deforestation of the Amazon and the destruction of the livelihoods of traditional land managers of the forest (especially indigenous peoples), these junctures of power and departures therefrom provide the starkest reflections on the dominant, neoliberal discourse around forest and natural resource protection.

Another way to describe the methodology behind the following analysis as inspired by the previously referenced explanation from Foucault is using the words of Antonio Gramsci. Specifically, Gramsci [75] describes the way in which a dominant entity or group is also that which poses "all the questions around which the struggle rages." Foucault's ideas dance around this concept—that there is a hegemonic discourse, perpetuated by a dominant power bloc, which determines not only the outcomes of conflicts but the source and central point of conflicts themselves. Therefore, Foucault's ideas regarding a focus not on language itself but the systems—

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[71] Michel Foucault, "The Subject and Power," *Critical Inquiry* 8, no. 4 (1982): 777–95, https://www.jstor.org/stable/1343197; Gavin Kendall and Gary Wickham, "Using Foucault's Methods," *Using Foucault's Methods*, 2011, https://doi.org/10.4135/9780857020239; Michael Arribas-ayllon and Valerie Walkerdine, "Foucauldian Discourse Analysis (Second Edition)," *The Sage Handbook of Qualitative Research in Psychology*, no. January 2017 (2017): 110–23, https://www.researchgate.net/publication/336871927_Foucauldian_Discourse_Analysis_Second_Edition.
[72] Antonio Gramsci, "Selections from the Prison Notebooks," *The Civil Society Reader*, 2003, 190–202, https://doi.org/10.4324/9780429355363-27.
[73] Arribas-ayllon and Walkerdine, "Foucauldian Discourse Analysis (Second Edition)," 114.
[74] Foucault, "The Subject and Power," 780.
[75] Gramsci, "Selections from the Prison Notebooks," 406.

historic and power related—behind language, and a focus on "forms of resistance,"[76] are indeed helpful in the analysis of the conflict at hand. It is Gramsci's point about problematizing the "questions around which the struggle rages" which comprises the main element of this discourse analysis.

Methodologically, Gramsci's point is not far away from an issue in experimental methodology called an "instrument effect." Technically speaking, an instrument effect is any effect the measuring instrument has on the dependent variable in an experiment. Michael Goldman[77] eloquently connects this concept to issues surrounding what Gramsci[78] might call "the struggle." Goldman[79] suggests we question the previous findings of the development world regarding nature preservation and protection by analyzing the tools and knowledge utilized by those in the development world. This paper will, as Goldman[80] puts it, seek to identify some of the "instrument-effects that disembed their subject matter from dominant sites of power and knowledge."

Another technical element of the methodology used in this paper is a brief case study of the specific history, context, and policies in the Brazilian state of Rondônia. This case study plays a complementary role insofar as it applies the paper's framework to a specific, real-world case. While the case study perhaps warrants its own full investigation, I believe that even a brief look into the case adds to the thought experiment presented in the chapters theretofore.

Finally, important for any explanation of the methodological basis for an analysis is the statement of one's own biases. As will become clear in the following chapters, there is a dominant way of thinking about environmental issues in the United States which has dictated much of the neoliberal development world's approach to environmental issues worldwide. While this paper is an attempt to depart from and problematize this approach, it is important to mention that during my bachelor studies I was mainly educated in and greatly influenced by this approach and the thinking and theories behind it. In fact, one of the courses that inspired me to study International Relations with a focus on Global Environment was called Environmental Economics, and was itself an unquestioning proponent of market-based approaches to environmental issues. Later on,

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[76] Foucault, "The Subject and Power," 780.
[77] Michael Goldman, "Inventing the Commons: Theories and Practices of the Commons' Professional," in *Privatizing Nature: Political Struggles for the Global Commons*, ed. Michael Goldman (New Brunswick, New Jersey: Rutgers University Press, 1998), 43–46.
[78] Gramsci, "Selections from the Prison Notebooks," 406.
[79] Goldman, "Inventing the Commons: Theories and Practices of the Commons' Professional," 43–46.
[80] Goldman, 46.

in an Environmental Biology course, the assumption behind nearly every concept and case-study was the predominance of the American "wilderness model" of conservation, which draws a clear boundary between the human and natural worlds which humans ought not to cross.

On the realpolitik side of my international relations bachelor studies, while I was instructed about such areas of thought as liberalism and constructivism, again the assumed modus operandi of our global world was that envisioned by realist thinkers, in which competing world powers endlessly seek to establish and protect their hegemonic influence while smaller states align themselves with one of said world powers.

Put together, these assumptions regarding the American conservation model and a realist view of global space leave little room for problematizing the dominant international discourse around environmental protection—precisely what this paper attempts to do. Therefore, while I am ultimately attempting to question all of my own previous biases, it could be the case that a more effective analysis would arise from the thinking of someone whose previous education was not entrenched in these assumptions.

One final bias I may have the hardest time overcoming is the simple yet powerful belief in the importance of protecting nature; that destroying nature is bad and protecting nature is good. From childhood through today I have been surrounded almost exclusively by family, friends, and colleagues who share this belief in the inherent goodness of protecting nature and our environment. Although this paper at least establishes the pertinence of confronting the issue of deforestation based on the assumption of needing to protect and care about nature and the environment, it does not attempt to tackle the philosophical grounding of this assumption—in other words: why we care about the environment in the first place.

Chapter 2: Framework

There are multiple layers of discourse surrounding the issue of deforestation in the Brazilian Amazon. This chapter will discuss those different layers of discourse—where they originate, what power structures are involved in them, how they relate to the issue of deforestation, and how they relate to each other. Beginning with the discourse of neoliberal development will provide a wider view of dominant power structures and knowledge systems. The chapter will then narrow its focus by examining the discourse of the natural science world, and the discourse of the commons. Discourse around indigenous peoples globally as well as in the Brazilian context will

also play an important role in the analysis. Finally, one section is devoted to legal discourse due to the way in which it touches on many of the previous layers while also acting as a tool for "legitimizing" certain discourse and "accepted" knowledge around land management.

Discourse of Neoliberal Development

The World Bank, similar to most banks, is typically risk-averse. If the World Bank can control which outcomes "successful" interventions are measured by, then the risk of failure by those measurements is greatly reduced. This critique of the World Bank comprised an important part of an argument put forth by sociologist Michael Goldman. Goldman[81] has experience working within the World Bank and was able to obtain a inside look at the inner workings of the World Bank and their environmentally focused projects through direct conversations with World Bank project managers and other staff. In 2005 he highlighted what he called the "green hegemony" of the World Bank.[82]

What Goldman laid out not only in 2005 but also in a book he edited and contributed to in 1998[83] was an extension of the World Bank's interference in local contexts in the Global South to include environmental projects and the green wave of greater consideration of environmentally related projects. In the early 1990s, facing protests against the externalities, including environmental, of their projects worldwide,[84] the World Bank found itself at an important juncture. There were seemingly two directions the World Bank could go: they could either divest worldwide and step back from their leading role in the development world (perhaps leading to a decrease in intervention of the Global North in the Global South through "development" aid), or they could incorporate a greater awareness for environmental impacts into their project development process. In effect, the World Bank did neither, although officials might have argued they were doing the latter.

The first option—stepping back from their global role and perhaps a retreat of the North from the development of the South through neoliberalism—was likely a non-starter. The World Bank had played a crucial role in the Global North's, and mainly the United States', maintenance

[81] Michael Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization* (London, United Kingdom: Yale University Press, 2005).
[82] Goldman.
[83] Goldman, "Inventing the Commons: Theories and Practices of the Commons' Professional."
[84] Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*, 7.

of a strong and heavily funded influence in the Global South through the grand project of "development." Instead of stepping back, the World Bank seized on an opportunity to increase the Global North's role in the Global South.[85]

Already well-practiced in creating guidelines for interventions and projects, the World Bank over time was able to create not only the guidelines for environmental interventions, but the measurements for successful environmental outcomes as well. The World Bank was successful not only in setting the guidelines for environmental interventions but also in incorporating neoliberal ideals of development which could perpetuate the structures of power reliant on the World Bank. The World Bank in the end did not sacrifice any large part of its greater mission of incorporating as much of the world as possible into a global economy playing by the United States' capitalist rules. This new era of an apparent unification of interests of environmentalism and the development world, ushered in by the World Bank's "green" turn, virtually had the effect of incorporating vast new swaths of land and natural resources into the United States-led global economy. Goldman cites some of the most blatant examples of this, explaining:

> In remarkable synchronicity, the sustainability crowd and the neoliberal development crowd have united to remake nature in the South, transforming vast areas of community-managed uncapitalized lands into transnationally regulated zones for commercial logging, pharmaceutical bioprospecting, export-oriented cash cropping, megafauna preservation, and elite eco-tourism.[86]

Referred to as a form of "environmental colonialism,"[87] or perhaps less directly accusatorily as "green neoliberalism,"[88] the way in which the World Bank has coopted legitimate environmentalist concerns and movements is both alarming and somehow unsurprising. The main focus of this paper, however, is how the neoliberal development world was able to do this and the real effect it has on efforts to protect the environment. A major part of coopting these movements was the cooption of language and the networks of knowledge and power around these movements; a commandeering of the discourse of sustainability and environmentalism.

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[85] Goldman, "Inventing the Commons: Theories and Practices of the Commons' Professional," 22–23.
[86] Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*, 9.
[87] Goldman, "Inventing the Commons: Theories and Practices of the Commons' Professional."
[88] Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*; Mary Finley-Brook, "Green Neoliberal Space: The Mesoamerican Biological Corridor," *Indigenous Peoples, National Parks, and Protected Areas: A New Paradigm Linking Conservation, Culture, and Rights*, no. May 2020 (2014): 172–96.

One major discursive impact of the World Bank on environmental movements worldwide was to set the standard for the knowledge used in designing environmental assessments and interventions. The scientific world from which the World Bank derives its knowledge is itself far from a value-free, objective one. It is important to consider how the World Bank and those in and around the neoliberal development derived their knowledge of these issues and their impacts from a narrow, Global North (if not purely U.S.-American) interpretation of nature and how we relate to it. The next section in this chapter will investigate what that interpretation, and the world of science associated with it, looks like and how it was shaped.

Based on that knowledge, the World Bank has synthesized what they believe to be positive outcomes of projects.[89] This has led to a standardized form of environmental assessment used in the development world. So much so has this grown in importance that an entire industry has formed around consulting on World Bank-style environmental assessments.[90] These assessments, coming unilaterally from the World Bank, are also easily replicable. In 2012, environmental anthropologist Tracy Heatherington[91] summarized how the neoliberal development world's dominant discourse bulldozes unique, local contexts, writing:

> The structures of environmental meaning and affect mobilised in the service of neoliberal partnerships for conservation selectively co-opt and subordinate, or marginalise, local visions of landscape and cultural experience. At the same time, they privilege Western idioms of governance, expertise and regulatory management.

In the case of the World Bank, incentives ultimately come down to appeasing lenders and "proving" the effectiveness of their interventions.[92] Therefore, a "knowledge hierarchy" forms, according to Goldman's[93] multiple conversations with World Bank project managers and staff. Analysts working on sites of World Bank interventions not only apply narrow criteria for success set by the World Bank, but also often "[learn] quickly which data and analysis please management and what will either be sent back, ignored, or heavily edited."[94] Here again the concept of instrument-effects comes into play. In the case of the World Bank, project managers are provided

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[89] Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*.
[90] Goldman, 112–13.
[91] Tracey Heatherington, "Remodeling the Fortress of Conservation? Living Landscapes and the New Technologies of Environmental Governance," *Anthropological Forum* 22, no. 2 (2012): 167, https://doi.org/10.1080/00664677.2012.694172.
[92] Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*.
[93] Goldman.
[94] Ibid, 127.

with instruments for measurement of success which are inherently likely to provide a positive outcome. In other words, the World Bank's reports on projects' success are flawed in their experimental design because the instruments for measurement are handpicked for their ability to reflect positively on a wide array of different types of projects.

The same goes for large NGOs involved in environmental interventions worldwide, working in tandem with World Bank expectations and structures of knowledge and standards for success (often funded in part by the World Bank[95]). It is not clear whether interventions on a large scale which are catered most to the desires of funders are actually accomplishing anything in the way of conservation aims because of "the role of the Big Three's [WWF, Conservation International, and The Nature Conservancy] marketing and fundraising arms in 'packaging' field reports and data, a tactic that encourages the exaggeration of successes and downplaying or nonrecognition of questionable results."[96]

Easily replicable guidelines and a clear incentive to report data that reflects positively on an intervention's effectiveness are very good for arriving as close as possible to a system of guaranteed "proof" of a return on investment for World Bank loanees. But as the following chapters will explore in detail, this type of intervention is not as great, and is sometimes quite harmful, for those who must live with the effects of interventions and in some cases even for the section of nature which an intervention has been designed to protect.

By coopting "green" discourse, the neoliberal development world armed itself with the right language to make purely development-related interventions look "sustainable" or environmentally focused. Additionally, establishing a worldwide network of "environmental" projects was a red herring, which allowed the World Bank to carry out other, purely development-related projects often times adjacent to or even within sites of "environmentally focused" interventions. Goldman[97] cites multiple examples of this, including highway, timber, and agricultural projects in the Brazilian Amazon funded by the World Bank which directly contributed to an acceleration of deforestation.

The World Bank and the neoliberal development world at large established a "green hegemony"[98]—dominating and determining the discourse around responses to global and local

[95] Mac Chapin, "A Challenge to Conservationists," *World Watch*, 2004, 18.
[96] Chapin, 30.
[97] Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*, 35–36.
[98] Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*.

environmental crises. This green turn came at a time when the World Bank was beginning to be held accountable for their role in creating decades of damaging environmental externalities. By establishing top down, standardized guidelines for interventions and measures for project success, the World Bank incorporated a response to environmental issues into their tried-and-true framework for returns on investment for the well-established power structures invested in the World Bank's work.

Discourse of Science

Often portrayed as an objective arbiter of the absolute truth, science's role in policy, and especially in environmental policy, is difficult to overstate. Who better to consult on issues related to biodiversity and climate change than those who devote their careers to the study of such topics? Science, of course, has an incredibly important role to play; it is thanks to scientists' tools and measurements that we have been able to begin to understand how the non-human world functions and to monitor how that world ebbs and flows around us. In the realm of environmental policy, it is imperative, however, that we do not mistake science for being completely value-free. From "grassroots" science to "technocratic boardrooms," science is imbued with "thick cultural lenses."[99]

Science's central role in virtually all issues related to environmental policy can be tied to one, central hegemonic approach to said policy, and leads to a range of (sometimes unintended) impacts on indigenous and local land management systems. The hegemonic approach to which I am referring is a notion of wilderness and non-human nature dating back to the 1800s, when, in the United States in particular, the naturalist interpretation of nature preservation began to grow in popularity (Diegues, 2014). Naturalists interpreted humans as always playing a negative role in the health of nature, "regardless of their rationality and social organization" (Diegues, 2014, p. 2). When translated into concrete policy, such an interpretation categorically denies the role of social groups in policy planning and elevates the natural sciences in their stead. Today, and since the genesis of the modern "green" movement in the second half of the 20th century, the naturalist

[99] Michael Goldman, "Introduction: The Political Resurgence of the Commons," in *Privatizing Nature: Political Struggles for the Global Commons*, ed. Michael Goldman (New Brunswick, New Jersey: Rutgers University Press, 1998), 1–19.

approach has manifested itself in the workings of some of the world's largest environmental policy institutions through a practice called fortress conservation.

Depending who you ask, policies which stem directly from a fortress conservation approach (also known as the "wilderness model"[100]) to environmental policy have either been the greatest achievements or the greatest failures of the modern environmental movement to date. In 2012, anthropologist Tracey Heatherington[101] called fortress conservation "the resilient *leitmotif*" in environmental policy and land management debates. Most people have at some point come in contact with a product of fortress conservation. In the United States for example, anyone who has visited a national park has seen one application of this approach. Fortress conservation is the guiding principle behind most institutions related to protected areas both nationally (i.e. national park systems) and internationally (i.e. UNESCO). The core of fortress conservation begins with scientific observations regarding the vulnerability of a particular geographical area's biodiversity. The subsequent policy approach is rather simple: cordon off said geographical area and limit (if not completely deny) human access to or activity in the area. For as much as fortress conservation taps into scientific knowledge, it simultaneously excludes not only considerations or concerns expressed by social groups but indigenous and other forms of knowledge as well; this process of environmental "protection" thus becomes a process of "epistemological exclusions."[102]

After witnessing the effect of this style of conservation being imposed on policy discussions in his home country, Indian historian Ramachandra Guha[103] warned that "radical American Environmentalism" was not only resistant to alternate knowledge or approaches to environmentalism, but even posed a significant threat to the well-being of people and nature wherever U.S.-style conservation was being applied. Guha's[104] criticizes this form of "deep ecology," which "proposes a militant defence of 'Mother Earth,' an unflinching opposition to human attacks on undisturbed wilderness."[105]

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[100] Antonio Carlos Diegues, "The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics," *Revue d'ethnoécologie* 6 (2014): 1–14.
[101] Heatherington, "Remodeling the Fortress of Conservation? Living Landscapes and the New Technologies of Environmental Governance," 162.
[102] Heatherington, 180.
[103] Ramachandra Guha and Bob Nixon, "Radical American Environmentalism and Wilderness Preservation: A Third World Critique," in *The Future of Nature: Documents of Global Change*, ed. Libby Robin, Sverker Sörlin, and Paul Warde (London, United Kingdom: Yale University Press, 1997), 409–31.
[104] Guha and Nixon.
[105] Ibid, 409.

In the case of India, a focus on the separation of the natural and human worlds completely ignores specific conditions within and history of the country. India is a densely populated country with a long history of agrarian settlement in which "a finely balanced relationship with nature" means that India's sites with the greatest biodiversity are intertwined with, rather than separated from, agrarian communities.[106] In Guha's[107] eyes, the rise of the U.S.-American conservation model as the hegemonic source of science and knowledge regarding the human-nature relationship amounts to no less than conservation "imperialism" or, poignantly, "an ecologically-updated version of the White Man's Burden."[108]

While I will return to this specific epistemological aspect, it is important to discuss the nature of fortress conservation's hegemonic hold on environmental policy discussions. Ultimately, fortress conservation comes down to simplicity, availability of "expert knowledge" and international policy norms. Simplicity in this sense means that fortress conservation ideals are applicable anywhere; after all, "expert" scientific knowledge remains the same, since it is coming from one community of experts. Local and indigenous knowledge, on the other hand, can change from village to village. Availability of expert knowledge refers to the fact that certain standardized "geoinformation systems" are the preferred method for information production and exchange related to the environment.[109] Finally, the use of accepted "expert knowledge" in discussions surrounding environmental policy is a practice solidified in international norms. A group of BINGOs (Big International NGOs), as Antonio Diegues[110] refers to them—including the World Wildlife Fund, The Nature Conservancy and Conservation International—has touted fortress conservation and the prioritization of expert knowledge for decades. In the 1980s, for example, the BINGOs arrived in the Brazilian Amazon "mainly interested in setting up isolated no-take protected areas, and their science was based on the elements of the ecosystem theory and conservation biology."[111]

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[106] Guha and Nixon, "Radical American Environmentalism and Wilderness Preservation: A Third World Critique," 412.
[107] Ramachandra Guha, "The Authoritarian Biologist and the Arrogance of Anti-Humanism: Wildlife Conservation in the Third World," *Ecologist* 27, no. 1 (1997): 14–20.
[108] Guha, 15–16.
[109] Heatherington 176-178Heatherington, "Remodeling the Fortress of Conservation? Living Landscapes and the New Technologies of Environmental Governance," 176–78.
[110] Diegues, "The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics."
[111] Diegues, 3.

These BINGOs have an outsized influence on the direction of environmental NGO work worldwide. The WWF, which started in 1961 and staffed only 25 people in the late 1970s employed nearly 4,000 people in 2004,[112] and now employs over 6,000.[113] Started in the 1940s by a group of just a few scientists interested in saving areas of nature in the United States, the Nature Conservancy operated with more than $3 billion worth of assets in 2003.[114] Conservation International, meanwhile, formed mostly from defectors from other international NGOs, including WWF, to quickly become a fund-raising powerhouse which, unlike the other two NGOs, traces its funding to just four organizations (the Macarthur Foundation, the Global Environment Facility, the Gordon & Betty Moore Foundation and the World Bank).[115]

Critiques of conservation science's grip on the hegemonic approach to natural resource protection worldwide are abundant. But environmental anthropologist Veronica Strang[116] contends that the conservation field can benefit significantly by asking itself the simple question of by whom and for whom knowledge is produced. As Strang[117] puts it:

> There are major differences between a localized and holistic model of human-environmental engagement that fully integrates social and cultural issues, and a far more abstract and cosmopolitan model that has steadily narrowed its focus to a scientific view of "ecology" and "biodiversity."

What Strang[118] also points out is the importance of ownership. Should policy-planners or NGOs acknowledge local management regimes' ownership over that local land or resource (or should those local land managers become the policy-planners themselves), then the policy put forward would be far more likely to include the input and, importantly, knowledge of local land managers.

Meanwhile, Diegues's[119] recommended approach is to establish a "science" which bridges the gap between the hegemonic, normative world of natural science, and the highly variable yet

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[112] Chapin, "A Challenge to Conservationists," 18.
[113] Conservation Careers, "What's It like to Work for WWF?," 2017, https://www.conservation-careers.com/conservation-jobs-careers-advice/whats-it-like-to-work-for-wwf/.
[114] Chapin, "A Challenge to Conservationists," 18.
[115] Chapin, 18.
[116] Veronica Strang, *Gardening the World: Agency, Identity and the Ownership of Water* (New York, NY: Berghahn Books, 2009).
[117] Strang, 100.
[118] Ibid.
[119] Diegues, "The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics."

crucial worlds of local land management. This science is called "ethnoscience" and includes the sub-divisions of ethnoconservation and ethnoecology. The linchpin of ethno-sciences is to pass natural scientific knowledge through filters of the local human groups involved in or affected by changes in that local environment and potential plans to conserve or re-establish "nature" in that area. While simple on paper, in practice this process can present many hurdles to progress in certain environmental protection projects. Yet simply considering local knowledge and values is only the first step in designing truly "effective" environmental policy. According to Diegues,[120] a solution exists through the use of ethnoscience.

Diegues[121] is not alone in his embrace of the "ethno-" sciences. Another example of such an approach is one which Heatherington[122] applies to the example of commons management issues in Sardinia. Here, though, Heatherington[123] uses an "ethnographic" approach, concluding that ethnography could be the medium between the natural sciences and local concerns regarding both cultural issues and the recognition of local informal land management knowledge systems.

Zooming out, the neoliberal development world and the conservation science behind its approach to environmental protection have a strong affinity for protected areas, generally. The idea of cordoning off land, described already through the wilderness model, for as innocent of an idea as it may seem, has had an enormous effect on areas of the world where Global North conservation ideals were either imposed or discursively adopted. Protected areas are, according to Paige West, James Igoe, and Dan Brockington,[124] themselves the "discursive means" by which neoliberal institutions, including the World Bank and large international NGOs, override local visions for the human-nature relationship and therefore quite literally shape the landscape of our earth worldwide and humans' place in it. This discourse has had such a powerful impact that a great deal of this discourse has become entrenched in local contexts and replaced local peoples' relationship with nature in places where this vision of conservation was completely absent prior to outside.[125]

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[120] Diegues.
[121] Ibid.
[122] Heatherington, "Remodeling the Fortress of Conservation? Living Landscapes and the New Technologies of Environmental Governance."
[123] Heatherington.
[124] Paige West, James Igoe, and Dan Brockington, "Parks and Peoples: The Social Impact of Protected Areas," *Annual Review of Anthropology* 35, no. June (2006): 251–77, https://doi.org/10.1146/annurev.anthro.35.081705.123308.
[125] West, Igoe, and Brockington, 261.

Discourse of the Commons

The concept of the "commons" has also played an important role in environmental policy discussions over the last few decades. The term "commons" was first used in the sense which we are interested in by William Forster Lloyd[126] in 1833 in lectures delivered at the University of Oxford. At this time, Lloyd[127] was describing what later came to be called (first by Garrett Hardin[128]) a "tragedy of the commons." Lloyd used the example of cattle grazing on common, open land, wherein the problem or "tragedy" arises when uncoordinated, self-interested farmers, presented with open, common land (the commons), allow their cattle to graze more and more on that land until the commons reaches a "point of saturation,"[129] at which point it is no longer viable for grazing and every farmer loses the ability to utilize the commons. This is similar although not completely congruous with "common-pool resource theory," which was a concept also introduced by Hardin.[130] When a user of a certain number of units of a "common-pool resource" increases consumption by x number of units, a different user of the same resource will end up with x number fewer available units to consume. Discussion of "common-pool resource theory" will come up again in a later section (chapter three, page 53).

The story of the "tragedy of the commons" has since been incorporated into discussions around environmental issues, seeing as the problem described—a lack of collective action allowing rampant self-interest to expend a common resource to the eventual detriment of everyone—appears to be analogous with many issues of natural resource depletion and the failing to work together to solve the climate crisis. In the world of ecologists, environmentalists, development experts, and others, the concept of the "commons" leads to its own array of new terms and processes for thinking about issues regarding the environment. New and varied interpretations of the commons and its relevance to environmental issues form an important, often times counter-hegemonic discourse through which to problematize many aspects of the dominant, neoliberal approach to both local and global environmental concerns.

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[126] William Forster Lloyd, "Two Lectures on the Checks to Population: Delivered before the University of Oxford, in Michaelmas Term 1832," in *Michaelmas Term 1832* (Oxford, United Kingdom: The University of Oxford, 1833).
[127] Lloyd.
[128] Garrett Hardin, "The Tragedy of the Commons," *Science* 162, no. 3859 (1968): 1243–48, http://www.jstor.org/stable/1724745.
[129] Lloyd, "Two Lectures on the Checks to Population: Delivered before the University of Oxford, in Michaelmas Term 1832," 31–32.
[130] Hardin, "The Tragedy of the Commons."

The commons does not merely exist outside of capitalism until appropriated, rather the commons is itself the source of surplus value in a capitalist economic system.[131] That is, a commons is only made a commons by the process of privatizing land and resources from which the commons is then differentiated by virtue of not being owned by any person or entity. But in that system the commons always represents an opportunity to inject new capital or resources into the economy, whether that be fish in a fishery, grass for grazing in a pasture, or wood for fuel in a forest.

The commons can therefore also be an opportunity for a type of rent-seeking behavior, in classical economics terms. This relates to a concept which exists within commons discourse which describes a "tragedy of the commoners." This "tragedy" follows the following process:

1. There exists a local land or resource management system with agreed upon rules for resource use in which local resource users follow the rules,
2. Outsiders arrive and break those rules in order to take advantage of the common resource for their personal gain,
3. Due to some failure of enforcement on either the local or above-local level (such as the state), those rule breakers get away with it,
4. Presented with either losing their livelihoods or joining the rule breakers in securing their slice of the pie, so to speak, local resource users begin to break previously agreed-upon rules,
5. The local management system collapses and either a number of individuals are excluded from use of the commons, or the commons surpasses its carrying capacity and itself collapses.[132]

This behavior resembles a sort of rent-seeking insofar as an individual exploits a surplus for personal wealth gain without contributing to the sustainable use of a commons and, at worse, causing that commons to become unviable as a future source of surplus within a local system.

Some environmentalists and ecologists react to the concept of the "commons" by saying that the commons must be excluded from capitalism, remaining as *res nullius*, and protected from

[131] Goldman, "Introduction: The Political Resurgence of the Commons," 16.
[132] Samuel-Alain Nguiffo, "In Defence of the Commons: Forest Battles in Southern Cameroon," in *Privatizing Nature: Political Struggles for the Global Commons*, ed. Michael Goldman (New Brunswick, New Jersey: Rutgers University Press, 1998), 102–19.

capital-minded individuals and entities interested in exploiting it. Michael Goldman[133] labels these people as "tragedyists," or those who consider as fact the type of human-nature relationship described in the story of the "tragedy of the commons." This approach to the commons fits rather well with the previously described "wilderness model" of conservation in that it advocates for the creation of a barrier between the human realm, incorporated into capitalism, and the non-human realm, excluded from capitalism. Therefore, the "tragedyist" approach to the commons lends itself to the dominant, neoliberal discourse around how we relate to and deal with nature. It assumes a preeminence of capitalism and predicts always the same reaction from an individual when he or she encounters a commons.

This approach to the commons does not take into full consideration, however, how local conditions and different types of commons can quite significantly alter how individuals interact with the commons. Without taking into account specific characteristics of an example of the commons, it is nigh on impossible to understand how local individuals will or already do interact with that commons. The "tragedyist" approach to the commons not only assumes all commons are in principle alike, it also assumes that all levels of governance, at every scale of human interaction, work similarly when it comes to dealing with a commons.

One response to this would be a focus therefore on the scale of commons management. "New Institutionalism" proposes that failures of commons are due to the inability of the state to govern the commons, as only the international and local scales can effectively do so.[134] This assumes that all commons are either "global" (i.e. climate change, biodiversity) or "local" (pasture, fishery), but never really in between. But in a Cultural Theory critique of "New Institutionalism," Anthropologist Michael Thompson[135] claims that "New Institutionalism" is hindered by its focus purely on changes in scale and suggests that a focus instead on *styles* of commons management is required (as this paper will discuss further on page 36).

Regarding the concept of a "global commons," after the industrial revolution and the increase in pollution and what we now know to be the negative global impacts of greenhouse gas

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[133] Goldman, "Inventing the Commons: Theories and Practices of the Commons' Professional."
[134] Michael Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness," in *Privatizing Nature: Political Struggles for the Global Commons*, ed. Michael Goldman (New Brunswick, New Jersey: Rutgers University Press, 1998), 198–228; Robert Keohane and Elinor Ostrom, eds., *Local Commons and Global Interdependence: Cooperation and Discord in the World Political Economy* (London, United Kingdom: Sage Publishing, 1995).
[135] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."

emission, the commons took on meaning on a new, wider, global scale. When the disaster at the Chernobyl nuclear power plant occurred, it was made abundantly clear that one state's actions within their own borders could harm the global environment, thus significantly affecting other states.[136] With the rise in concern over global warming, the concept of the "global commons" seemed like an apt descriptor of the new problem at hand. How do we prevent each state, acting in self-interest just like the farmers with their cattle, from burning fossil fuels to the point of saturation—in other words to the point of causing global warming severe enough to cause irreversible damage to our planet? Biodiversity can also be seen as a "global commons," seeing as ecosystems and species transcend national borders but risk extinction due to the exploitation of natural resources within national borders.

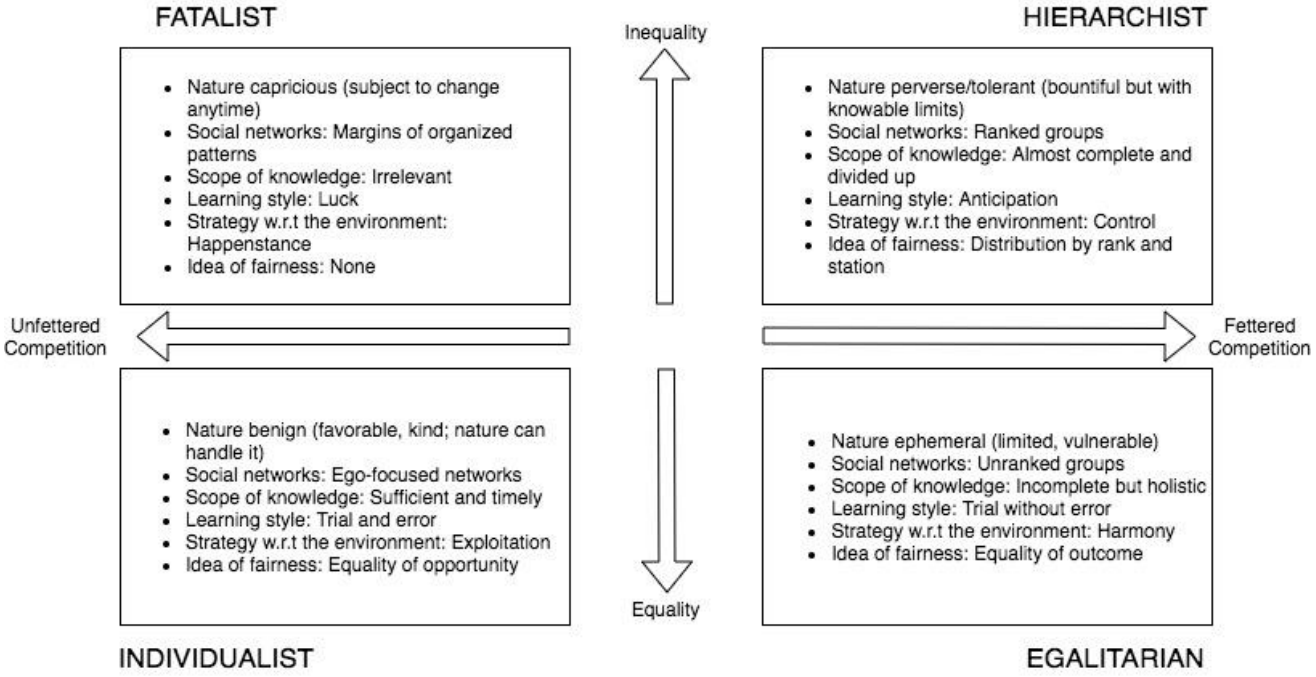
The application of the "tragedy of the commons" on a global scale seems logical, and thus an application of the solutions on that scale to local "tragedies of commons" logically followed as well. Institutionalism as a theory in international relations seems to have an important role in the global commons. How do we prevent individual states from acting out of self-interest at the expense of the global climate? Institutionalists would answer: the most viable way is through institutions which establish coordination and common interests between states. "New Institutionalists"[137] view issues of the commons, from the global to the local, as having fundamental differences only in scale. Therefore, the institutions necessary to address a "tragedy of the commons" must also only reflect the scale of the commons in order to prevent a collapse of the commons.

This scalar approach to dealing with the commons is, however, a rather convenient way for the neoliberal development world to create the rules and systems around which the discourse of environmental interventions is based. For example, framing biodiversity as a "global commons" allows international institutions including large NGOs and the World Bank to determine the course of action in addressing biodiversity on the pretense that a solution to this "tragedy" of a "global commons" requires international institutions to override actors on lower levels of scale who are, according to the metaphor, only self-interested. "It is through the dissolution and destruction of

[136] Goldman, "Introduction: The Political Resurgence of the Commons."
[137] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."

local commons that the global regime gets its substance," writes geographer Michael Flitner;[138] framing biodiversity as a "'globalitarian' tool of Northern dominance, or simply a specific mode of rescheduling Southern debts."[139]

Figure 1. Thompson's[140] typology of styles of "commons" management.



One response to a focus on the scale of issues and institutions, which leads both to the dominance of a particular discourse coming from the top down as well as an ignorance of local conditions and contexts, is instead a focus on styles of institutions and commons management. Michael Thompson[141] presents these different styles (Figure 1), applicable at every scale, as running along two main axes: the level of competition allowed or accounted for, and the level of equity inherent in a system of commons management. The four styles of commons and arrangements for commons management that arise are "fatalist," "individualist," "hierarchist," and "egalitarian." Each style has its own view of the abundance of nature (how sensitive a commons is to changes in resource use); version of social networks (organized/unorganized,

[138] Michael Flitner, "Biodiversity: Of Local Commons and Global Commodities," in *Privatizing Nature: Political Struggles for the Global Commons*, ed. Michael Goldman (New Brunswick, New Jersey: Rutgers University Press, 1998), 162.
[139] Flitner, 164.
[140] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."
[141] Thompson.

hierarchical/unranked); scope of knowledge (how much is understood about the commons, and by whom); learning style (how does the management style approach gathering new information about the commons in order to adapt the management arrangement? This could involve planning, trial and error, or careful trials with limited risk of negative impacts); strategy with regard to the environment (the extent to which an arrangement attempts to control, exploit, or live in harmony with the environment); and idea of fairness (how surplus gained by use of the commons is distributed, or how the opportunity to gain from the commons is distributed).[142]

A helpful thought experiment is to imagine how a purely capitalist approach to a commons would fit into this typology. Capitalism would resemble the individualist typology insofar as capitalism is centered on a rational economic actor in the form of individual buyers and sellers. Capitalism does not promise any equality of outcome by rather assumes an equality of opportunity in a market-based system. Finally, unbounded capitalism exploits natural resources as nature's endless bounty plays a role only as a source of surplus waiting to be used.

But Thompson's[143] crucial point is not that every version of commons management falls strictly into one category or the other, but rather that a certain adaptability between the different styles is often present in local contexts. In Thompson's example of the "Himalayan Village," how the community typically acts can depend on the health of the forest and can vary between intra-village forest management (hierarchist), inter-village organization to protect the forest against outside prospectors (egalitarian), and trade expeditions, which villagers often participate in during years of lower profits from farming (individualist).[144]

This adaptability and movement between styles at only the village scale flies directly in the face of a purely scalar, predictable approach to the commons put forth by "New Institutionalism." Similarly, Thompson's typology and a focus on style over scale also problematizes neoliberalism's insistence on a common framework for addressing nature and, therefore, the commons, based on a newfound discourse of nearly all of nature being incorporated into a "global commons" requiring a global institution. Thompson's[145] typology may be a bit ambitious in its attempt to prescribe precisely how arrangements of a certain type come to be, but it succeeds in making abundantly

[142] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."
[143] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."
[144] Ibid, 204-207.
[145] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."

clear the complexity of local or intra-community interactions with the commons, including the way in which these interactions can morph and re-form depending on local conditions and needs.

Critiques of and responses to the discourse of the commons

As useful as the concept of the "commons" can be in understanding humans' interactions with natural resources outside of private domain, this discourse has been met with many skeptics who feel that the commons discourse requires further elaboration or revision. One response to the commons discourse's seeming inability to address the threat of environmental damage due to resource extractivism was Mario Blaser and Marisol de la Cadena's[146] recent introduction of the concepts "uncommons" and "uncommoning." What the two authors found was a blurring of the line between what is "common" and what is "enclosed." Instead, the two apparent "opposites" converge "on the underlying assumed ontological continuity among humans *and* ontological discontinuity between humans and non-humans." They push against the assumption that humans exist with our language, culture, and organizations, differentiated from nature with its resources which the human world can tap.

"Uncommoning" does not focus on the commons as an object but rather "commoning" as an action—a process by which the human world attempts to draw a line between the human and natural worlds; the enclosed and the common. We must therefore examine this process and the implications of making some things common and others, therefore, "uncommon." Similar to Thompson,[147] Blaser and de la Cadena[148] also push back against the tendency for commons discourse to focus on scale. Using the example of a river, this river can be the "common" source of local river communities' livelihoods while at the same time being a potential "common" source of hydroelectric energy and a "biodiversity commons" for "transnational environmental organisations."[149] Rather than a commons on a small-scale being one piece of a commons on a larger scale, the different scales are intertwined and defined by their relation to each other.[150]

The "uncommons" reveals itself most clearly when two different forms of commons around one natural resource or area (such as the river) conflict with one another.[151] The overlapping

[146] Mario Blaser and Marisol De La Cadena, "The Uncommons: An Introduction," *Anthropologica* 59, no. 2 (2017): 185–93, https://doi.org/10.3138/anth.59.2.t01.
[147] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."
[148] Blaser and De La Cadena, "The Uncommons: An Introduction."
[149] Blaser and De La Cadena, 187.
[150] Ibid.
[151] Ibid.

interests that allow a commons to exist without conflict for multiple parties at multiple scales are called "equivocations." When one community's "commoning" directly contradicts or harms another's, it becomes clear that the commons only exists through different processes of "communing" by the respective communities. The way this often resolves itself in the context of conflicts over local commons governance and, say, an international development NGO's desired handling of a commons is that the more powerful "commoning" of the resource (usually the NGO's) wins out, and the less powerful community must let go of the aspects of their version of "commoning" which conflict with the NGO's. The process of "uncommoning" seeks to recognize the fundamental sources of conflict (often ontological), followed by a process of "commoning" that can as best as possible establish "productive divergences" which can allow a commons to move forward on more solid grounds for all users of the commons.[152] When discussing the commons and the scales of commons, it is vital to recognize power imbalances between different processes of "commoning" and how different processes of "commoning" can be fundamentally ontologically different from one another.

In her chapter on community and the commons, Bonnie J. McCay[153] also attempts to push back against some of what she considers misleading tendencies of commons discourse. The major misleading aspect of the discourse is a tendency to romanticize the commons and how pre-modern communities treated their common resources. Some of those romanticized communities themselves overused resources past their carrying capacity, as "it would seem from certain archaeological records."[154] Furthermore, the discourse of the commons seems to simply perpetuate certain concepts such as that of the "homo economicus"—a predictable pattern of individual economic behavior. Another "dangerous" concept inherent in commons discourse, according to McCay,[155] is "resource managerialism," which implies a certain relationship between humans and nature in which humans are the inherent managers of nature. That leads to the idea that a "tragedy of the commons" or "commoners" can be tagged as "community failure," above all else. "Homo economicus," "resource managerialism," and "community failure" fail to capture the nuanced nature of the uncountable variety of relationships between humans and nature and the inherent

[152] Blaser and De La Cadena, 191.
[153] Bonnie J McCay, "Conclusion: Community and the Commons: Romantic and Other Views," *Communities and the Environment*, no. January (2001): 180–91.
[154] McCay, 182.
[155] McCay, "Conclusion: Community and the Commons: Romantic and Other Views," 187.

power imbalance which tips the discourse around nature towards a scientific conversation of the rational economic behavior of actors.

Insofar as Thompson's[156] typology of styles and Blaser and de la Cadena's[157] "commoning" and "uncommoning" relate to or can be included in the discourse of the commons, it is part of the argument of this paper that the discourse of the commons remains valuable and relevant. These interpretations of the commons appear to sufficiently distance themselves from the dangerous tendencies highlighted by McCay.[158] The typology of styles leaves room for an analysis of different interpretations of natural resource management (which may not reveal an "active" management at all). Blaser and de la Cadena's[159] insistence on evaluating equivocations and the power imbalances inherent in the commons goes even further in problematizing the dominant discourse McCay[160] alludes to.

Discourses around Indigenous Peoples

Indigenous peoples worldwide are often caught in the cross-section of these discussions around community land management and fundamental interpretations of humans' relationship with nature. The questions surrounding how we discuss indigenous peoples—from who can be considered "indigenous", to the role of indigenous people in nation-state-building, for example—have major implications on how we can break away from or problematize the previously described discourses of neoliberal development, science, and the commons. This section will focus primarily on discourse around indigenous peoples, including specifically in Brazil, and their role in issues related to the environment.

Indigenous peoples worldwide suffer a "double negative price" from climate change. That is, indigenous communities are not only the most vulnerable to the damaging effects of environmental degradation and climate change, but also the most affected by attempts to address biodiversity and climate change concerns.[161] The "global spatial congruence between Indigenous

[156] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."
[157] Blaser and De La Cadena, "The Uncommons: An Introduction."
[158] McCay, "Conclusion: Community and the Commons: Romantic and Other Views."
[159] Blaser and De La Cadena, "The Uncommons: An Introduction."
[160] McCay, "Conclusion: Community and the Commons: Romantic and Other Views."
[161] Tebtebba Foundation, *Indigenous Peoples and the Green Climate Fund*; Jay Williams, "The Impact of Climate Change on Indigenous People - the Implications for the Cultural, Spiritual, Economic and Legal Rights of Indigenous People," *International Journal of Human Rights* 16, no. 4 (2012): 648, 674, https://doi.org/10.1080/13642987.2011.632135.

peoples' territories and protected areas"[162] points to indigenous peoples' unique exposure to both environmental degradation and interventions, usually by a large international NGO or an affiliated organization. The worst cases of treatment of indigenous peoples by conservationist organizations (most of which subscribe to the assumed predominance of scientific knowledge of the Global North) have even involved the eviction of indigenous peoples from their land.[163]

Figure 2: A comic by Mac Chapin.[164]

Concerning interactions between indigenous peoples and international NGOs, a major source of conflict boils down to essentially an insistence on one particular body of knowledge being used in conservation efforts. Some of the details of this discourse of science were already laid out on page 27, but with regard to indigenous peoples this discourse goes unquestioned by NGOs interested in protecting resources within and adjacent to indigenous lands. Indigenous knowledge and relationships with the land are seen as "obstacles to effective conservation" and

[162] Stan Stevens, "Indigenous Peoples, Biocultural Diversity, and Protected Areas," in *Indigenous Peoples, National Parks, and Protected Areas*, ed. Stan Stevens (Tucson, Arizona: University of Arizona Press, 2014), 16.
[163] Chapin, "A Challenge to Conservationists," 18.
[164] Chapin, 23.

"incompatible with 'real' conservation"; "…the people-free park school impugns the critical conservation value of inhabited forest areas and ignores the role of forest peoples as constituencies for forest conservation."[165]

In a nation-state, the presence of indigenous peoples can represent (or be interpreted as) a challenge to a state's legitimacy. Often times this challenge to state legitimacy proceeds from a nation-state's attempt to establish cultural and linguistic unity within their borders.[166] When indigenous peoples are mainly located near a border to another state, as is the case with indigenous communities in Amazonian border regions of Brazil or with the Uyghurs in China (located in the westernmost region of China, bordering many neighboring countries), these cultural, linguistic, or religious incongruities with the rest of an imagined nation-state may appear to be a more urgent problem in the eyes of the state seeking to establish or reaffirm their legitimacy. Indigenous peoples can also stand in the way of the exploitation of valuable natural resources. This combined with projects of nation-state building can result in the two-pronged threat of ethnocide and ecocide. Anyone familiar with the history of the United States understands the power of nation-state building and the perception of indigenous lands as *terra nullius*—open, unowned land awaiting incorporation into the nation-state's territory and market. In post-modern times, nation-states have been able to coopt the language of protected areas and environmentalism in order to lay claim to indigenous land in order to "protect" it.[167]

Professor of Geography Stan Stevens[168] also referred to this in 2014 as "internal colonialism", writing that "indigenous nations (in the sense of peoples with their own customary territories) that lack autonomy within nation-states dominated by other peoples continue to experience a colonial present even in supposedly postcolonial states." The territorialization of indigenous lands by nation-states can resemble an "epistemic erasure," in which nation-states, referring to dominant discourses in science and nature preservation, ignore and replace indigenous knowledge of and ways of interacting with landscapes and the non-human world.[169]

The United Nations, meanwhile, has played a role in attempting to incorporate indigenous rights into the discourse of human rights. Two of the most important UN landmarks for indigenous

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[165] Chapin, "A Challenge to Conservationists," 26–27.
[166] Stevens, "Indigenous Peoples, Biocultural Diversity, and Protected Areas."
[167] Stevens.
[168] Ibid.
[169] Bruce Braun, *The Intemperate Rainforest: Nature, Culture and Power on Canada's West Coast* (Minneapolis, Minnesota: University of Minnesota Press, 2002).

rights were a 1989 UN treaty on indigenous rights and the 2007 adoption of UNDRIP by the UN General Assembly. According to Stevens,[170]

> Together ILO 169 and UNDRIP affirm that Indigenous peoples have both individual and collective rights and fundamental freedoms that include territorial, tenure, political, economic, development, cultural, environmental, civil, and legal rights.

Some of these rights include the right to "ownership, use, and management of territory, land and resources," as well as the right to "environment, including appropriate assistance in maintaining the environmental integrity and capacity of their territories," and the right to define "their own development goals," among others.[171] Although the enforcement of the recognition of these rights offers a significant additional challenge, these UN statements elucidate an ambitious vision for the recognition of the autonomy of indigenous people over their land, knowledge, and culture.

Legal Discourse

Finally, in recognizing the ultimate importance of law as a tool of enforcement and in a way as an institutionalization of certain discourse it is worth discussing some of the important points in the legal discourse around the environment and indigenous peoples. The judicial system could, after all, play an important role in establishing "productive divergences"[172] and pushing back against power imbalances.

The Global North-led system of international law has thus far failed to cement full recognition of indigenous rights because of three main flaws:

1. Its use as a "hegemonic and discriminatory weapon to legitimise the formal processes of colonisation over indigenous people and their land,"
2. Its "ontological, epistemological and philosophical assumptions,"
3. And its "institutional forces, systemic structures and organizational drivers… designed to protect and uphold the commercial and industrial interests of the state and private enterprise."[173]

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[170] Stevens, "Indigenous Peoples, Biocultural Diversity, and Protected Areas," 20.
[171] Stevens, 21.
[172] Blaser and De La Cadena, "The Uncommons: An Introduction."
[173] Williams, "The Impact of Climate Change on Indigenous People - the Implications for the Cultural, Spiritual, Economic and Legal Rights of Indigenous People," 672–73.

Some of the examples of international legal attempts to address indigenous rights include: The International Covenant on Civil and Political Rights 1966 (ICCPR), The International Covenant on Economic, Social and Cultural Rights (ICESCR), The Convention on the Elimination of All Forms of Racial Discrimination 1969 (CERD), and the aforementioned UNDRIP (United Nations Declaration on the Rights of Indigenous Peoples 2007). International legal attempts to at least tangentially address climate change and the environment, meanwhile, include The United Nations Framework Convention on Climate Change (UNFCCC), The Kyoto Protocol (1997), and The Convention Concerning the Protection of the World Cultural and Natural Heritage.[174]

These actions and the previously mentioned international declarations all of course represent powerful collective statements of intent, however some of the most powerful shifts in how international law handles climate change and indigenous peoples will most likely arise from fundamental changes in how international law views these issues. One such approach in international legal discourse is an obligation of states to act against climate change within their borders as a legal, *erga omnes*, obligation.[175] *Erga omnes* in international law refers to "obligations in whose fulfilment all states have a legal interest because their subject matter is of importance to the international community as a whole. It follows from this that the breach of such an obligation is of concern not only to the victimized state but also to all the other members of the international community."[176] While not necessarily solving the problem of enforcement, *erga omnes* can play an important role in conceptualizing the potential role of legal action in issues around climate change.

Another potentially discursively powerful concept in international law is that of a *sui generis* approach to laws applying to indigenous peoples and their land. Literally meaning "of a unique type," in this context a *sui generis* legal approach would mean approaching each indigenous community differently and considering all possible legal options, including ones which fall outside of Global North legal traditions.[177] This approach recognizes the importance of the ontological differences between a Northern legal system approach to land and how an indigenous community

[174] Williams, 666-67.
[175] Ibid, 668.
[176] Oxford Reference, "Overview: Erga Omnes Obligations," 2021, https://www.oxfordreference.com/view/10.1093/oi/authority.20110803095756413.
[177] Marcia Langton, "The 'Wild', the Market, and the Native: Indigenous People Face New Forms of Global Colonization," in *Decolonizing Nature: Strategies for Conservation in a Post-Colonial Era*, ed. William Adams and Martin Mulligan (Milton Park, United Kingdom: Routledge, 2002), 144, https://doi.org/10.4324/9781849770927-10.

might operate and relate to their land. One clear example of this is the concept of private property, which may not exist in many indigenous communities. *Sui generis* is in a sense a legal manifestation of Blaser and de la Cadena's[178] insistence on recognizing power imbalances, identifying "equivocations" or the lack thereof, and moving forward with "productive divergences"—a *sui generis* approach for specific, varied conflicts over a commons.

One of most attention-grabbing attempts to address the deforestation of the Amazon (and the harm to the peoples of the Amazon) through international law has been a recent push to involve the International Criminal Court in prosecuting President Bolsonaro and his administration for crimes against humanity. The argument at the heart of this effort revolves around the apparent abundance of evidence of crimes against the "environmental dependents and defenders" of Brazil, the institutionalization of these crimes within Brazil, and the inability and unavailability of courts within Brazil to prosecute said crimes.[179] The Rome Statute (signed and ratified by Brazil), which established the International Criminal Court and the international crimes of genocide, crimes against humanity, war crimes, and crime of aggression,[180] could be invoked according to the evidence and necessity for the involvement of the ICC.

Chapter 3: A Brief History of Environmental Policy in the Brazilian Amazon

As the "lungs of the world,"[181] the Amazon rainforest's importance to the global climate is beyond debate. But this perspective on the forest's importance reflects only its value as a "global commons." At many different scales and in many different styles the Amazon embodies a vast array of values. In the Brazilian Amazon, the fight over the forest has involved a great number of actors—it is not simply a fight between indigenous peoples and the state. The power relationship is also not completely unilateral (the state being omnificent at every scale of Amazonia) as "local commons management" institutions form a "serious challenger to neoliberal policies of the state."[182]

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[178] Blaser and De La Cadena, "The Uncommons: An Introduction."
[179] Maud Sarlième et al., "Communication under Article 15 of the Rome Statute of the International Criminal Court Regarding the Commission of Crimes Against Humanity against Environmental Dependents and Defenders in the Brazilian Legal Amazon from January 2019 to Present" (Vienna, Austria, 2021).
[180] United Nations General Assembly, "Rome Statute of the International Criminal Court" (1998), https://doi.org/10.1017/cbo9780511975035.013.
[181] Goldman, "Introduction: The Political Resurgence of the Commons," 4.
[182] Diegues, "The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics," 54.

One such "victory" for a local land management institution over the state was the establishment of extractive reserves (*reservas extravistas*) in the 1980s.[183] These reserves remain as a form of protected land or body of water in which only certain land users are allowed to use certain resources within that area. Most *reservas extravistas* are either sections of forest exclusively used by rubber tappers (*seringueiros*) or estuaries or rivers used only by fishermen using traditional and sustainable fishing methods.

The source of pressure on the Amazon and local resource managing communities within it runs deeper than just the neoliberal pressure to modernize and develop. The Brazilian state during the military dictatorship from 1964-1984 had a core mission to establish a greater footprint on their vast Amazonian territory which abutted neighboring states. In the eyes of the state at this time, the Brazilian Amazon was a "geographical vacuum":

> …this strategy had a clear geopolitical dimension, expressed in huge economic programmes such as the National Integration Program. Long costly highways such as the Transamazon and the Northern Perimetral Highway (running close to the northern frontiers of the country) were initiated and partially completed. In order to occupy the region with Brazilians, the government encouraged the arrival of landless peasants from the northeast and from areas with land conflicts in the south. Hundreds of thousands of peasants poured into the region, most of whom lacked the farming experience and capital necessary for survival in a totally different, aggressive tropical environment.[184]

Worried about "losing Brazil," the Brazilian military's apparent concern over their Amazonian territory, while at its peak during the military dictatorship, continued into Brazil's transition to democracy. As their role weakened in Brazil's new democracy, the military grasped onto the idea of an 'external enemy' in the Amazon in the form of outside interest in Brazilian territory manifesting itself in indigenous claims to land. This "enemy" also helped to justify the military's outsized role in governance in Brazil.[185]

In April of 2008, Brazil's Military Commander of the Amazon, General Augusto Heleno said that "there is an orchestration on a global level to say that Brazil can not take care of the

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[183] Diegues, 55.
[184] Diegues, "The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics," 57.
[185] Andréa Zhouri, "'Adverse Forces' in the Brazilian Amazon: Developmentalism Versus Environmentalism and Indigenous Rights," *The Journal of Environment & Development* 19, no. 3 (2010): 255, https://doi.org/10.1177/1070496510378097.

Amazon." Later that month he also claimed that "the risk to sovereignty is that some areas could be separated from Brazilian territory. International NGOs and indigenous groups could solicit this political division."[186] It is no surprise then, that the Brazilian military avoids referring to indigenous "nations" (the way indigenous groups are often referred to in the United States, by comparison), as this, they fear, may also have the discursive effect of undermining the Brazilian nation-state.[187]

The military dictatorship's approach to the Amazon, characterized by a perceived need to occupy the vast "unoccupied" (by non-indigenous people) space was followed by what Antonio Carlos Diegues[188] calls an ideology of "economic panacea." In the 1970s, the Amazon was seen as a potential solution to Brazil's economic woes. Farming and land occupation were once more aggressively prioritized, this time in the form of incentives and the criticism of less "efficient" uses of forested land, such as rubber tapping. The raising of livestock and establishment of large farms were seen as far better uses of land, so much so that the burning or clearing of forest was promoted and viewed as an economically favorable use of the land—this despite the fact that logging and ranching were industries which employed a relatively small number of people.[189] In the 1980s, it was also more profitable to deforest new land to try to "recuperate old pastures" due to the high cost of fertilizer and the labor needed to control weeds.[190]

In the 1980s for the first time scientists began to connect mass deforestation in the Amazon rainforest with global warming through a "greenhouse effect."[191] This new international attention resulted in the World Bank stopping a loan to a major development project in the Brazilian states of Rondônia and Acre (POLONOROESTE), which was considered to be responsible for a large amount of the new deforestation at the time (POLONOROESTE was one of a number of World Bank funded projects worldwide which "included as goals the transmigration of peoples and the liquidation of forest assets as a means to economic development"[192]). The domino effect of this continues to be a defining part of Brazil's relationship to its rainforest. The first response from the

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[186] Zhouri, 267–68.
[187] Zhouri, 267.
[188] Diegues, "The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics."
[189] Diegues.
[190] Ibid, 59.
[191] Ibid, 66.
[192] Andrew Reid Bell, "Environmental Licensing and Land Aggregation: An Agent-Based Approach to Understanding Ranching and Land Use in Rural Rondônia," *Ecology and Society* 16, no. 1 (2011): 15, https://doi.org/10.5751/ES-03947-160131.

Brazilian state and military was skepticism over international interference in their territory. An additional element to that skepticism was that some leaders of traditional land-managing communities of the Amazon (including indigenous leaders and *seringueiros*) were beginning to appear in foreign cities advocating for the rights of local resource managers.[193] One such leader from the *seringueiros*, Chico Mendes, was assassinated in 1988, sparking a backlash in the form of the formation of a coalition of "forest dwellers" to "protect their interests."[194] Among those implicated in aiding or allowing the assassination were the federal police.[195] Mendes was only the most high profile of 90 different assassinations of "rural leaders" that year.[196]

Protests especially against large dam projects led to further World Bank withdrawals of loans from Brazil's energy sector. Additionally, protected areas established by the Brazilian government (in the image of the U.S.-American wilderness model) to appease World Bank officials also came under fire from rubber tappers and fishermen who were initially excluded from these areas. As mentioned previously, this led to the establishment of *reservas extravistas* in order to allow traditional resource managers to operate in the areas where they had, sustainably, for generations.[197]

Such concessions from the Brazilian state were undeniably important, as dozens of extractive reserves today remain dotted throughout the Brazilian Amazon.[198] However many of the same dynamics that were initiated in the 1980s—territorialization of the Amazon and incentivization of deforestation, international reaction to environmental concerns, World Bank pressures to make environmental concessions, local land managers' demands for what those concessions should look like and skepticism from the Brazilian state, especially its military, over international meddling as well as the economic efficiency of concessions—also remain today and are applicable to many of the important current battles over the Brazilian Amazon. While economically speaking there are some clear incentives to allow deforestation, discursively the most powerful force within Brazil regarding the Amazon, is the "us" versus "them" mentality. "Us"

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[193] Diegues, "The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics," 67.
[194] Diegues, 67.
[195] Rajendra Ramlogan, *The Developing World and the Environment: Making the Case for Effective Protection of the Global Environment* (Lanham, Maryland: University Press of America, Inc., 2004), 186.
[196] Anthony Hall, *Sustaining Amazonia: Grassroots Action for Productive Conservation* (Manchester, United Kingdom: Manchester University, 1997), 101.
[197] Diegues, "The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics," 68.
[198] Instituto Socioambiental, "Unidades de Conservação No Brasil," 2021, https://uc.socioambiental.org/.

Brazilians are against "them": the environmentalists, the developed world, international NGOs, and the indigenous groups and traditional resource managers with whom they work. Even when indigenous groups seek to distance themselves from the NGOs which they see as arbiters of a type of neoliberal development which does not respect indigenous knowledge and culture, they are nevertheless greeted with skepticism within Brazil as a result of this historic discourse.

Indigenous Lands

Demarcation

When indigenous peoples and local resource managers living in the Amazon do attempt to establish official recognition of their territory, the struggles over land demarcation can take many different forms. How the process is conducted (by whom and for whom) can vary as well. In 1988 it first became possible for indigenous land to be recognized officially by the state following the ratification of a new federal constitution.[199] Four phases are now involved in the process of officially indigenous territory demarcation according to the state: "identification and delimitation; demarcation; legal ratification, and agrarian regulation."[200] In matters of indigenous land demarcation, the most important state actor is FUNAI (Fundação Nacional do Índio), a government agency established in 1967 to deal with all matters having to do with the indigenous peoples of Brazil (including territorial and cultural).[201]

Despite the 1988 federal constitution opening of the door to indigenous land demarcation, the actual path to demarcation was at the time largely unclear. There remained many legal ambiguities as well as doubts over the state's ability or willingness to enforce indigenous land demarcations.[202] Therefore, the first real attempt to demarcate indigenous lands played a vital role in establishing a sort of framework and precedent for a potential path to official land recognition for indigenous communities in the Brazil. One of the first indigenous communities to take up this seemingly difficult task was the Kulina Indians. De Oliveira Neves[203] goes into great detail about

[199] Lino João de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil," in *Another Knowledge Is Possible: Beyond Northern Epistemologies*, ed. Boaventura de Sousa Santos (London, United Kingdom: Verso, 2007), 105–19.
[200] de Oliveira Neves, 106.
[201] Fundação Nacional do Índio, "Demarcação: Demarcacao-de-Terras-Indigenas," 2021, https://www.gov.br/funai/pt-br/atuacao/terras-indigenas/demarcacao-de-terras-indigenas.
[202] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil," 106–7.
[203] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil."

the case of the Kulina, which will be summarized here insofar as the case is relevant to the discussion.

The Kulina began the process through the use of crude tools and markers in order to delineate what they considered to be the historic and mythical borders of their land. The reaction from the surrounding, non-indigenous community was one of confusion and dismay, leading to tensions with those community members. In fact, the Kulina's borders had already been drawn by FUNAI in 1988, but due to the lack of any signs of demarcation, their land was consistently trespassed by "lumberjacks, fishermen, rubber-tappers and, in particular, *seringalistas,*[204] who refused to accept that the land was native territory."[205] In order to quell that reaction, some groups stepped in to support the Kulina in their efforts to demarcate their land, including representatives from UNI (the National Union of Indigenous Peoples). With help, the Kulina's methods for land demarcation improved in effectiveness and accuracy. In accord No. 004/93 between the Kulina Indigenous Community of Middle Juruá—representing the Kulina—and FUNAI, the self-demarcations were recognized as official demarcations of Kulina land.

The self-demarcation of Kulina land began an important new era for the community as they experienced an increase in the strength of their ties to political organizations and took on educational courses within the community which increased their technical know-how with respect to "maps, geographical coordinates, boundary markers, satellite pictures, etc."[206] Most importantly, the Kulina Indians' successful self-demarcation reinforced their inherent right to the land and their metaphysical autonomy over their space, culture, history, and way of life: the Kulina's self-demarcation "functioned at the same time as a procedure, as an assertion of rights over the occupied lands, and as a process of affirmation of Kulina self-esteem in the context of inter-ethnic relations."[207] Consequently, "respect for the indigenous people grew significantly among the urban and rural population of the region as a result of the Kulina's courage and skills in taking the responsibility to demarcate their own lands."[208]

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[204] Rubber plantation owners.
[205] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil," 107.
[206] de Oliveira Neves, 108.
[207] Ibid, 109.
[208] Rosa Maria Monteiro, "Vamos Acabar Nosso Trabalho!: A Demarcação Da Área Indígena Kulina Do Mério Juruá," in *Demarcando Terras Indígenas: Experiências e Dasafios de Um Projeto de Parceria*, ed. Carola Kasburg and Márcia Maria Gramkow (Brasília, Brazil: FUNAI, PPTAL, GTZ, 1999), 155–65; de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil."

Following the Kulina's success, indigenous communities across Brazil took up their processes of "self-demarcation."[209] The Brazilian state, fearing a weakening role in this powerful wave of indigenous communities seeking full autonomy over their lands, adopted the concept of "self-demarcation" into their official policy. This policy took form through PPTAL (the Integrated Project for the Protection of Indigenous Populations of Legal Amazonia) a sub-project of a program implemented by FUNAI through cooperation with GTZ (Deutsche Gesellschaft für Technische Zusammenarbeit)[210] a German company founded in 1975 and absorbed in a merger in 2011 to become now part of the German development agency GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit). This new policy renamed "self-demarcation" as "participative demarcation" and created a replicable framework for indigenous lands to become officially demarcated. PPTAL began to apply this model to hundreds of indigenous territories, assuming "the role of the regulator of a successful counter-hegemonic experiment" and removing the "political, historical, geographical, and inter-ethnic contexts" of specific indigenous claims over land.[211] Projects conducted under the guise of "participative demarcation" were state-led and often times included indigenous communities themselves only minimally in this newly institutionalized demarcation process.

Under the umbrella of indigenous land demarcation there formed a wide discursive crevasse between true "self-demarcation" and what was called "participative demarcation." "Self-demarcation" was not simply the indigenous communities filling an institutional gap between the law, which recognized indigenous territories, and the enforcement of indigenous borders. Rather, "self-demarcation" was a powerful act through which indigenous communities could establish not only the precedence of their culture, language, and historical claim to their land, but also the epistemological autonomy over their land and their relationship with the land and the surrounding community. The co-option of demarcation by the state and the NGOs with whom the state cooperated was a discursive move towards placing the state at the center of these processes and including indigenous actors only as "partners," "allies," or "collaborators."[212]

In Brazil, the "native question," found at every stage of colonial and post-colonial Brazilian history, encapsulates the Brazilian state's difficulties in establishing itself as a nation-state in the

[209] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil," 109.
[210] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil."
[211] de Oliveira Neves, 110.
[212] Ibid.

image of the Global North. How can Brazil exist as a legitimate state so long as indigenous peoples, with their separate culture, language, and organization as societies, also exist within its borders? The answer prior to the end of the 20th century was quite simple: either indigenous communities should integrate or remain fully isolated. This hegemonic view of the indigenous peoples' role in the Brazilian state—an extension of the hegemony of the Global North's conception of a state and its society—made the indigenous movement for "self-demarcation" entirely counter-hegemonic.[213] "Self-demarcation" such as the Kulina's established the indigenous peoples as the protagonists in their own "reorientation of inter-ethnic relations."[214] The insertion of the PPTAL into the discourse of "demarcation" amounted to returning indigenous peoples to their place as a subordinate subject of a hegemonic state and placing the originally counter-hegemonic process of "self-demarcation" back into the context of the "native question" (therefore stripping it of its revolutionary quality). This was done all while presenting "participative demarcation" as having the same discursive meaning as the Kulina's "self-demarcation" (which it clearly did not) and imposing this new, centralized version of demarcation on other indigenous communities attempts to "self-demarcate."[215] Chapter five will return to this issue and situate the discursive battle over demarcation within the framework of this paper.

Deforestation data

Returning to the specific concern of deforestation, how severe is deforestation currently in the Brazilian Amazon and where is it occurring the most (or the least)? In the Brazilian Amazon there are a few different types of areas designated for some sort of limited use or protection, but the three most common are indigenous territories, *reservas extravistas* (extractive reserves), and national and state parks.[216] These three types of protected or limited-use areas have varying levels of effectiveness in reducing deforestation and the preventing forest fires. In a study published in 2006, D. Nepstad et al.[217] used satellite imagery to measure this. The study focused on differences in buffer areas, or the areas immediately inside and outside of indigenous territories, national and state parks, national forests, and extractive reserves. They found that the inhibitory effect of these areas against deforestation from 1997-2000 was statistically significant for parks (20-fold

[213] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil."
[214] de Oliveira Neves, 113.
[215] Ibid.
[216] Instituto Socioambiental, "Unidades de Conservação No Brasil."
[217] D. Nepstad et al., "Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands," *Conservation Biology* 20, no. 1 (2006): 65–73, https://doi.org/10.1111/j.1523-1739.2006.00351.x.

inhibition of deforestation in the inner buffer versus the outer buffer), national forests (9.5-fold), and indigenous territories (8.2-fold), but not in extractive reserves (1.7-fold) (Fig. 3). There was also a highly statistically significant difference in the density of fires in the inside versus outside buffers of indigenous lands, parks, and national forests, as well as a "marginally significant" effect against fire density within extractive reserves. Nepstad et al. make sure to point out that reserves which are uninhabited by people, such as national and state parks, tend to be located far away from the areas with the highest rates of deforestation or fires, whereas already-recognized indigenous lands have often historically made it further through the recognition process precisely due to the urgency brought about by close proximity to encroaching non-indigenous populations.[218] Therefore, the statistical significance of indigenous lands' preventative effect against deforestation

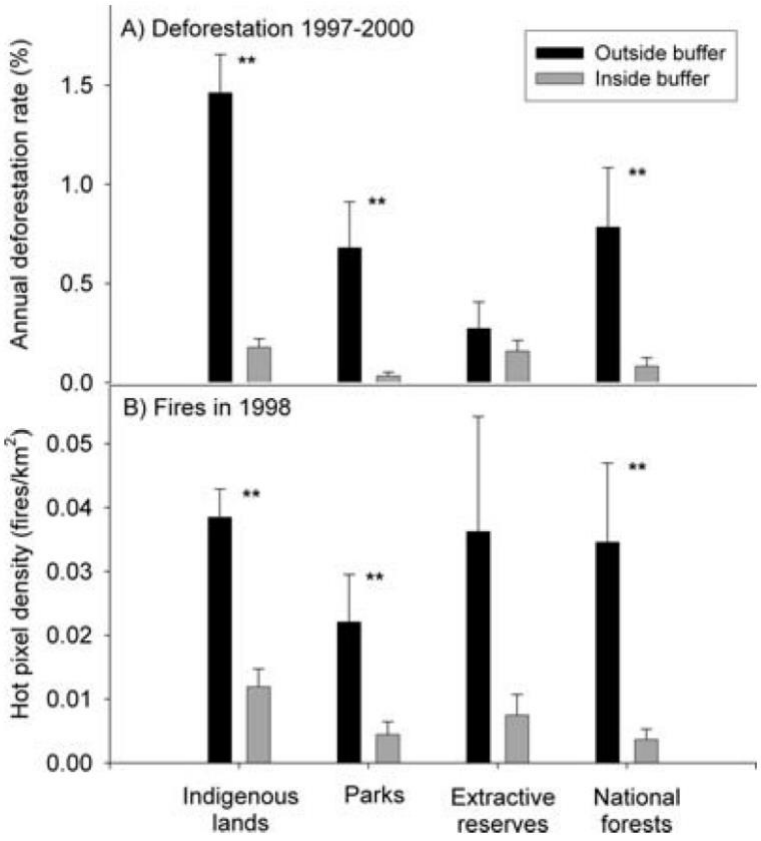

Figure 3. Data and charts from a 2006 study conducted by Nepstad et al. (2006)

and forest burning speaks volumes for their effectiveness despite close proximity to areas of increased deforestation and forest burning.

[218] Nepstad et al., "Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands."

A more recent study, conducted by the Amazonian Georeferenced Socio-environmental Information Network (RAISG)[219] in 2016, also investigated the effect of protected natural areas (a category which combines national and state parks and extractive reserves) and indigenous territories on deforestation rates in Amazonia. In this case, the authors present the effect on the rate of deforestation through an analysis of changes in carbon density within these areas and non-protected or indigenous areas. This study found that between 2003 to 2016, net carbon loss (forest gained minus forest lost) was lowest in indigenous territories (-0.1% change in carbon density) and in areas where indigenous territories and protected natural areas overlapped (-0.2% change), whereas all other areas experienced a -3.6% change in carbon density.[220] RAISG also identified the areas in Amazonia with the most remaining carbon stocks (Figure 5), indicating that 27% of the remaining carbon stock in 2016 was on just indigenous land ("IT") (a further 7% was on land where indigenous territories and protected natural areas overlapped), more than the amount of remaining carbon stock in protected natural areas ("PNA") (24%).[221] This makes clear the sheer amount of carbon stored on indigenous land and highlights the important role indigenous peoples play in hindering deforestation and preventing a large amount of additional carbon dioxide from being released into the atmosphere.

An even more recent study in 2020 found that indigenous territories can indeed be a "cost-effective way for governments to preserve their forested areas."[222] In this study, Kathryn Baragwanath and Ella Bayi[223] introduce "common-pool resource theory" to claim that indigenous communities in the Brazilian Amazon approach the forest as a common-pool resource and therefore strictly limit the consumption of forest products beyond what is necessary (Thompson[224] would call this a "nature capricious" approach to the commons). Using satellite data, Baragwanath and Bayi[225] focus specifically on the difference in rates of deforestation on indigenous land which

[219] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure."
[220] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 52.
[221] EDF AMPB, COICA, REPALAC, AMAN, WHRC, "Tropical Forest Carbon in Indigenous Territories: A Global Analysis. Report Prepared for UNFCCC COP 21," no. December (2015): 1–12, https://www.edf.org/sites/default/files/tropical-forest-carbon-in-indigenous-territories-a-global-analysis.pdf; Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure."
[222] Kathryn Baragwanath and Ella Bayi, "Collective Property Rights Reduce Deforestation in the Brazilian Amazon," *Proceedings of the National Academy of Sciences of the United States of America* 117, no. 34 (2020): 20495, https://doi.org/10.1073/pnas.1917874117.
[223] Baragwanath and Bayi.
[224] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."
[225] Baragwanath and Bayi, "Collective Property Rights Reduce Deforestation in the Brazilian Amazon."

is officially recognized ("homologated") versus indigenous land which is non-homologated, as well as rates of deforestation on indigenous land before and after homologation. According to their study, homologation of indigenous land was associated with a 66% decrease in deforestation.[226]

Although there is a potential for leakage, meaning that a decrease in deforestation in one area could just be offset by deforestation in a different area, the study also found that within buffer areas at least, leakage is not a significant factor effecting the conclusion about the effectiveness of the homologation of indigenous territories in reducing deforestation. The conclusion, therefore, is that when provided with the institutional legitimacy and potential for outside enforcement that comes with official recognition of demarcated territory, indigenous communities are able to enforce their own approach to managing the forest as a common-pool resource and therefore prevent significant deforestation on that land.

Recent News and Updates

Deforestation and the prevalence of forest fires in the Brazilian Amazon have received an increasing amount of international media attention in recent years. This includes one of the most destructive fires in Brazil to date, especially shocking in that it occurred in a tropical wetland, rather than in an area of dense forest.[227] The fire that in 2020 burned around a quarter of the entire Pantanal tropical wetland—the world's largest—in the area of Brazil bordering Bolivia and Paraguay was also the most extensive burning in those wetlands on record. Reflecting on the fires, local rancher Eubank Campos was perplexed as to who would have started a fire in the wetlands at that time of the year (controlled forest burning is a long-standing and sustainable technique for land management when employed at the right time and scale). Campos suggested that no local land users, called *pantaneiros,* would have started this fire, understanding that to do so would mean destroying their own land.[228]

As mentioned previously in chapter one on page 19, there have been multiple major news reports since the outbreak of the COVID-19 pandemic on a weakening of environmental protections in the Brazilian Amazon, including a statement from the Environment Minister

[226] Baragwanath and Bayi.
[227] Catrin Einhorn et al., "The World's Largest Tropical Wetland Has Become an Inferno," *The New York Times*, October 13, 2020, https://www.nytimes.com/interactive/2020/10/13/climate/pantanal-brazil-fires.html.
[228] Einhorn et al.

admitting that the pandemic had provided a convenient distraction for the press while he worked to loosen restrictions in the Amazon.[229]

The last two years have also seen some developments in attempts to address the deforestation of the Amazon through international litigation, especially through a "legally enforceable crime of ecocide."[230] Reports explained that President Jair Bolsonaro could face charges of ecocide in the Hague in light of the extent of the increase in deforestation allowed during his administration. This mirrors similar attempts to charge the Bolsonaro administration with crimes against humanity against "environmental defenders and dependents" within the Brazilian Amazon (mentioned in chapter two on page 47).[231] Time will tell whether the attempt to utilize the power of international law proves effective in halting future destruction or holding guilty parties accountable for past or ongoing destruction to the Amazon and its peoples.

Meanwhile, indigenous groups in some areas have received a technological update to their efforts to enforce land demarcations. In 2020, WWF UK, WWF Brazil, and the Associação de Defesa Etnoambiental Kanindé (a local non-profit organization) funded the supplying of indigenous groups with aerial drones to monitor trespassing and trained indigenous community members in the process of filing lawsuits against transgressors.[232] As of August 2020, fifteen indigenous territories across seven Brazilian states had been provided drones and training, as well as additional equipment and training for firefighting.[233]

Chapter 4: Rondônia

This section will apply the framework and some of the ideas discussed about the Brazilian Amazon already to a specific area. Rondônia is a Brazilian state 237,576 km² in size[234] and borders Bolivia to the south and west and the Brazilian states Amazonas to the north and Mato Grosso to

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[229] Ernesto Londoño, Manuela Andreoni, and Letícia Casado, "Amazon Deforestation Soars as Pandemic Hobbles Enforcement," *The New York Times*, June 6, 2020, https://www.nytimes.com/2020/06/06/world/americas/amazon-deforestation-brazil.html; Lu, "Brazil Is Using the Pandemic to Weaken Environmental Protections."
[230] Owen Bowcott, "International Lawyers Draft Plan to Criminalise Ecosystem Destruction," *The Guardian*, November 30, 2020, https://www.theguardian.com/law/2020/nov/30/international-lawyers-draft-plan-to-criminalise-ecosystem-destruction.
[231] Sarlième et al., "Communication under Article 15 of the Rome Statute of the International Criminal Court Regarding the Commission of Crimes Against Humanity against Environmental Dependents and Defenders in the Brazilian Legal Amazon from January 2019 to Present."
[232] Louise Boyle, "Indigenous Forest Defenders Turn to High-Tech Tools to Protect Amazon and Its Iconic Jaguar," August 20, 2020.
[233] Boyle.
[234] The Editors of Encyclopaedia Britannica, "Rondônia," 2021.

the east. In Rondônia one can find a web of different approaches to land management, both from the state and from indigenous and other local land managers. Rondônia has also had one of the highest, most sustained rates of deforestation in recent years.[235]

History and Effects of Settlement and Land Use

In the first half of the 20th century Rondônia was largely isolated from the more populous regions of Brazil. The main economic activities taking place there involved extraction of "forest products, mainly rubber and Brazil nuts." Most non-indigenous residents of the state lived in small settlements along rivers in mostly the northern and western areas of the state.[236] In 1912 the construction of the Madeira-Mamore railway led to a marginal increase in settlers and increased the efficiency of the export of forest products (the railway remained in use until 1971).[237]

In the 1930s, the Brazilian state began the process of seeking to encourage settlers to acquire land away from Brazil's cities. Mass migration to urban areas had led officials to worry about overcrowding and turn their attention to the lack of people in the vast, "unoccupied" territories in and around Amazonia. The next major efforts to occupy Amazonia were the planned colonization project "Rio Amazonas," put forth in 1940 by then president Getulio Vargas, and a program called SUDAM (Superindendência do Desenvolvimento da Amazônia) in 1966 under the leadership of the first president of Brazil's military dictatorship, Humberto de Alencar Castelo Branco, aimed at developing the Amazon. Limited success of SUDAM led to a new initiative called POLAMAZONIA in 1974, aimed once more at increasing the number of settlers in the Amazon region, this time through a different strategy of focusing on fifteen "growth poles" where development was likely to move the fastest.[238] Finally, in 1981, a program called POLONOROESTE focused on land and transport infrastructure development specifically in Rondônia.[239]

The construction of major highways in Rondônia between 1965 and 1968 led to a large amount of "spontaneous colonization" along major highways (as opposed to state-planned land

[235] Valderli Jorge Piontekowski et al., "Modeling Deforestation in the State of Rondonia," *Floresta e Ambiente* 26, no. 3 (2019): 1–11, https://doi.org/10.1590/2179-8087.044118; Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure."
[236] Janet D Henshall, "Agricultural Colonization in Rondônia, Brazil," *Luso-Brazilian Review* 19, no. 2 (1982): 170.
[237] Henshall, 170.
[238] Ibid, 170.
[239] Ibid, 169.

accrual). The population in Rondônia increased from 70,783 in 1960, to 116,620 in 1970, and then to 490,153 in 1980[240]—a near 7-fold increase in the population in 20 years. Accordingly, the number of farms more than tripled between 1970-1975 (from 7,082 to 25,532), and the area of cultivated land more than quadrupled (44,636 to 192,894 hectares). By 1976, 11% of the entire state territory was designated as some sort of official "colonization zone," including PICs, (Integrated Colonization Projects) and PADs (Directed Settlement Projects).[241]

Many of the new arrivals to Rondônia arrived with little capital, which would have been needed to initiate more sustainable agricultural techniques. Instead, most new settlers relied on "shifting cultivation methods," a type of farming which involved repeatedly using new, unfarmed land (slash and burn farming) rather than regenerating previously used land.[242] INCRA (the National Institute for Colonization and Land Reform), the government agency responsible for new colonization projects in Rondônia as of 1970, even established land clearing as a "demonstrated way of occupying land given to colonists."[243]

By the early 1980s, it was already clear to some researchers[244] that there were significant negative externalities to both the environment and to indigenous communities caused by the rapid colonization of Rondônia in the previous two decades. The government had been incapable of preventing squatters from encroaching on indigenous territories. The "clearing of the natural vegetation" by farmers, miners, and other new arrivals to the state had "led to environmental deterioration and the spread of disease."[245] Blamed in part for the unwanted affect caused by settlement to that point was the fact that as soon as land was officially made available by INCRA an equal or greater amount of land around the official designated area would fall victim to squatters. The line between "planned" and "spontaneous" settlement was quickly blurred as the government was unable to enforce strict settlement zones.[246] As Pedlowski, Dale, Matricardi, and da Silva Filho[247] wrote in 1997, "poorly planned policy" plus "unfunded farmers" equals a "rapid increase in the rate of deforestation." In the end, whether a settlement was sanctioned or

[240] Ibid, 171.
[241] Ibid, 171-175.
[242] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil"; Henshall, "Agricultural Colonization in Rondônia, Brazil," 183.
[243] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 151–52.
[244] Henshall, "Agricultural Colonization in Rondônia, Brazil."
[245] Henshall, 183.
[246] Ibid.
[247] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil"; Henshall, "Agricultural Colonization in Rondônia, Brazil," 152.

unsanctioned had little to no effect on the style of land use and the effects on forest health and the indigenous peoples.

The major actors in the rapid increase in land use in Rondônia from the 1960s through the 1990s included small farmers, cattle ranchers, and loggers—each with their own nuanced impact on the landscape as well as on indigenous communities. Small farmers, as previously mentioned, employed slash and burn techniques. Due to their being "spatially disaggregated," the impact of those small farmers was to fragment the forest, rather than clear cut large continuous tracts (see the "Threats to the Forest" section in chapter one).

Cattle ranchers, while less numerous, had an outsized impact on the politics of the region considering their long-standing political sway in Brazil as a whole (which remains the case today). With their political influence, ranchers were able to make the enforcement of land use laws in the region more burdensome. They also frequently broke, without consequence, a Brazilian Forestry Code's rule stating that a farmer may only clear half of the forest on their land.[248]

A few factors led to logging becoming a particularly destructive and conflict-creating industry in Rondônia. Most importantly, the most valuable timber available in the state existed mainly in areas already designated as either an indigenous territory, extractive or biological reserve, or national or state park[249] (a similar problem existed in Rondônia's Bom Futuro National Forest, where the high fertility of the soil there made the forest a popular target for encroachment by farmers).[250] If loggers did settle for the less valuable timber, the practice was only profitable at a large scale. The result of these two factors was a large amount of illegal, careless logging. Again, the political influence of the industry also made enforcement against illegal logging practices a formidable, and therefore often avoided, task. A specific case of this took place on the Uru-Eu-Wau-Wau indigenous territory, where between 1992 and 1995, 126.71 km² of forest was lost, a large majority of which was attributed to illegal logging.[251] The illegal logging activities also directly affected the Uru-Eu-Wau-Wau's ability to conduct their normal hunting and fishing practices. Finally, the presence of loggers increased disease outbreaks among the Uru-Eu-Wau-Wau people.[252]

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[248] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 152.
[249] Pedlowski et al., 155.
[250] Ibid, 152.
[251] Ibid, 155.
[252] Ibid.

PLANAFLORO

In 1992, a mainly World Bank-funded program called PLANAFLORO (the Rondônia Natural Resources Management Project) was set in motion with the aim of reducing environmental damage taking place in Rondônia and of developing "sustainable systems of utilization of the existing natural resources."[253] At the time, the World Bank's $167 million USD funding for PLANAFLORO accounted for 75% of the US's loans in Brazil. PLANAFLORO's stated goals were the following:

(a) institute a series of changes in policies, regulations, and investment programs, so as to provide a coherent incentive framework for the sustainable development of Rondônia;

(b) conserve the rich biodiversity of the State, while creating the basis for the sustainable utilization of its renewable natural resources for the direct economic benefit of the local population;

(c) protect and enforce the borders of all conservation units, Amerindian reserves, public forests and extractive reserves, and control and prevent illegal deforestation, wood transport and forest fires;

(d) develop integrated farming systems in areas suitable for permanent agriculture and agro-forestry, and systems for sustainable forest management and extraction of non-wood forest products in other areas which should remain under natural forest covers

(e) support priority investments in socio-economic infrastructure and services to implement the State's agro-ecological zoning; and

(f) consolidate the technical operational capacity of state institutions, particularly those responsible for agriculture, forestry support services, and the protection and management of forests and Amerindian reserves. The project, to be implemented over a five-year period, would support priority environmental conservation, management and enforcement activities; an agro-forestry development program; socio-economic infrastructure and services; and project administration, monitoring and evaluation, and technical assistance. Consolidation of agricultural development activities and infrastructure investments will

[253] Ibid.

> take place only in areas already deforested. No new settlements or new roads will be financed under the project.[254]

The project was based on establishing six types of ecological zones with different forms of land use allowed in each one. Despite strong local opposition, the new use of "agro-ecological zoning" came into law in 1991.[255] By 1997, three years on from the actual implementation of PLANAFLORO, it was no closer to achieving the World Bank's stated aims. Although the program created some additional extractive reserves and repaired some indigenous land markers, inconsistent enforcement of the newly established and reinforced borders of indigenous and extractive reserves led to invasions of these lands by fishermen, cattle ranchers, and loggers becoming commonplace. This elicited a reaction from the state to determine what, exactly, was going wrong with their agro-ecological zoning strategy.[256]

In 1995, the Community Initiative Program (*Programa de Iniciativa Comunitária*)[257] began as an extension of PLANAFLORO with the goal of incorporating community-led initiatives which were in line with agro-ecological zoning and the socioeconomic goals of the state which PLANAFLORO was meant to help achieve.[258] The CIP's purpose was to engage communities in and around indigenous lands, extractive reserves, or national and state parks. In doing so, project managers hoped that those community members would take greater care of buffer zones and self-enforce against encroachment on reserve and park borders. The language of CIP resembles that of an ICDP (integrated conservation-development project), a product of the thinking which arose in the 1980s that conservation and sustainable human use could go hand in hand in "integrated" projects.[259] But CIP differed from the original vision for an ICDP in that it was organized at a large, state-wide scale, and from the top down, forming an innately hierarchical system in which local community members occupied the bottom rung.[260]

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[254] The World Bank, "Staff Appraisal Report, Brazil, Rondônia Natural Resource Management Project," vol. 1, 1992, https://documents.worldbank.org/en/publication/documents-reports/documentdetail/258231468230704623/brazil-rondonia-natural-resource-management-project.
[255] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 156.
[256] Pedlowski et al., 156.
[257] Renamed the Community Initiative Assistance Program (*Programa de Apoio às Iniciativas Comunitárias*) in 1997.
[258] John O. Browder, "Conservation and Development Projects in the Brazilian Amazon: Lessons from the Community Initiative Program in Rondônia," *Environmental Management* 29, no. 6 (2002): 751, https://doi.org/10.1007/s00267-001-2613-3.
[259] Browder, 751.
[260] Ibid, 753.

Nevertheless, the project moved forward and PLANAFLORO project managers began to move "community" initiatives through CIP's four steps of implementation:

1. Project Elaboration and Approval
2. Project Execution and Monitoring
3. Community Participation
4. Programmatic Themes (the guiding aims for project, including environmental protection enforcement and general development aims, such as income generation, improving health and education, and enhancing infrastructure).[261]

Reflecting back on the effectiveness of CIPs and of PLANAFLORO generally (which closed in September of 2002), results towards both the CIP's and PLANAFLORO's goals were very mixed. Between 1995 and 1998 there were some encouraging signs around CIPs potential impact on reducing deforestation. The three *municipios*[262] with the greatest concentration of CIP projects—Porto Velho, Ouro Preto, and Guajara-Mirim—also had lower than average rates of deforestation during this time period. The data, however, does not prove in any way that CIPs were the cause of this seeing as other factors such as local wage rates, land rents, and changes in interest rates could have also played large roles in which areas experienced the greatest deforestation.[263]

There were, however, some key project design flaws with CIPs. One such flaw was a shared perception of project implementation which encouraged project managers to include as many elements of CIPs eligibility criteria as possible. This resulted in the actual relevant and achievable elements, such as environmental protections, being watered down by a mix of various, seemingly unconnected project elements and aims. Project managers were also less likely to include environment-related aims due to the "widespread belief that such activities fail to confer tangible benefits to communities" according to statements directly from project staff members.[264] This last flaw points to an inevitable failure of a state or NGO-led "community" project. So did the fact that World Bank staff were strongly encouraged to include "agroforestry and forest recuperation/enrichment" elements in CIP project design, often times against the wishes of community members.[265] Three-quarters of all CIP projects included "agroforestry and forest

[261] Ibid, 753-754.
[262] An equivalent unit to a county in the United States, so somewhere between a state and a city or town.
[263] Browder, "Conservation and Development Projects in the Brazilian Amazon: Lessons from the Community Initiative Program in Rondônia," 756.
[264] Browder, 758-759.
[265] Ibid, 759.

recuperation/enrichment" components, and more than half of those projects showed very high rates of first-year seeding mortality, meaning that a majority of forest recuperation efforts failed in their initial phase. Those failures were attributed to one or more of the following factors: an overall lack of interest of local farmers in adopting agroforestry practices; a lack of knowledge of local tree species and climate and soil conditions resulting in the trees being planted not being suited to their "microenvironments"; poor timing of project funding resulting in a delay in planting seeds, which led to seeds being planted too close to the dry season and subsequently dying; a dearth of assistance in technical aspects; the poor selection of planting locations (far from where farmers actually lived); and instability caused by the influx of funding and equipment leading to high rates of property turnover and therefore migration into and out of communities.[266]

The complaints over CIP did not stop there. Institutional capacity was also insufficient to enforce project parameters and provide the previously mentioned technical assistance (there was also a lack of clear, technical criteria for measurement of project effectiveness).[267] By 1998 there were multiple local organizations who were able to acquire CIP funds either with no intention of actually carrying out their proposed projects or with nothing near enough "organizational capacity" to implement projects. There was also not enough attention paid to women's concerns and how projects would affect their livelihoods.[268] Although some of these individual concerns, such as institutional failures and unclear technical information, clearly can lead to project failure, the original sin of CIP was its top-down nature. A state-led, top-down "community" initiative is as oxymoronic as it sounds—and the failures described above clearly indicate a general lack of knowledge of local farming conditions as well as local farmers' interests. PLANAFLORO did successfully realize the importance of the buffer areas around protected areas and indigenous lands. But in classic World Bank style, PLANAFLORO's solution insisted on a hierarchical, centralized, standardized, and easily replicable approach. Most astounding were the discursive gymnastics involved in labeling a program's projects as "community initiatives" when the stated goals and the actual implementation of said projects were anything but community-led. The CIP clearly acknowledged the validity of the thinking involved in ICDPs; that is, that a successful

[266] Ibid.
[267] M. A. Pedlowski et al., "Conservation Units: A New Deforestation Frontier in the Amazonian State of Rondônia, Brazil," *Environmental Conservation* 32, no. 2 (2005): 149–55, https://doi.org/10.1017/S0376892905002134; Browder, "Conservation and Development Projects in the Brazilian Amazon: Lessons from the Community Initiative Program in Rondônia," 759–60.
[268] Browder, 759-760.

environmental intervention must consider local land use and reconcile that land use with whatever the environmental goals are. And while the theory behind the ICDP approach does not go so far as to say that control over environmental interventions must be handed over entirely to communities already involved in the sustainable use of the forest, the principle of ICDPs was already too counter-hegemonic for the World Bank to actually design a program in its image.

What the World Bank claimed to be "community-based development" through the CIP did not significantly aid in the progress toward any of its stated environmental goals (nor did it show great progress towards its development goals either).[269] The World Bank[270] states in its own Implementation Completion and Results Report (ICRR) that every indicator for project success was either "highly unsatisfactory," "satisfactory" or "negligible (N/a)" (Table 1).

Indicator	Implementation Completion and Results Report
Outcomes	Unsatisfactory
Risk to Development Outcome	N/a
Bank Performance	Unsatisfactory
Borrower Performance	Unsatisfactory
Government Performance	Highly Unsatisfactory
Implementing Agency	Unsatisfactory

Table 1. The World Bank's[271] "Completion Ratings" for the Rondônia Natural Resources Management Project (PLANAFLORO).

Another attempt to address deforestation in Rondônia was a program involving "environmental licensing" enacted by Rondônia's State Secretariat for Environmental Development (SEDAM-RO) in the early 2000s.[272] This program was designed to target the impact of ranchers, which, by 2006, used 5,000,000 ha of pasture. Cropland, by comparison, took up

[269] Browder, "Conservation and Development Projects in the Brazilian Amazon: Lessons from the Community Initiative Program in Rondônia"; Pedlowski et al., "Conservation Units: A New Deforestation Frontier in the Amazonian State of Rondônia, Brazil"; John R Heath, "ICR Review Number ICRR11671," 2016; The World Bank, "Rondonia Natural Resources Management Project," 2021, https://projects.worldbank.org/en/projects-operations/project-detail/P006454.
[270] Heath, "ICR Review Number ICRR11671"; The World Bank, "Rondonia Natural Resources Management Project."
[271] The World Bank, "Rondonia Natural Resources Management Project"; Heath, "ICR Review Number ICRR11671."
[272] Bell, "Environmental Licensing and Land Aggregation: An Agent-Based Approach to Understanding Ranching and Land Use in Rural Rondônia," 2.

500,000 ha at the time.[273] The program functioned by forcing ranchers to obtain a license in order to take part in the markets they rely upon. This license would stipulate a certain amount of forest recuperation on their property for a certain time period in the future. The environmental licensing program put forth by the Rondônia government agency showed promise and, in theory, would have led to a highly significant amount of forest recuperation. Somewhat similar to PLANAFLORO's undertaking, however, SEDAM-RO's environmental licensing program suffered severely from a lack of enforceability and institutional follow through in the case of levying fines against ranchers who flaunted the new rules; less than 5% of fines were enforced and less than 20% of properties in the sample examined as part of Andrew Reid Bell's[274] study had a public agent visit the property to monitor progress. Bell[275] points to the fundamental reason for a program such as environmental licensing's (or PLANAFLORO's for that matter) failure being a irreconcilability of entrenched, historical practices of land and forest exploitation and the environmental goals necessitated by the catastrophic effects of widespread deforestation on biodiversity and climate change.[276] This tradition of exploitation was not only reinforced but expanded by the World Bank's interventions in Rondônia in the 1980s (before the "greening" of World Bank discourse and project guidelines), the most impactful being POLONOROESTE (discussed previously in chapter three on page 47).

Extractive reserves are also found dotted throughout Rondônia. The practice of establishing these reserves followed a similar principle to PLANAFLORO insofar as they were an attempt to reach environmental protection goals at little to no expense to livelihoods. Nepstad et al.'s[277] study found extractive reserves to be insignificantly preventative against deforestation and only marginally so against forest fires, unlike the strong effect of national and state parks and indigenous territories. This is not to say that a self-enforced community of sustainable resource users such as the *seringueiros* would have little effect on preventing deforestation. It is unknown exactly how such an autonomous reserve would fare in and around deforestation buffer zones, since the extractive reserves of Rondônia are not really an example of self-governance or autonomy. Rather, these reserves represent another institutionalized, standardized approach aimed at incorporating

[273] Bell, 2.
[274] Bell, "Environmental Licensing and Land Aggregation: An Agent-Based Approach to Understanding Ranching and Land Use in Rural Rondônia," 13.
[275] Bell, 14-15.
[276] Ibid.
[277] Nepstad et al., "Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands."

these sustainable resource-use communities into a state-led neoliberal process, and ultimately an "idealized" vision of land and resource sequestration.[278] Extractive reserves began as legitimately bottom-up initiatives to officially establish certain lands for only a certain type of sustainable extraction. Today, however, the extractive reserves of Rondônia are not self-enforced but rather "enforced" by the state, meaning that these communities cannot adapt their level of resource use according to seasonal or local conditions or else they risk violating a level of resource use deemed not by them but by the state to be "sustainable."[279] Additionally, these communities do not receive enough institutional or monetary support in light of the intense pressure on their lands by encroaching settlers (think "tragedy of the commoners"). The combination of a lack of institutional support or funding and the imposition of the value-laden ideal of "sustainability" has made extractive reserves a less viable method for deforestation prevention and a less sustainable source of livelihood for the *seringueiro* communities and their posterity.

Future Deforestation Projections in Rondônia

Piontekowski et al.'s[280] study of deforestation and forest fragmentation in Rondônia in 2019 using GIS (Geographic information Systems) outlined three different scenarios for the future rate of deforestation and fragmentation: a pessimistic scenario, an optimistic scenario, and a business-as-usual scenario. The results of their study[281] are summarized in the following table (Table 2):

	Optimistic	Business-as-usual	Pessimistic
Further deforestation	Marginal further deforestation (1,700 ha).	Total deforested area would increase from 32% to 37% (1,245,100 ha).	Total deforested area would increase from 32% to 47% (3,543,600 ha).

[278] Rogério Delbone Haddad, Rubens Riscala Madi, and Andressa Sales Coelho, "Lifestyles of Populations of Extractive Reserves of Rondônia - Brazil," *International Journal of Social Science Studies* 8, no. 1 (2019): 8–17, https://doi.org/10.11114/ijsss.v8i1.4625.
[279] Haddad, Madi, and Coelho, 8–9.
[280] Piontekowski et al., "Modeling Deforestation in the State of Rondonia."
[281] Piontekowski et al., 6-10.

Further fragmentation	Increase of 0.1% in only the smallest size of fragments, a decrease of 0.1% in the number of larger fragments.	Increase in the number of fragments by 29%.	Increase in the number of fragments by 20%.[282]

Table 2. Summary of results of a study of future deforestation and forest fragmentation in Rondônia by Piontekowski et al.[283]

While the optimistic scenario is the only one with any chance of achieving internationally agreed upon goals for deforestation reduction, such as those articulated by UNFCCC COP21,[284] the pessimistic and even business as usual scenarios would lead to habitat destruction and subsequent biodiversity loss on a disastrous level, while neither would result in an increase in quality of life of people living in the state, according to Piontekowski et al.[285]

The history of Rondônia as of the middle of the 20th century—migration to the state, styles of settlement and land use, international intervention (especially the World Bank) in development, environmental policy including the World Bank's role and more recent developments, and past and future rates of deforestation—tells a unique story indicative of the powerful hegemonic and counter-hegemonic forces at play in many regions of the Brazilian Amazon. The next chapter will further elaborate on what we can learn from this history and how we (the international community) can move forward knowing what we know now.

Chapter 5: Applying the Framework to Rondônia and the Brazilian Amazon

The following chapter will connect the perspectives introduced in chapter two with the historical and political contexts of the Brazilian Amazon and, specifically, Rondônia. As mentioned in the conclusion of chapter four, an investigation of the history, actors, and power imbalances at play in Rondônia helps to problematize the different discourses surrounding deforestation and environmental policy as a whole.

[282] Fragmentation would be higher in the business-as-usual scenario than in the pessimistic scenario due to the fact that the pessimistic scenario implies a greater amount of clear cutting, resulting in fewer fragments; Piontekowski et al., 10.
[283] Piontekowski et al., "Modeling Deforestation in the State of Rondonia," 6–10.
[284] United Nations, "PARIS AGREEMENT" (Paris, France, 2015); Piontekowski et al., "Modeling Deforestation in the State of Rondonia," 8.
[285] Piontekowski et al., 9-10.

Plurality and Adaptability

The neoliberal approach to environmental policy, guided by U.S.-American conservation science and epitomized by World Bank projects worldwide, including in Rondônia, is one which favors a reliable, consistent, and replicable framework. The grand institutionalist vision that went with this was to construct a clear, detailed, science-based framework for addressing the myriad issues surrounding the climate, natural resource protection, and biodiversity. The replicability and reliability of this framework also suited the World Bank—a financial institution and instrument, lest we forget—which, in the 1980s and 1990s, reacted to international pressure to address the environmental effects of its project by incorporating "green" language into their principles and frameworks and therefore coopting the direction in which hegemonic environmental discourse would go.[286]

The terms "plurality" and "adaptability" are practically antonyms for "reliability," "consistency," and "replicability." Yet the programs adopted in Rondônia following the green neoliberal turn as well as Thompson's[287] discussion of a focus on styles of commons management (as opposed to scales) point to the importance of plurality and adaptability, or in the case of Rondônia, the lack thereof. Thompson's[288] mission in describing the four poles on the spectrum of styles of commons was not to establish some framework for describing each commons and commons management system in clean terms. His goal was quite the opposite of this, in fact. The "fatalist," "individualist," "hierarchist," and "egalitarian" styles describe possible permutations in inherently dynamic relationships to the commons. These styles are a helpful tool to analyze particular institutions or systems of institutions and how they relate to the commons at one particular moment. Thompson does not describe a "clean" system for categorization, but rather he describes the need for "messy arrangements" and "clumsy institutions."[289] Instead of cookie-cutter approaches to problems surrounding the commons, solutions require institutions which are adaptable and interchangeable, if an institution should be required at all. Imposing one style of commons management on a community which at the time resembles a different style results either in the collapse of a commons, or a loss of a local commons managers' lifestyle (leading either to

[286] Goldman, *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*.
[287] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."
[288] Thompson.
[289] Ibid, 210.

migration and/or to norm-breaking behavior). Even when an institution imposed on a local commons sufficiently caters to a particular style, if the institution does not somehow inherently possess the ability to adapt and change styles, this institution, too, shall fail to both address the commons problem and avoid a tragedy of the commoners.

PLANAFLORO's inherent lack of adaptability was an important part of its failure. Despite extensive and seemingly clear guidelines for the program's application—from the guidelines for the establishment of additional extractive reserves to the Community Initiative Program and its multitude of objectives—PLANAFLORO was, by nearly every one of the World Bank's own standards, "unsatisfactory."[290] PLANAFLORO's six "ecological zones"[291] may appear to have allowed for different systems of commons management to exist in one region, but the zones also strictly stipulated what behaviors were allowed, leaving no room for adaptability or feedback from residents or local land users. Furthermore, the fact that there were only six different zones meant that the number of zones fell severely short of the true number of variations between different types of commons management taking place in any given region of the Amazon. In conclusion, one of PLANAFLORO's fundamental flaws was that it established "clean," replicable categories for land use.

CIP suffered not only from this same issue, but also from a complete lack of reflexivity. The CIP failed to recognize how instructing communities on how to establish community-led initiatives and actively incentivizing them to do so completely invalidated the "community" aspect of said programs. If a particular community has no interest in forming such an initiative, and if the guidelines and aims of that initiative do not actually fit with local interests or conditions, then the desired aims will not have the necessary community support.

The originally counter-hegemonic movement of *reservas extravistas* also suffered from Brazil's adoption of neoliberal, Global North-led practices of establishing protected areas, or "no-take" zones, to be separated from humans and the free-market at all costs. Due to their ubiquity across many of the buffer regions of the Brazilian Amazon, extractive reserves were perhaps impossible for the state to ignore. Accordingly, they received their own, special "protected" status, as they were incorporated into the national system of protected areas. The autonomy and

[290] Heath, "ICR Review Number ICRR11671"; The World Bank, "Rondonia Natural Resources Management Project."
[291] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 156.

adaptability of *reservas extravistas*—two fundamental characteristics of these sustainable communities—were stripped by this new system (including PLANAFLORO and the six "ecological zones"). By institutionalizing and standardizing a defined version of extractive reserves, the state took away their counter-hegemonic nature and placed those communities into a narrow socio-spatial role in the Brazilian Amazon.

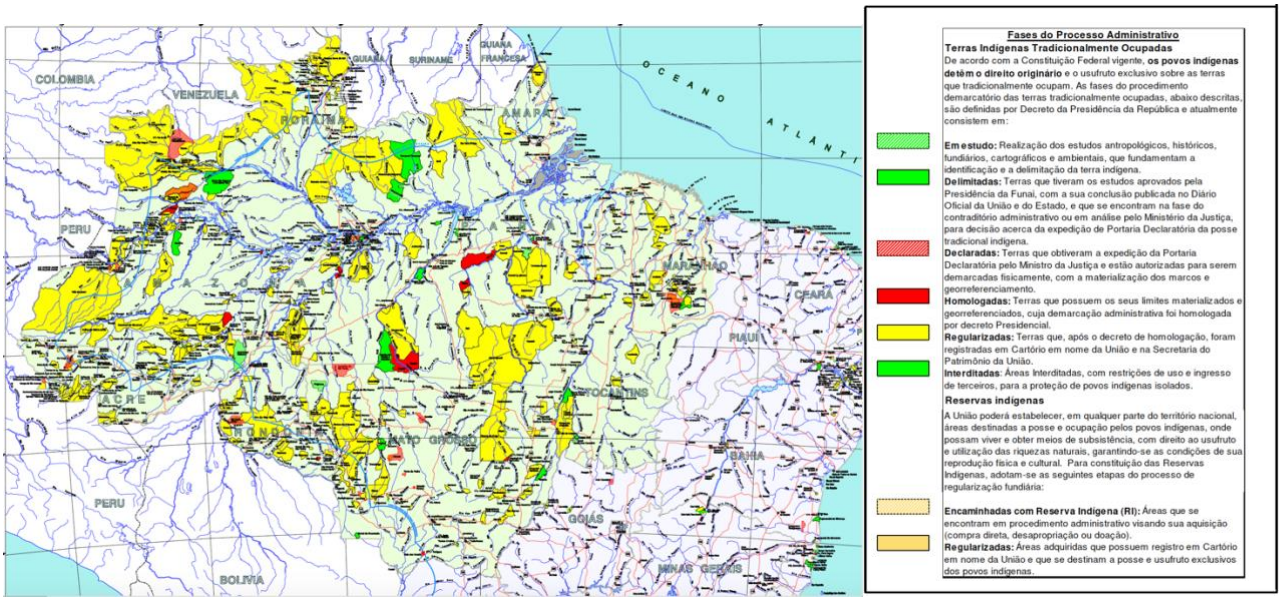
The most flagrant example of ignoring adaptability between styles of commons and the stripping of a movement's counter-hegemonic quality and the homogenizing of a land use category was FUNAI's creation of a process called "participative demarcation" for indigenous peoples.[292] Similar to the case of *reservas extravistas*, the original movement behind indigenous land demarcation involved both full autonomy for the indigenous community involved (as opposed to just a subsidiary, consultative role), and a demarcation process attuned to the specific conditions and needs of the community. In the case of the Kulina indigenous community, with outside support only in the form of technical assistance and funding for their own demarcation process, the community avoided major conflict with non-indigenous buffer communities and actually established a sustainable relationship characterized by mutual respect.[293] FUNAI, similar to PLANAFLORO, standardized a replicable, state-led process for indigenous land demarcation, sacrificing the very adaptability and plurality which had been fundamental to self-demarcation's success.

Toward "Uncommoning": Granting and Supporting Indigenous Peoples' Property Rights

The question then follows: with the resources of Rondônia (through SEDAM-RO), the Brazilian state, and the international community, what can be done to stop deforestation in the Brazilian Amazon? More specifically: what can we learn from the failures of previous interventions? The previous section identified major flaws of previous interventions, ultimately tied to the perpetuation of "green neoliberalism." This section will examine ideas for "interventions," or, rather, funding and institutional support opportunities, which should not only be more effective in deforestation prevention, but which also respect and support autonomous movements from traditional local land managers, principle among those being indigenous peoples.

[292] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil."
[293] Monteiro, "Vamos Acabar Nosso Trabalho!: A Demarcação Da Área Indígena Kulina Do Mério Juruá"; de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil."

Common-pool resource theory does not stipulate a particular relationship with or style of management of a commons. Rather, this theory simply follows the logic that if a group of people



depend on a healthy commons and its resources, then that group of people will be the most motivated and knowledgeable about how to maintain the viability of that commons.[294] This logic forms Baragwanath and Bayi's[295] main argument as they advocated in 2020 for the granting of full property rights to indigenous peoples. "Full" property rights refer here to indigenous land which has made it through all of the official steps for demarcation according to FUNAI.[296] A map published by FUNAI[297] in August 2020 shows the indigenous lands within Brazil's legal Amazon which are at some stage of demarcation. Next to the map are FUNAI's descriptions of each of those stages (including a description of the demarcation of "indigenous reserves," a small subsection of indigenous lands which would be an interesting area for further research).

Figure 6 (left). FUNAI's map of all indigenous lands at every stage of demarcation within Brazil's legal Amazon, and Figure 7 (right). FUNAI's[298] description of each stage of demarcation.

FUNAI's descriptions of the stages of demarcation, translated, are:

1. "[**Under study**: Study performed in anthropology, history, ownership, cartography and environment, to justify the indigenous land delimitation.

[294] Baragwanath and Bayi, "Collective Property Rights Reduce Deforestation in the Brazilian Amazon."
[295] Baragwanath and Bayi.
[296] Fundação Nacional do Índio, "Demarcação: Demarcacao-de-Terras-Indigenas."
[297] Fundação Nacional do Índio, "BRASIL TERRAS INDÍGENAS SITUAÇÃO FUNDIÁRIA."
[298] Fundação Nacional do Índio.

2. "**Delimited**: areas that had studies approved by the President of FUNAI, with a published conclusion in "Diário Oficial da União e do Estado," and that currently are in the step of administrative consideration or under analysis by the Ministry of Justice, for the decision of the expedition of the Declaratory Ordinance for the land possession of traditional indigenous land.
3. "**Declared**: areas that obtained a delivery of the Declaratory Ordinance by the Ministry of Justice and are authorized to be physically demarcated, with materialization of landmarks and georeferencing.
4. "**Approved:** areas that possess defined limits, materialized and georeferenced, of which the administrative demarcation was approved by Presidential decree.
5. "**Regularized:** lands that, after decree of approval, were registered in a Notary office on behalf of the Union and at the Secretary of the Heritage of the Union.
    a. "**Restricted** : **Restricted** areas, with usage and entrance restrictions for third parties, for the protection of isolated indigenous people."[299]

The final step listed above, "restricted," applies only to territories which belong to uncontacted or willfully isolated indigenous communities. An indigenous territory with full property rights would therefore have been through every step up until "regularization" or "restriction" of the demarcation process. Multiple studies[300] have already demonstrated that indigenous lands are effective in reducing deforestation and forest fires, but Baragwanath and Bayi[301] take that analysis one step further by investigating the effect of full approval and "regularization" of indigenous territories on deforestation. They find that full approval was associated with a 66% decrease in the amount of deforestation within an indigenous territory compared to land that had not yet made it all the way through the process. As of August 2020, 246 indigenous territories were not yet fully regularized or restricted (out of 686 indigenous territories recognized by FUNAI). 120 territories are at the very first step of the process, "under study," while 44 are "delimited," 73 are "declared,"

[299] Fundação Nacional do Índio.; Translation by Karolina de Souza Friedrichsen.
[300] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure"; Lauren Persha, Arun Agrawal, and Ashwini Chhatre, "Social and Ecological Synergy: Local Rulemaking, Forest Livelihoods, and Biodiversity Conservation," *Science* 331, no. 6024 (2011): 1606–8, http://www.sciencemag.org/content/331/6024/1606.full.html; Nepstad et al., "Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands."
[301] Baragwanath and Bayi, "Collective Property Rights Reduce Deforestation in the Brazilian Amazon," 20498.

and 9 are "approved." The remaining territories are either fully approved and "regularized" (434) or "restricted" (6).[302]

In 2002, while speaking to anthropologist Mac Chapin,[303] the director of WWF's Latin American program stated that "we don't work with indigenous people. We don't have the capacity to work with indigenous people." Meanwhile, a Conservation International biologist told Chapin, "quite frankly, I don't care what the Indians want. We have to work to conserve the biodiversity." Not only does this kind of rhetoric clearly ignore the interests of indigenous peoples, it is also contradicted by data accumulated around the effectiveness of indigenous communities in curbing deforestation, preventing forest fires, and maintaining biodiversity and species richness in their territories.[304] What it signifies, however, is a larger problem and one which I have already touched on multiple times. This problem lies in reconciling the hegemonic with the counter-hegemonic; reconciling neoliberal discourse around biodiversity and environmental policy with every other discourse or perspective in every local setting.

The discourse of the commons can play a useful role in examining reasons for resource collapse or deforestation, as examples. It does not, however, upset neoliberalism's hegemony enough to justify a complete decentralization of policies around the commons. The concept of "uncommoning," put forth by Blaser and de la Cadena[305] in 2017 provides a necessary and convincing update to the discourse of the commons. That is, by disembedding styles of commons management at different scales from their systems of power, we begin to identify the true sources of conflict between commons managers at different levels.

Those interested in limiting deforestation and preserving biodiversity in the Brazilian Amazon must go through a process of "uncommoning." They must recognize that those who live in and amongst the natural resources of the Amazon, mainly indigenous peoples, "may not be metaphysically committed to a common world," and that a successful management of the commons—at the local, country-wide, or global scale—requires that we find a way to go on "together in divergence."[306] This can be a particularly hard pill to swallow for environmentalists

[302] Fundação Nacional do Índio, "Demarcação: Demarcacao-de-Terras-Indigenas"; Fundação Nacional do Índio, "BRASIL TERRAS INDÍGENAS SITUAÇÃO FUNDIÁRIA."
[303] Chapin, "A Challenge to Conservationists," 21.
[304] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure"; Nepstad et al., "Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands"; Persha, Agrawal, and Chhatre, "Social and Ecological Synergy: Local Rulemaking, Forest Livelihoods, and Biodiversity Conservation."
[305] Blaser and De La Cadena, "The Uncommons: An Introduction."
[306] Blaser and De La Cadena, 192.

and conservationists who may swear that they have the forests' best interests at heart. But recognizing the equivocation between conservationists and indigenous people—a shared interest in a healthy forest, for example—must be coupled with an understanding there are often fundamentally different world views at play. As Mac Chapin[307] eloquently explains:

> Establishing a relationship of trust across cultures, when people come to the table carrying different agendas and worldviews, requires patience and respect—qualities that are hard to muster even in normal circumstances. The challenges grow exponentially more difficult when money intervenes and the relationship becomes glaringly asymmetrical, with virtually all of the money and power held by one side.

The World Bank epitomizes the power imbalance brought about by large sums of money. Up to this point, the World Bank-led neoliberal world has determined not just the sources of our knowledge but in the Gramscian sense the question with which we in the human world are most concerned.[308]

In light of the failure of hegemonic, centralized policy efforts to address deforestation in the Brazilian Amazon, it becomes clear that the most viable path forward is to grant indigenous property rights, allow indigenous groups full autonomy over land use stipulations on their land, and provide indigenous peoples with all necessary institutional support towards achieving their demarcation and land use goals.[309] Granting property rights means fully recognizing as many as possible of the demarcation cases still not yet fully finished with the process set out by FUNAI.[310] Allowing full autonomy of indigenous groups would mean that each and every indigenous community could have its own process for setting up, enforcing, and adapting rules (or norms) of land use on their land. None of these rules would be stipulated by a state or national government agency. In fact, none of these land-use guidelines should require any documentation or bureaucratic enshrinement (but could of course do so should a community decide to). This leads

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[307] Chapin, "A Challenge to Conservationists," 22.
[308] Gramsci, "Selections from the Prison Notebooks."
[309] Persha, Agrawal, and Chhatre, "Social and Ecological Synergy: Local Rulemaking, Forest Livelihoods, and Biodiversity Conservation"; AMPB, COICA, REPALAC, AMAN, WHRC, "Tropical Forest Carbon in Indigenous Territories: A Global Analysis. Report Prepared for UNFCCC COP 21"; Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure"; Nepstad et al., "Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands"; Baragwanath and Bayi, "Collective Property Rights Reduce Deforestation in the Brazilian Amazon"; Langton, "The 'Wild', the Market, and the Native: Indigenous People Face New Forms of Global Colonization."
[310] Fundação Nacional do Índio, "Demarcação: Demarcacao-de-Terras-Indigenas"; Fundação Nacional do Índio, "BRASIL TERRAS INDÍGENAS SITUAÇÃO FUNDIÁRIA."

then to the role that state and NGO institutions can and should still play with regard to indigenous lands, and that is the role of institutional support. Insofar as a given indigenous community wishes to be provided with this support, it could come in the form of direct funding and/or technical assistance. Technical assistance could, for example, aid in matters of land demarcation or monitoring (here the case of providing indigenous groups with aerial drones and technical legal advice, mentioned on page 55 of chapter three, comes to mind)[311]. In no case should a non-indigenous institution make decisions on behalf of an indigenous community. Following these steps for future involvement of institutions in matters of indigenous territories is the only way to avoid the power imbalance between counter-hegemonic indigenous movements and centralized, hegemonic state and international interests.

Chapter 6: Conclusion

Discussions around humans' role in Brazil's Amazon rainforest have circulated both within Brazil and around world in development terms since the turn of the 20th century and in environmental terms since the 1980s. Considering the current dire state of deforestation in Amazonia and the urgent need to address the level of CO^2 emissions, conversations around the state of the Amazon remain as pertinent as ever. Forests, after all, play an all-important role in the system of CO^2 emission and absorption. In a report prepared for the UNFCCC COP21 meeting in 2015 by a group of organizations representing indigenous peoples in different regions around the world, the authors stated that "the amount of CO^2 that would be released to the atmosphere if forests in [the Amazon Basin, the Mesoamerican region, the Democratic Republic of Congo (DRC), and Indonesia] were lost is 168.3 Gt Co2 or more than 3 times the world's emissions in 2014."[312]

In the Brazilian Amazon, the human activities with the largest detrimental impact on the rainforest include infrastructure expansion, resource extraction, and agriculture and ranching.[313] The non-indigenous presence in the Brazilian Amazon prior to the 1950s was minimal, but government programs incentivizing the colonization of the Amazon through settlement and

[311] Boyle, "Indigenous Forest Defenders Turn to High-Tech Tools to Protect Amazon and Its Iconic Jaguar."
[312] AMPB, COICA, REPALAC, AMAN, WHRC, "Tropical Forest Carbon in Indigenous Territories: A Global Analysis. Report Prepared for UNFCCC COP 21."
[313] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure."

migration quickly made up for this with a grand "March to the West."[314] Further initiatives, including some which received large financial backing from the World Bank (such as POLONOROESTE) continued the trend of incentivizing migration to Brazil's interior well into the 1980s.[315]

Agriculture's effect on land use mainly took the form of small farms with usually more diverse crops or larger farms focused on either sugarcane or soybean production. Both sugarcane and soybeans were important in Brazil's push towards forming a trade surplus through the exportation of agricultural goods.[316] Infrastructure's impact on the Amazon, meanwhile, took the form mainly of roads and hydroelectricity projects. "Spontaneous settlement" often occurred along newly constructed roads, leading to a fragmentation effect on adjacent forests.[317] Dams on the other hand have a very clear effect on water systems and the ecosystems and people that rely on them. Hydroelectric plants in particular increased by 77% in Amazonia between 2012-2020.[318]

Extractive industries such as oil extraction and mining have also had an effect on the Amazon, although oil extraction is a relatively larger problem in other South American countries than in Brazil.[319] In the Brazilian context, mining has played a major role in effecting the forest. Some of the first migrants to Brazil's interior arrived in search of gold,[320] and by 2020, 17% of Amazonia (across all countries) had been in some way affected by mining or was in a planning phase for a future mining project (75% of that affected land is in Brazil).[321]

The largest pressure on the Brazilian Amazon has been agriculture and ranching and the subsequent high rate of land conversion. Land conversion for ranching has been a particularly large burden on the forest, as the total amount of land in Amazonia converted into agricultural land increased by 81.5% from 2000-2020 (to a total of 1,441,840 km², an area more than 17 times the size of Austria). While ranching often times results in forest clear-cutting due to the typically larger

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[314] Miccolis, Andrade, and Pacheco, *Land-Use Trends and Environmental Governance Policies in Brazil - Paths Forward for Sustainability*.
[315] Bell, "Environmental Licensing and Land Aggregation: An Agent-Based Approach to Understanding Ranching and Land Use in Rural Rondônia," 15.
[316] Miccolis, Andrade, and Pacheco, *Land-Use Trends and Environmental Governance Policies in Brazil - Paths Forward for Sustainability*, 6.
[317] Henshall, "Agricultural Colonization in Rondônia, Brazil."
[318] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 24.
[319] Amazonian Network of Georeferenced Socio-environmental Information, 28–29; Martin, *Oil in the Soil: The Politics of Paying to Preserve the Amazon*.
[320] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 154.
[321] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure," 50–51.

size of land used by ranchers, smaller farms have also had a notable effect on the forest but through forest fragmentation, isolating patches of forest and causing unnatural breaks directly through ecosystems.[322]

The combined impact of these different industries and settlement styles formed a trend of deforestation which in recent years has only worsened.[323] The election of Jair Bolsonaro in 2018 was a further turn towards a de-prioritization of deforestation issues as well as issues around indigenous territory recognition. The onset of the COVID-19 pandemic in early 2020 provided an additional opportunity for the Brazilian government to loosen restrictions or enforcement of restrictions on land use leading to deforestation and forest fires in the Amazon (due to the intense media focus on the pandemic).[324]

The analysis conducted in this paper is qualitative (although quantitative analyses are often cited in support of discussions around protected area effectiveness, deforestation etc.), and included a review of both primary and secondary sources. The main method for approaching discussions around the topic resembled a Foucauldian or Gramscian version of discourse analysis. This was the incase insofar as the analysis did not home in on specific linguistic tools used, per se, but rather brought attention to the systems of power and historical context informing dominant as well as counter-hegemonic discourses. The analysis also benefitted from the introduction and discussion of a specific case study—that is, a specific region of the Brazilian Amazon in the form of the state of Rondônia. This served the purpose of animating a specific, real-life application of the discourses discussed.

The analysis of discourses surrounding deforestation in the Brazilian Amazon revealed the following modules which were found to be most relevant to the discussion of the issue: the discourse of neoliberal development, the discourse of science (ultimately incorporated into neoliberal discourse), the discourse of the commons, discourse around indigenous peoples, and international legal discourse. The power structures involved in these discourses point to a hierarchy in which neoliberal discourse informs the hegemonic approach to issues of deforestation as well as much of the predominant discourse around indigenous peoples. Some of the elaborations on

[322] Riitters et al., "Global-Scale Patterns of Forest Fragmentation"; Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 153; Dale, Virginia H., Pearson, "Quantifying Habitat Fragmentation Due to Land Use Change in Amazonia," 402.
[323] Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure."
[324] Vale et al., "The COVID-19 Pandemic as an Opportunity to Weaken Environmental Protection in Brazil"; Lu, "Brazil Is Using the Pandemic to Weaken Environmental Protections."

commons discourse, especially the idea of "uncommoning," challenge this hegemony and help to bring to the fore the counter hegemonic nature of indigenous-led movements for autonomy and the recognition of land rights.

While chapter one introduces the history of the Brazilian Amazon—it's environmental and ecological importance, the history of land settlement, and recent relevant political developments—chapter four turns specifically to history of the most important measures to address deforestation to date. The chapter reiterates the importance of policy formed especially during Brazil's military dictatorship and how that would affect all future attempts to place limits on the behavior of settlers in Brazil's Amazon. The legacy of the military's discourse around the Amazon and its indigenous inhabitants also remains vital to understanding the current state of discourse around these issues in Brazil. Namely, the project of the Brazilian nation-state and its "native question" comprised a large portion of the military's concerns about the Amazon. Indigenous peoples were viewed as a stumbling block both to establishing a culturally and linguistically unified nation-state and to ambitions to solidify Brazil's territorial autonomy over their swath of Amazonia. This also involved a demonizing of perceived foreign interest in meddling with Brazil's rainforest—connecting genuinely autonomous indigenous rights movements with a form of Global North imperialism in Brazil; a "risk to sovereignty" pitting "Brazilians" against environmentalists and indigenous rights activists.[325]

Demarcation has since taken on a great deal of importance in situating indigenous peoples within the Brazilian nation-state as it became an avenue for official recognition of indigenous lands. As indigenous peoples saw an opening to officially demarcate their land following a new federal constitution in 1988, the first examples of indigenous land demarcation were uniquely impactful in setting the stage for what "self-demarcation" would look like. This process, however, was set to become an increasingly bureaucratic and centralized process, thanks to Brazil's government agency dealing with indigenous peoples (FUNAI).[326] Data collected around the effectiveness of different types of "protected areas"—including national and state parks, indigenous territories, extractive reserves, and national forests—in the years since their founding has revealed a significant propensity of indigenous lands to protect against deforestation and forest

[325] Zhouri, "'Adverse Forces' in the Brazilian Amazon: Developmentalism Versus Environmentalism and Indigenous Rights," 267–68.
[326] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil."

fires.[327] Despite being located more often near areas of higher population density and deforestation, the buffer zones within indigenous lands remain largely intact compared to extractive reserves and non-protected areas.

Recent updates relevant to environmental policy in Brazil include, as mentioned before, a more lax approach to enforcement adopted by the Bolsonaro government, as well as since the onset of COVID-19.[328] In international law, however, there have been some attempts to render the law against Bolsonaro, including efforts to charge him and his administration with ecocide and/or crimes against humanity.[329] Some steps have also been taken by local and international NGOs to arm indigenous groups with more advanced tools for monitoring land encroachment, such as aerial drones, and to provide these groups with technical assistance in filing the necessary lawsuits against encroachers.[330]

Chapter four investigates the specific case of Rondônia. From its transition from a largely isolated, scarcely populated area, to the subject of intense colonization, to the location of one of the World Bank's largest interventions in Brazil, Rondônia provides a fascinating cross-section of many of the discourses, pressures, and power relations at play in the Brazilian Amazon. POLAMAZONIA and POLONOROESTE provided the major state-led incentives for mass migration to the area, resulting in a population surge from the 1960s to the 1980s.[331] An equal if not greater amount of "spontaneous" settlement occurred alongside official state-sponsored initiatives, creating a (perhaps naïvely) unforeseen effect on Rondônia's environment and indigenous peoples (including the spread of disease).[332] The largest contributors to the impact of new settlement on the rainforest were loggers, ranchers, and small farmers. While loggers created conflict because they were drawn to more valuable timber within protect area boundaries

[327] Nepstad et al., "Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands"; Amazonian Network of Georeferenced Socio-environmental Information, "Amazonia Under Pressure"; Baragwanath and Bayi, "Collective Property Rights Reduce Deforestation in the Brazilian Amazon."
[328] Londoño, Andreoni, and Casado, "Amazon Deforestation Soars as Pandemic Hobbles Enforcement"; Lu, "Brazil Is Using the Pandemic to Weaken Environmental Protections."
[329] Bowcott, "International Lawyers Draft Plan to Criminalise Ecosystem Destruction"; Sarlième et al., "Communication under Article 15 of the Rome Statute of the International Criminal Court Regarding the Commission of Crimes Against Humanity against Environmental Dependents and Defenders in the Brazilian Legal Amazon from January 2019 to Present."
[330] Boyle, "Indigenous Forest Defenders Turn to High-Tech Tools to Protect Amazon and Its Iconic Jaguar."
[331] Henshall, "Agricultural Colonization in Rondônia, Brazil," 169–70.
[332] Henshall, "Agricultural Colonization in Rondônia, Brazil."

(including on indigenous lands), ranchers largely ignored forestry laws through political influence, and small farmers fragmented the forest in non-continuous patches of forest clearing.

As a response to the negative externalities associated with the waves of new settlers, the World Bank extended a $167 million USD loan to Brazil for PLANAFLORO in 1992.[333] PLANAFLORO had the multi-pronged aim of reducing these externalities while contributing to further development in the state. Three years into the project and with few signs of progress towards its stated goals, PLANAFLORO's next venture involved the creation of a Community Initiative Program (CIP) designed to engage communities located near protected area boundaries.[334]

Despite PLANAFLORO and CIP's promises, studies conducted both by the World Bank[335] and independent from the World Bank[336] in the years since PLANAFLORO's closing reveal that the project and its sub-projects largely failed. What is mentioned still in chapter four and later argued in chapter five was the nature of PLANAFLORO'S major flaw, further highlighted by CIP: the standardized, replicable, and centralized nature of the project. Even the "Community Initiative" portion of PLANAFLORO was neither community-driven nor articulated. Rondônia's state government's own attempt to limit the negative impact specifically of ranchers through environmental licensing also fell short of expectations. The failure of environmental licensing was due to the difficulty in dislodging the long-standing tradition of land exploitation and the lack of institutional support or follow through for monitoring and enforcement. Even the originally counter-hegemonic, decentralized *reservas extravistas* movement fell victim to the state's neoliberalist attempt to stipulate top-down rules for land use. The inability for extractive reserves to adapt when necessary (as well as a lack of institutional support against encroachment) limited this type of "ecological zone" from having the desired effect of reducing deforestation the way indigenous territories have been able to.

Projections for future deforestation rates in Rondônia reflect the aforementioned trends of deforestation due to failed policy. According to a study conducted by Piontekowski et al.[337] in

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[333] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil," 155.
[334] Browder, "Conservation and Development Projects in the Brazilian Amazon: Lessons from the Community Initiative Program in Rondônia."
[335] The World Bank, "Rondonia Natural Resources Management Project."
[336] Browder, "Conservation and Development Projects in the Brazilian Amazon: Lessons from the Community Initiative Program in Rondônia"; Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil"; Heath, "ICR Review Number ICRR11671."
[337] Piontekowski et al., "Modeling Deforestation in the State of Rondonia."

2019, an "optimistic" scenario would see no further deforestation and marginal additional fragmentation, while a "business-as-usual" scenario would involve a 5% increase in Rondônia's total deforested area (from 32% to 37%), and a pessimistic scenario could mean a 15% increase to 47% of the state's area being deforested. Fragmentation would occur more in the business-as-usual scenario (a 29% increase in the number of fragments) then in the pessimistic scenario (20% increase) due to the amount of clear-cutting implied in the pessimistic scenario.

Chapter five ties together the case of Rondônia and the framework inspired by discourse analysis.[338] As features seen as missing from most of the interventions in the Brazilian Amazon and in Rondônia specifically, plurality and adaptability arise as all important for an honest discussion about the state of environmental policy. This analysis derived significantly from Michael Thompson's[339] discussion in 1998 of the importance of "styles" of commons management and the necessity for messy, decentralized, and highly individualized yet adaptable solutions to issues involving the commons. Through this lens it becomes possible to identify some of the fundamental flaws of prior attempts from the Brazilian state, the international community, and the state of Rondônia to address environmental degradation. These flaws extend to the treatment of indigenous peoples and the demarcation process; "participative demarcation," for example, centralized the process of demarcation and removed indigenous peoples themselves from the focal point.[340]

In order to move forward and look for effective solutions to deforestation and issues around the rights of Brazil's indigenous peoples, the next step in the discussion must be one of "uncommoning" the commons which is the Amazon rainforest.[341] This involves recognizing the power imbalance inherent in struggles over the Amazon and seeking the common ground between the fundamentally different world visions of indigenous peoples and conservationists (both of which this paper attempts to do).

This paper does not seek to make any specific policy recommendation but does reach a conclusion about a necessary step forward specifically with regard to the Brazilian Amazon's indigenous peoples. This conclusion is directed towards the Brazilian state and local governments

[338] Foucault, "The Subject and Power"; Kendall and Wickham, "Using Foucault's Methods"; Arribas-ayllon and Walkerdine, "Foucauldian Discourse Analysis (Second Edition)"; Gramsci, "Selections from the Prison Notebooks."
[339] Thompson, "Style and Scale: Two Sources of Institutional Inappropriateness."
[340] de Oliveira Neves, "The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil."
[341] Blaser and De La Cadena, "The Uncommons: An Introduction."

and the international community (especially conservationists and environmentalists). The historical information, data points, and scholarly discussions laid to bare in this analysis point to the necessity to grant full property rights and autonomy over land use stipulations on said property to indigenous peoples. This paper highlights the harm in centralizing and bureaucratizing local land-use policy in general, but especially when it comes to indigenous peoples. As of earlier this year there were 246 indigenous lands not yet fully recognized by the state. The Brazilian government could grant official recognition to these territories, or at least to the 126 that have made it past the first step of "under study."[342] A role for the international community exists only as an institutional and financial support for indigenous people. Where indigenous territories inevitably encounter poaching, illegal mining or logging, or any other type of encroachment, NGOs, international governing bodies, and the Brazilian state for that matter could step in to aid indigenous communities in defending their lands. This could also take the form of providing technological support or legal advice, for example, but the important feature of this role for non-indigenous actors is that it is entirely under the direction of the indigenous communities themselves. This approach does not work through a "partnership," "alliance," or co-organized initiative. The process must be entirely removed from power imbalance and must lend itself to the needs of the Brazilian Amazon's indigenous communities according to their ontology and worldview.

The debate over which form of protected area or policy has the greatest effect on limiting deforestation shares the same epistemological origins as neoliberalism and U.S.-style conservationism (and not the same as all indigenous knowledge and peoples). Yet, as demonstrated in this paper, there exists already more than enough justification on these same epistemological grounds for why we should hand over control of the forest to its oldest human inhabitants.

Areas for Further Research

Considering the breadth of issues discussed in this paper, there are many potential directions for further research. One area for further research with a great deal of relevance to this analysis could be the further investigation of issues around communities living in and around the "buffer" zones with protected areas. These communities were of course the target of the failed CIP

[342] Fundação Nacional do Índio, "Demarcação: Demarcacao-de-Terras-Indigenas"; Fundação Nacional do Índio, "BRASIL TERRAS INDÍGENAS SITUAÇÃO FUNDIÁRIA."

intervention as part of PLANAFLORO.[343] Buffer communities are crucial for preventing further deforestation. An analysis of the nature of these communities—their history, current migration and land use patterns, and incentives against land clearing and fire starting—would go a long way in working to reduce deforestation in the Amazon. Based on some of the analysis and conclusions of this paper it is very likely that buffer communities vary greatly in their characteristics and would therefore require flexible, decentralized, and locally informed and attuned institutional support.

Similarly, it would be worthwhile to apply this paper's framework to an even more specific case of a specific indigenous territory, community, or group of communities. The largest indigenous land in Rondônia belongs to the Uru-Eu-Wau-Wau.[344] This indigenous community has encountered a variety of pressures on their land and remains a vital protective force against deforestation in the region.[345] A historical analysis of the Uru-Eu-Wau-Wau would provide an enlightening case study.

Finally, it came to mind during the analysis of phases of indigenous land recognition that the first phase, "under study," carries a great deal of ontological weight. It could shed light on the process of demarcation and recognition to investigate what is involved in that first step. The research question could focus on the role that indigenous peoples play in this step, how the information about indigenous communities and their land is collected, and whether there are any assumptions or biases inherent in the process which could present a challenge to indigenous land demarcation and the realization of indigenous rights.

[343] Browder, "Conservation and Development Projects in the Brazilian Amazon: Lessons from the Community Initiative Program in Rondônia."
[344] Instituto Socioambiental, "Unidades de Conservação No Brasil."
[345] Pedlowski et al., "Patterns and Impacts of Deforestation in Rondônia, Brazil."

Bibliography

Amazonian Network of Georeferenced Socio-environmental Information. “Amazonia Under Pressure.” São Paulo, 2020.

AMPB, COICA, REPALAC, AMAN, WHRC, EDF. “Tropical Forest Carbon in Indigenous Territories: A Global Analysis. Report Prepared for UNFCCC COP 21,” no. December (2015): 1–12. https://www.edf.org/sites/default/files/tropical-forest-carbon-in-indigenous-territories-a-global-analysis.pdf.

Arribas-ayllon, Michael, and Valerie Walkerdine. “Foucauldian Discourse Analysis (Second Edition).” *The Sage Handbook of Qualitative Research in Psychology*, no. January 2017 (2017): 110–23. https://www.researchgate.net/publication/336871927_Foucauldian_Discourse_Analysis_Second_Edition.

Baragwanath, Kathryn, and Ella Bayi. “Collective Property Rights Reduce Deforestation in the Brazilian Amazon.” *Proceedings of the National Academy of Sciences of the United States of America* 117, no. 34 (2020): 20495–502. https://doi.org/10.1073/pnas.1917874117.

Bell, Andrew Reid. “Environmental Licensing and Land Aggregation: An Agent-Based Approach to Understanding Ranching and Land Use in Rural Rondônia.” *Ecology and Society* 16, no. 1 (2011). https://doi.org/10.5751/ES-03947-160131.

Blaser, Mario, and Marisol De La Cadena. “The Uncommons: An Introduction.” *Anthropologica* 59, no. 2 (2017): 185–93. https://doi.org/10.3138/anth.59.2.t01.

Bowcott, Owen. “International Lawyers Draft Plan to Criminalise Ecosystem Destruction.” *The Guardian*, November 30, 2020. https://www.theguardian.com/law/2020/nov/30/international-lawyers-draft-plan-to-criminalise-ecosystem-destruction.

Boyle, Louise. “Indigenous Forest Defenders Turn to High-Tech Tools to Protect Amazon and Its Iconic Jaguar,” August 20, 2020.

Braun, Bruce. *The Intemperate Rainforest: Nature, Culture and Power on Canada’s West Coast*. Minneapolis, Minnesota: University of Minnesota Press, 2002.

Browder, John O. “Conservation and Development Projects in the Brazilian Amazon: Lessons from the Community Initiative Program in Rondônia.” *Environmental Management* 29, no. 6 (2002): 750–62. https://doi.org/10.1007/s00267-001-2613-3.

Chapin, Mac. “A Challenge to Conservationists.” *World Watch*, 2004, 17–31.

Comer, Patrick J., Jon C. Hak, Carmen Josse, and Regan Smyth. “Long-Term Loss in Extent and Current Protection of Terrestrial Ecosystem Diversity in the Temperate and Tropical Americas.” *PLoS ONE* 15, no. 6 june (2020): 1–23. https://doi.org/10.1371/journal.pone.0234960.

Conservation Careers. “What’s It like to Work for WWF?,” 2017. https://www.conservation-careers.com/conservation-jobs-careers-advice/whats-it-like-to-work-for-wwf/.

Dale, Virginia H., Pearson, Scott M. “Quantifying Habitat Fragmentation Due to Land Use Change in Amazonia.” In *Tropical Forest Remnants: Ecology, Management, and Conservation of Fragmented Communities*, edited by R.O. Laurance, W.F., Bierregaard, 400–409. Chicago, Illinois: University of Chicago Press, 1997.

Diegues, Antonio Carlos. “The Role of Ethnoscience in the Build-up of Ethnoconservation as a New Approach to Nature Conservation in the Tropics.” *Revue d’ethnoécologie* 6 (2014): 1–

14.
Einhorn, Catrin, Maria Magdalena Arréllaga, Blacki Migliozzi, and Scott Reinhard. “The World’s Largest Tropical Wetland Has Become an Inferno.” *The New York Times*, October 13, 2020. https://www.nytimes.com/interactive/2020/10/13/climate/pantanal-brazil-fires.html.
Ferrante, Lucas, and Philip Fearnside. “Brazil’s New President and ‘Ruralists’ Threaten Amazonia’s Environment, Traditional Peoples and the Global Climate.” *Environmental Conservation*, 2019. https://doi.org/https://doi.org/10.1017/S03768929190002.
Finley-Brook, Mary. “Green Neoliberal Space: The Mesoamerican Biological Corridor.” *Indigenous Peoples, National Parks, and Protected Areas: A New Paradigm Linking Conservation, Culture, and Rights*, no. May 2020 (2014): 172–96.
Flitner, Michael. “Biodiversity: Of Local Commons and Global Commodities.” In *Privatizing Nature: Political Struggles for the Global Commons*, edited by Michael Goldman, 144–66. New Brunswick, New Jersey: Rutgers University Press, 1998.
Foucault, Michel. “The Subject and Power.” *Critical Inquiry* 8, no. 4 (1982): 777–95. https://www.jstor.org/stable/1343197.
Fundação Nacional do Índio. “BRASIL TERRAS INDÍGENAS SITUAÇÃO FUNDIÁRIA,” 2020.
———. “Demarcação: Demarcacao-de-Terras-Indigenas,” 2021. https://www.gov.br/funai/pt-br/atuacao/terras-indigenas/demarcacao-de-terras-indigenas.
Goldman, Michael. *Imperial Nature: The World Bank and Struggles for Social Justice in the Age of Globalization*. London, United Kingdom: Yale University Press, 2005.
———. “Introduction: The Political Resurgence of the Commons.” In *Privatizing Nature: Political Struggles for the Global Commons*, edited by Michael Goldman, 1–19. New Brunswick, New Jersey: Rutgers University Press, 1998.
———. “Inventing the Commons: Theories and Practices of the Commons’ Professional.” In *Privatizing Nature: Political Struggles for the Global Commons*, edited by Michael Goldman, 20–53. New Brunswick, New Jersey: Rutgers University Press, 1998.
Governo Federal. “Ministério Da Agricultura, Pecuária e Abastecimento,” 2021. https://www.gov.br/agricultura/pt-br/composicao/tereza-cristinatereza-cristina-correa-da-costa-dias.
Gramsci, Antonio. “Selections from the Prison Notebooks.” *The Civil Society Reader*, 2003, 190–202. https://doi.org/10.4324/9780429355363-27.
Grantham Research Institute on Climate Change and the Environment. “What Is the Role of Deforestation in Climate Change and How Can ‘Reducing Emission from Deforestation and Degradation’ (REDD+) Help?,” 2018. https://www.lse.ac.uk/granthaminstitute/explainers/whats-redd-and-will-it-help-tackle-climate-change/.
Guha, Ramachandra. “The Authoritarian Biologist and the Arrogance of Anti-Humanism: Wildlife Conservation in the Third World.” *Ecologist* 27, no. 1 (1997): 14–20.
Guha, Ramachandra, and Bob Nixon. “Radical American Environmentalism and Wilderness Preservation: A Third World Critique.” In *The Future of Nature: Documents of Global Change*, edited by Libby Robin, Sverker Sörlin, and Paul Warde, 409–31. London, United Kingdom: Yale University Press, 1997.
Haddad, Rogério Delbone, Rubens Riscala Madi, and Andressa Sales Coelho. “Lifestyles of Populations of Extractive Reserves of Rondônia - Brazil.” *International Journal of Social*

Science Studies 8, no. 1 (2019): 8–17. https://doi.org/10.11114/ijsss.v8i1.4625.
Hall, Anthony. *Sustaining Amazonia: Grassroots Action for Productive Conservation*. Manchester, United Kingdom: Manchester University, 1997.
Hardin, Garrett. "The Tragedy of the Commons." *Science* 162, no. 3859 (1968): 1243–48. http://www.jstor.org/stable/1724745.
Heath, John R. "ICR Review Number ICRR11671," 2016.
Heatherington, Tracey. "Remodeling the Fortress of Conservation? Living Landscapes and the New Technologies of Environmental Governance." *Anthropological Forum* 22, no. 2 (2012): 165–85. https://doi.org/10.1080/00664677.2012.694172.
Henshall, Janet D. "Agricultural Colonization in Rondônia, Brazil." *Luso-Brazilian Review* 19, no. 2 (1982): 169–85.
Instituto de Pesquisa Econômica. "Políticas Sociais. Análise Acompanhamento." Brasília, Brazil, 2012.
Instituto Socioambiental. "Unidades de Conservação No Brasil," 2021. https://uc.socioambiental.org/.
Kendall, Gavin, and Gary Wickham. "Using Foucault's Methods." *Using Foucault's Methods*, 2011. https://doi.org/10.4135/9780857020239.
Keohane, Robert, and Elinor Ostrom, eds. *Local Commons and Global Interdependence: Cooperation and Discord in the World Political Economy*. London, United Kingdom: Sage Publishing, 1995.
Langton, Marcia. "The 'Wild', the Market, and the Native: Indigenous People Face New Forms of Global Colonization." In *Decolonizing Nature: Strategies for Conservation in a Post-Colonial Era*, edited by William Adams and Martin Mulligan, 141–70. Milton Park, United Kingdom: Routledge, 2002. https://doi.org/10.4324/9781849770927-10.
Lloyd, William Forster. "Two Lectures on the Checks to Population: Delivered before the University of Oxford, in Michaelmas Term 1832." In *Michaelmas Term 1832*. Oxford, United Kingdom: The University of Oxford, 1833.
Londoño, Ernesto, Manuela Andreoni, and Letícia Casado. "Amazon Deforestation Soars as Pandemic Hobbles Enforcement." *The New York Times*, June 6, 2020. https://www.nytimes.com/2020/06/06/world/americas/amazon-deforestation-brazil.html.
Lu, Donna. "Brazil Is Using the Pandemic to Weaken Environmental Protections." *NewScientist*, February 2021.
Mahar, Dennis J. *Frontier Development Policy in Brazil: A Study of Amazonia*. New York, NY: Praeger Publishers, 1979.
Malm, O., W.C. Pfeiffer, C.M.M. Souza, and R. Reuther. "Mercury Pollution Due to Gold Mining in the Madeira River Basin." *Ambio* 19, no. 1 (1990): 11–15.
Martin, Pamela L. *Oil in the Soil: The Politics of Paying to Preserve the Amazon*. Plymouth, United Kingdom: Rowman & Littlefield Publisher, Inc, 2011.
Martinelli, L.A., Ferreira, J.R., Forsberg, B.R., Victoria, R.L. "Mercury Contamination in the Amazon: A Gold Rush." *Ambio* 17 (1988): 252–54.
McCay, Bonnie J. "Conclusion: Community and the Commons: Romantic and Other Views." *Communities and the Environment*, no. January (2001): 180–91.
Miccolis, Andrew, Renata Marson Teixeira Andrade, and Pablo Pacheco. *Land-Use Trends and Environmental Governance Policies in Brazil - Paths Forward for Sustainability*, 2014. http://www.cifor.org/library/5435/land-use-trends-and-environmental-governance-policies-in-brazil-paths-forward-for-sustainability.

Milhorance, Flávia. “Jair Bolsonaro Could Face Charges in the Hague over Amazon Rainforest.” *The Guardian*, January 23, 2021.

Monteiro, Rosa Maria. “Vamos Acabar Nosso Trabalho!: A Demarcação Da Área Indígena Kulina Do Mério Juruá.” In *Demarcando Terras Indígenas: Experiências e Dasafios de Um Projeto de Parceria*, edited by Carola Kasburg and Márcia Maria Gramkow, 155–65. Brasília, Brazil: FUNAI, PPTAL, GTZ, 1999.

Nepstad, D., S. Schwartzman, B. Bamberger, M. Santilli, D. Ray, P. Schlesinger, P. Lefebvre, et al. “Inhibition of Amazon Deforestation and Fire by Parks and Indigenous Lands.” *Conservation Biology* 20, no. 1 (2006): 65–73. https://doi.org/10.1111/j.1523-1739.2006.00351.x.

Nguiffo, Samuel-Alain. “In Defence of the Commons: Forest Battles in Southern Cameroon.” In *Privatizing Nature: Political Struggles for the Global Commons*, edited by Michael Goldman, 102–19. New Brunswick, New Jersey: Rutgers University Press, 1998.

Oliveira Neves, Lino João de. “The Struggles for Land Demarcation by the Indigenoues Peoples of Brazil.” In *Another Knowledge Is Possible: Beyond Northern Epistemologies*, edited by Boaventura de Sousa Santos, 105–19. London, United Kingdom: Verso, 2007.

Oxford Reference. “Overview: Erga Omnes Obligations,” 2021. https://www.oxfordreference.com/view/10.1093/oi/authority.20110803095756413.

Pedlowski, M. A., E. A.T. Matricardi, D. Skole, S. R. Cameron, W. Chomentowski, C. Fernandes, and A. Lisboa. “Conservation Units: A New Deforestation Frontier in the Amazonian State of Rondônia, Brazil.” *Environmental Conservation* 32, no. 2 (2005): 149–55. https://doi.org/10.1017/S0376892905002134.

Pedlowski, Marcos A., Virginia H. Dale, Eraldo A.T. Matricardi, and Eliomar Pereira Da Silva Filho. “Patterns and Impacts of Deforestation in Rondônia, Brazil.” *Landscape and Urban Planning* 38, no. 3–4 (1997): 149–57. https://doi.org/10.1016/S0169-2046(97)00030-3.

Persha, Lauren, Arun Agrawal, and Ashwini Chhatre. “Social and Ecological Synergy: Local Rulemaking, Forest Livelihoods, and Biodiversity Conservation.” *Science* 331, no. 6024 (2011): 1606–8. http://www.sciencemag.org/content/331/6024/1606.full.html.

Pfeiffer, W.C., and L.D. Lacerda. “Mercury Inputs to the Amazon Region, Brazil.” *Environmental Technology Letters* 9 (1988): 325–30.

Piontekowski, Valderli Jorge, Fabiana Piontekowski Ribeiro, Eraldo Aparecido Trondoli Matricardi, Ilvan Medeiros Lustosa, Angela Pereira Bussinguer, and Alcides Gatto. “Modeling Deforestation in the State of Rondonia.” *Floresta e Ambiente* 26, no. 3 (2019): 1–11. https://doi.org/10.1590/2179-8087.044118.

Proyecto MapBiomas Amazonía. “Colecciòn 2.0 de Mapas Anuales de Cobertura y Uso Del Suelo Del 1985 a 2018 de La Pan-Amazonia,” 2020.

Ramlogan, Rajendra. *The Developing World and the Environment: Making the Case for Effective Protection of the Global Environment*. Lanham, Maryland: University Press of America, Inc., 2004.

Riitters, Kurt, James Wickham, Robert O Neill, Bruce Jones, Source Conservation Ecology, and No Dec. “Global-Scale Patterns of Forest Fragmentation.” *Conservation Ecology* 4, no. 2 (2000): 1–24.

Sarlième, Maud, Nigel Povoas Q.C., Pauline Martini, and Joe Holt. “Communication under Article 15 of the Rome Statute of the International Criminal Court Regarding the Commission of Crimes Against Humanity against Environmental Dependents and Defenders in the Brazilian Legal Amazon from January 2019 to Present.” Vienna, Austria,

2021.
statista. “Number of Bovine Livestock in Brazil from 2008 to 2019,” 2021. https://www.statista.com/statistics/758526/ending-stocks-beef-cattle-brazil/.
Stevens, Stan. “Indigenous Peoples, Biocultural Diversity, and Protected Areas.” In *Indigenous Peoples, National Parks, and Protected Areas*, edited by Stan Stevens, 15–46. Tucson, Arizona: University of Arizona Press, 2014.
Strang, Veronica. *Gardening the World: Agency, Identity and the Ownership of Water*. New York, NY: Berghahn Books, 2009.
Szumski, Jack. “Lessons Learned from India and China: How the Flex-Fuel Auto Industry Could Break Brazil Out of Stagnation,” 2019.
Tebtebba Foundation. *Indigenous Peoples and the Green Climate Fund*. Baguio City, Philippines: Tebtebba Foundation, 2017.
The Editors of Encyclopaedia Britannica. “Rondônia,” 2021.
The World Bank. “Rondonia Natural Resources Management Project,” 2021. https://projects.worldbank.org/en/projects-operations/project-detail/P006454.
———. “Staff Appraisal Report, Brazil, Rondônia Natural Resource Management Project.” Vol. 1, 1992. https://documents.worldbank.org/en/publication/documents-reports/documentdetail/258231468230704623/brazil-rondonia-natural-resource-management-project.
Thompson, Michael. “Style and Scale: Two Sources of Institutional Inappropriateness.” In *Privatizing Nature: Political Struggles for the Global Commons*, edited by Michael Goldman, 198–228. New Brunswick, New Jersey: Rutgers University Press, 1998.
United Nations. “PARIS AGREEMENT.” Paris, France, 2015.
United Nations General Assembly. Rome Statute of the International Criminal Court (1998). https://doi.org/10.1017/cbo9780511975035.013.
Vale, Mariana M., Erika Berenguer, Marcio Argollo de Menezes, Ernesto B. Viveiros de Castro, Ludmila Pugliese de Siqueira, and Rita de Cássia Q. Portela. “The COVID-19 Pandemic as an Opportunity to Weaken Environmental Protection in Brazil.” *Biological Conservation* 255, no. January (2021). https://doi.org/10.1016/j.biocon.2021.108994.
West, Paige, James Igoe, and Dan Brockington. “Parks and Peoples: The Social Impact of Protected Areas.” *Annual Review of Anthropology* 35, no. June (2006): 251–77. https://doi.org/10.1146/annurev.anthro.35.081705.123308.
Williams, Jay. “The Impact of Climate Change on Indigenous People - the Implications for the Cultural, Spiritual, Economic and Legal Rights of Indigenous People.” *International Journal of Human Rights* 16, no. 4 (2012): 648–88. https://doi.org/10.1080/13642987.2011.632135.
World Resources Institute. “Forest Pulse: The Latest on the World’s Forests,” 2021. https://research.wri.org/gfr/forest-pulse.
worldometer. “Brazil Population (LIVE),” 2021. https://www.worldometers.info/world-population/brazil-population/.
Zhouri, Andréa. “‘Adverse Forces’ in the Brazilian Amazon: Developmentalism Versus Environmentalism and Indigenous Rights.” *The Journal of Environment & Development* 19, no. 3 (2010): 252–73. https://doi.org/10.1177/1070496510378097.