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THE ECOSYSTEM OF ENVIRONMENTAL CRIME IN THE AMAZON: An analysis of Illicit Rainforest Economies in Brazil

Laura Trajber Waisbich, Melina Risso, Terine Husek and Lycia Brasil.

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THE ECOSYSTEM OF ENVIRONMENTAL CRIME IN THE AMAZON: An analysis of Illicit Rainforest Economies in Brazil

Laura Trajber Waisbich, Melina Risso, Terine Husek and Lycia Brasil.¹

Executive Summary

Amazon deforestation has hit alarming levels. The deforestation and degradation of the world's largest tropical forest are driven by a set of illicit or irregular economic activities including illegal logging, unauthorized mining, and land grabbing, as well as agriculture and livestock farming tainted by unlawful practices – especially illegal deforestation. Even when integrated into formal markets, illicit Amazonian economies operate through an ecosystem of environmental and non-environmental offenses, including corruption, fraud, violent crime and trafficking.

The Amazon is no stranger to organized crime, but the scale of the problem in Brazil is growing at the hand of both state and non-state actors. Nonetheless, Brazilian authorities still lack the data they need for a systematic understanding of the crime landscape in the river basin. Gathering such data is key to building a strategic and efficient inter-agency and private sector response to the problem, both regionally and countrywide.

This strategic paper provides an unprecedented overview of actions carried out by the Brazilian State, and in particular

by the Federal Police, in the fight against illicit economies in the region that Brazilians know as the Legal Amazon. The findings are drawn from a qualitative and quantitative analysis of 369 operations between 2016 and 2021 intended to dismantle organized environmental crime in the Legal Amazon. These were launched by the Federal Police, the national law-keeping force tasked with investigating federal crimes. The federal agents acted in concert with more than 50 other institutions, including the judiciary, other security forces and multiple state agencies operating under Brazil's National Environment System (SISNAMA). The Igarapé Institute has cataloged these interventions in an operations database compiled through a freedom of information petition to the Federal Police and complementary research in public sources.

An overview of the operations points to a predominance of actions against illegal gold mining and illegal logging (representing more than 40% of the operations), carried out principally in the states of Pará and Rondônia. Our study also sheds light on the interaction between illegal deforestation and other illicit

¹ The document received contributions from Vinicius Santos, Katherine Aguirre, Pedro Silva, Andreia Bonzo Araujo Azevedo and Ilona Szabó.

economies in the Amazonian territories. More than 60% of the operations in this survey simultaneously targeted more than one illicit or illegality-tainted economy. Illegal deforestation, land grabbing, and irregular agriculture and livestock farming activities, for example, are frequently bound together as associate crimes. Such a nexus of illegalities corroborates the thesis that the invasion and appropriation of public lands in the Amazon by private individuals is a predicate offense - that is an offense in service to other crimes. Indeed, the sequence of operations also unveils an entire ecosystem of environmental and related non-environmental crimes which threaten the integrity of the forest and local Amazonian communities, especially indigenous and traditional populations. Criminal investigations carried out by the Federal Police point to a recognizable *modus operandi* for the many illicit economies present in the region. None has focused the investigators' attention like illegal gold mining, which is closely linked to financial and tax crimes, money laundering, pollution and other environmental offenses.

Combined Federal Police operations highlight the increasingly organized nature of environmental crimes in the Amazon as well as the systematic use of fraud. Corruption and money laundering (observed in about 20% of operations) are integral parts of this criminal biome. The Federal Police interventions also detected escalating violence associated with environmental crimes in the Amazon. More troublingly, investigators also flagged increasing rates of more menacing acts including violence against individuals, slave labor, trafficking crimes, or possession of guns, ammunition, and explosives – one or more of which turned up in 29% of all operations for the period we review. The number of crimes involving suspects “caught-in-the-act” holding guns, ammunition, and explosives more than doubled between 2016 and 2021. While representing a modest share of anti-

crime operations overall, drug trafficking has also increased since 2018, especially in the gold and timber chains. Organized crime tied to gold mining has become increasingly transnational with a strong regional footprint and an illicit supply chain linking outlaws from neighboring countries.

The increasingly complex and violent nature of environmental crime in the Brazilian Amazon points to important challenges to governance, strategic and intelligence coordination. This is a cautionary tale for authorities weighing strategies for effective criminal deterrence and bringing those involved in illicit acts to account. The challenges are escalating along with the intricacies of the cross-border gold and timber chains that bind Amazon destruction to other illicit economies, such as drug trafficking. The scenario is further darkened by institutional deficiencies and insufficient political will to bring criminals to account before Brazil's rising rates of deforestation, land grabbing in public forests (*grilagem*) and the conversion of purloined land into pasture and farms. Regarding environmental violations as “lesser” crimes is to ignore copious evidence that this type of unlawful activity constitutes a pernicious criminal ecosystem that not only accelerates the destruction of the Brazilian Amazon, but also encourages new criminal groups to join these illegal markets, so threatening incalculable environmental, social and economic damage.²

By increasing awareness of the phenomenon and its social and environmental implications, the Igarapé Institute contributes to governmental efforts to improve capacities to control the territory and safeguard rights in a region of utmost importance for the future of Brazil and the planet.

² With this in mind, it is important not to lose sight of the opportunity costs associated with the expansion of environmental crime in the Amazon and, more specifically, the loss of business opportunities and generation of income compatible with a standing forest in the short, medium, and long term. See, for example, Salo Coslovsky. [Oportunidades para Exportação de Produtos Compatíveis com a Floresta na Amazônia Brasileira \[Opportunities for Exporting Forest-Compatible Products in the Brazilian Amazon\]](#). Amazon 2030. April 2021.

Introduction

The Brazilian Amazon is home to a host of illicit economies that take a heavy toll on the environment, the lives and livelihoods of those who dwell in the Amazon. This intricate ecosystem of environmental and non-environmental crime in the region is contributing in different ways to the degradation and outright destruction of the largest tropical forest on the planet. The loss of forest cover and changes in land use in the Amazon not only bring irreversible environmental, social, and economic damage to Brazil and the world; they also threaten to turn climate change into a climate emergency.

Although authorities in Brazil and beyond are increasingly aware of the biodiverse ecosystem of crime in the Amazon, they lack a sharper picture of its scope, scale, and dynamics. Despite the impressive advances in geo-referenced information systems for monitoring deforestation and the deepening debate about containing organized environmental crime,³ Brazil still lacks data to support the State, the private and financial sectors, and civil society in facing one of the greatest challenges of our time.

The lack of systematized data reflects the legacy of low priority given to the Amazon on the public and private agendas. It also speaks to an all but explicit decision to dismiss confronting environmental and other related illicit acts (administrative, financial and violent crimes, for example) as a public and private sector policy priority. Meanwhile, the State's inadequate strategic vision and failure to combat illegal economic activities in the Amazon — where a few opportunists pocket private gains at the expense of the public good

— hinder the fair and sustainable development of the region. Such failings also risk escalating social conflicts and violence and represent a critical obstacle to tackling environmental degradation in the Amazon and the global climate emergency.

In an effort to raise awareness about environmental crime and its fallout across the region, this strategic paper provides an unprecedented view of the actions carried out by the Brazilian State to fight illicit economies in the Brazilian Amazon between 2016 and 2021. To understand this Amazonian underworld, the Igarapé Institute reviewed official data obtained through requests for access to public information with the Federal Police and complementary research drawn from public sources. We examined 369 Federal Police **operations** targeting organized environmental crime in the Legal Amazon (see Methodological Note on page 35). The Federal Police undertook 109 of these operations on their own, and took part in another 260 interventions in partnership with some 50 other public authorities, especially institutions within Brazil's National Environment System (SISNAMA), the Justice system, regulatory agencies, or in conjunction with federal and state security forces (see Figure 1 below).

³ See Federal Prosecution Office. "[Força-Tarefa Amazônia apresenta balanço de dois anos de atuação no combate ao crime na região](#)" [Amazon Task Force Presents Two-Year Review on the Fight against Crime in the Region]. *Federal Prosecution Office, Federal Attorney General's Office in Amazonas*. September 04, 2020. See also Suxberger, Antonio Henrique Graciano and Rhuan Filipe Montenegro dos Reis. 2020. 'Criminalidade Organizada Em Crimes Ambientais: Marcos Normativos Internacionais e Possíveis Respostas' ['Criminality Organized in Environmental Crimes – International Regulatory Frameworks and Potential Responses']. *Revista direito ambiental e sociedade* 10(1).

OPERATIONS

The term “operations” herein encompasses a heterogeneous set of actions structured by the Federal Police to confront illicit economies in the Amazon, as follows:

- **Operations related to ongoing criminal investigations**, that is, investigation of criminal offenses and their authorship, conducted independently by the Federal Police or in partnership/with the support of other public authorities including the Federal Prosecution Office (MPF) and SISNAMA agencies, such as Brazil’s environmental regulator (IBAMA), the Chico Mendes Institute for Biodiversity Conservation (ICMBio), and state environment departments.
- Permanent or ad hoc (preventive or enforcement) **inspection operations** led by other agencies in partnership with Federal Police officers. These also include environmental inspection operations by IBAMA and ICMBio or border inspection by the Armed Forces, and operations by Brazil’s National Indigenous Foundation – FUNAI (on a permanent or emergency basis) aimed at protecting indigenous peoples and the integrity of their territories and culture.

FIGURE 1 – Pool of Government Institutions Involved in Operations between 2016 and 2021

369 operations involving the **Federal Police** have been mapped out

Joint Actions with SISNAMA (Brazil’s National Environmental System) agencies

105 operations with **IBAMA**

34 operations with **ICMBio**

Joint actions with security forces

59 operations with the **Armed Forces**

35 operations with state-level **military police**

27 operations with **Brazil’s National Public Security Force**

12 operations with state-level **fire departments**

Given the Federal Police's constitutional mandate to investigate federal crimes, the five-year sequence of operations we tracked across the Legal Amazon constitutes an important indicator of the scope, scale, and dynamics of the ecosystem of environmental crime in the region. While dozens of other state agencies took part in these operations, our focus on the predominant role of the Federal Police is critical to filling information gaps and building a greater understanding of how the ecosystem of crimes and offenders interact in different Amazonian territories.

The remainder of the article is divided into four parts. The first consists of a conceptual discussion about the ecosystem of environmental crime in the Amazon and its correlated illicit economies. Sections II and III analyze the set of Federal Police operations carried out between 2016 and 2021 to combat illegal deforestation and illicit economies in the region. The second section introduces the main targets of Federal Police operations and their geographic and temporal variation. In the third section, we present an overview of the environmental crimes and associated non-environmental crimes that fell under Federal Police scrutiny (including a description of each crime, how they interact, and how they vary over time). The concluding session provides a summary of the main findings in this strategic paper.

The analysis of Federal Police operations constitutes an important indicator of the scope, scale, and dynamics of the ecosystem of environmental crime in the region.

About the Ecosystem of Environmental Crime in the Amazon Rainforest

The ecosystem of environmental crime in the Amazon revolves around a set of **illicit or illegality-tainted economies** – economic activities developed in forest areas, totally or partially outside the law, without proper authorization of relevant agencies or incurring “illegal deforestation liability”⁴ in their supply chains.⁵ In addition to clear-cutting or illegal deforestation, this article also addresses four major **illicit or illegality-tainted economies**: 1) land grabbing, 2) illegal logging, 3) illegal mining and 4) agriculture and livestock farming rife with environmental illegalities, such as deforestation (as detailed below). These supply chains embedded in environmental and non-environmental illegalities are major drivers of deforestation and forest degradation in the Amazon.

The characterization of the different economic activities as “illicit or illegality-tainted” in this strategic paper is more related to the *impact of the illegality* arising from these activities rather than to the legal classification as an *environmental crime per se*. The illicit nature (or

the degrees and types of environmental and non-environmental illegalities) of each activity is often difficult to define. However, when talking about illicit activities here we make reference to regulatory frameworks such as the Brazilian Constitution, the Penal Code, Brazil’s Environmental Crimes and Violations Law (1998), the Forest Code (2012), the National Environmental Protection Policy (1981), the National System of Conservation Units – SNUC (2000), the Mining Code, and rules of agrarian law (such as Law No. 4,947 of 1966).

GRABBING OF PUBLIC LANDS

Illegal or irregular appropriation of public lands by private individuals.⁶ *Grilagem*, as it is known in Brazil, is a long-standing and recurring phenomenon in the Amazon. The activity violates all kinds of rules and standards – environmental, agrarian, civil, criminal and tax ones –, leading to illegal appropriation and concentration of natural and financial resources. Land grabbing is associated with other economic activities such as logging and farming, as well as land speculation.⁷ In this sense, the subsequent exploitation of resources or land use for agribusiness is intended not only to generate economic value through short-term commercial exchanges, but also to legitimize the theft of public land by masking it as a productive enterprise. The phenomenon is underpinned by strong indications of a speculative market for illegally-owned land, increasingly boosted by the dismantling of anti-deforestation policies and the promises of liberalization, regularization, or amnesty successively made by the federal and state Executive and Legislative branches.⁸

4 See, for example, discussion on illegal deforestation liabilities in the gold chain in Manzolli et al. *Legalidade da Produção do Ouro no Brasil* [Legality of Gold Production in Brazil]. Belo Horizonte Editora IGC/UFMG, 2021.

5 See also Adriana Abdenur, Brodie Ferguson, Ilona Szabó de Carvalho, Melina Risso and Robert Muggah. *Crime Ambiental na Bacia Amazônica: uma Tipologia para Pesquisa, Política Pública e Ação*. [Environmental Crime in the Amazon Basin – A Typology for Research, Public Policy, and Action.] Igarapé Institute, Strategic Article 47, 2020.

6 IPAM. *A grilagem de terras públicas na Amazônia brasileira* [Land Grabbing in Brazil’s Amazon Rainforest]. Série Estudos 8, Brasília: MMA, 2006.

7 Mateus de Souza Macul. *Índice De Valorização Da Terra E Desmatamento Em Uma Região De Fronteira Agropecuária Na Amazônia: Região De Novo Progresso, Pará* [Land Valuation and Deforestation Index in Regions Bordering Lands Used for Agriculture and Livestock Farming in the Amazon: Região de Novo Progresso, Pará]. Graduate Program in Remote Sensing, National Institute for Space Research (INPE), 2019.

8 Brenda Brito. *‘Legislação Fundiária Brasileira Incentiva Grilagem e Desmatamento na Amazônia’* [‘Brazilian Land Law Encourages Land Grabbing and Deforestation in the Amazon’]. Amazon 2030, No. 5, April 2021; Brenda Brito and Jefferson Almeida. *‘A Amazônia está à venda: quem der menos leva’* [‘The Limbo Dance for Amazon’], *El País*, 06/19/2019.

ILLEGAL LOGGING

Selective logging, generally of valuable trees (such as Ipês, Cedar, Manilkara, Brazilian Peppertree, Jacaranda, and Brazil Nut trees), for subsequent national and/or international commercialization in violation of existing regulatory systems (licenses, in the case of private properties, and concessions in the case of public forests).⁹ Logging is one of the major factors driving forest degradation and subsequent deforestation.¹⁰ Illicit practices are found in different stages throughout the timber supply chain. It can take the form of a violation of the constraints and limitations defined by the selective logging licensing systems in the Amazon. It could be unauthorized transport and sale of wood, including protected species. Finally, illegalities may concern fraud in land titling and licensing documents through change of species and type of material or volume. In some locations, illegal logging is not only an important driver of forest destruction, but also of social violence in rural areas.¹¹

ILLEGAL MINING

Extraction of ores in violation of existing legislation and regulations, especially in environmental protection areas and indigenous territories. Gold is the main ore illegally extracted today in the Amazon through small-scale mining activities (known in Brazil as *garimpo*). However, there is also illegal extraction of diamonds, manganese, and other mineral resources. These small-scale gold mining activities make up a chain governed by poor social environmental regulations despite its highly polluting nature, and are largely carried out in an irregular or even illegal manner.¹² The countless illegalities along the chain range from extraction of ore in protected areas and subsequent concealment of its illegal origin to fraud in the declaration of origin during the first sale (known as “gold laundering”).¹³ Although territorialized in the Brazilian Amazon in its extraction phase, the gold supply chain extends to other locations in the country, especially the Southeast region – the state of São Paulo – and even to other countries within the Amazon Basin.¹⁴ Illegal gold mining in the Amazon causes countless damages, including health and environmental damages arising from mercury pollution, not to mention social damage in the form of violence against indigenous populations and environmental activists.¹⁵

9 Greenpeace. *Árvores Imaginárias, destruição real* [Imaginary Trees, Real Destruction]: São Paulo, 2018.

10 Natalia Girão Rodrigues de Mello and Paulo Artaxo. 2017. ‘Evolução do Plano de Ação Para Prevenção e Controle Do Desmatamento Na Amazônia Legal’ [‘Evolution of the Action Plan for Preventing and Controlling Deforestation in the Legal Amazon’]. *Revista do Instituto de Estudos Brasileiros* (66): 108. Elaíze Farias. *“Amazônia em Chamas: retirada de madeira contribui para o desmatamento”* [“Amazon on Fire: Logging Drives Deforestation”], *Amazônia Real*, 09/21/2019.

11 Human Rights Watch. *Máfias do Ipê: Como a Violência e a Impunidade Impulsionam o Desmatamento na Amazônia Brasileira* [Ipe Mafias – Violence and Impunity Drive Deforestation in the Brazilian Amazon Rainforest]. Brazil: 2019

12 For a discussion on the vulnerabilities, see Federal Prosecution Office. Coordination and Review Chamber, 4. *Mineração ilegal de ouro na Amazônia: marcos jurídicos e questões controversas* [Illegal Gold Mining in the Amazon – Legal Frameworks and Controversial Issues]. Brasília: Federal Prosecution Office, 2021. See also Igarapé Institute and INTERPOL. *Guia para o enfrentamento de crimes ambientais: lições do combate à mineração ilegal de ouro na Amazônia* [Guide to Fighting Environmental Crimes – Lessons Learned from the Fight Against Illegal Gold Mining in the Amazon]. Rio de Janeiro: 2021.

13 Manzolli et al, 2021. *Legalidade da Produção do Ouro no Brasil* [Legality of Gold Production in Brazil]. See also Larissa Rodrigues. *Brasil exporta ouro ilegal* [Brazil Exports Illegal Gold]. Policy Brief, Instituto Escolhas, July 2021.

14 InSight Crime and Igarapé Institute. *As raízes do crime ambiental na Amazônia colombiana* [The Roots of Environmental Crime in the Colombian Amazon]. InSight Crime and Igarapé Institute, 2021. David Biller and Joshua Goodman. *“Tarnished Gold: Illegal Amazon gold seeps into supply chains”*, AP News, 01/13/2022.

15 Melina Risso, Julia Sekula, Lycia Brasil, Peter Schmidt and Maria Eduarda Pessoa de Assis. *O ouro ilegal que mina florestas e vidas na Amazônia: uma visão geral da mineração irregular e seus impactos nas populações indígenas* [Illegal Gold Destroys Forests and Lives in the Amazon: an Overview of Irregular Mining and its Impacts on Indigenous Populations]. Igarapé Institute, Strategic Article 53, 2021. Hutukara Associação Yanomami and Associação Wanasseduume Ye'kwana. *Cicatrizes Na Floresta: Evolução Do Garimpo Ilegal Na TI Yanomami Em 2020* [Forest Scars – Evolution of the Illegal Small-Scale Mining at TI Yanomami in 2020]. Boa Vista: Hutukara Associação Yanomami; Associação Wanasseduume Ye'kwana, 2021

AGRICULTURE AND LIVESTOCK FARMING RIFE WITH ENVIRONMENTAL ILLEGALITIES

Illegal or unauthorized conversion of forest areas for alternative use of land in agriculture and livestock farming activities. The expansion of territories for agribusiness activities – especially for the production of soy and beef – is historically the greatest source of pressure in the Amazon biome.¹⁶ Although most of the commercial agriculture activities in Brazil are not contaminated by deforestation, 2% of properties in the Amazon and in the Brazilian savanna account for 62% of the potentially illegal deforestation in Brazil.¹⁷ Moreover, recent deforestation is concentrated in cities that are home to the largest herds of cattle.¹⁸

It is worth emphasizing that illegal deforestation¹⁹ may incur administrative liability (in the form of administrative sanctions including fines and embargoes), criminal liability, as defined in Brazil's Environmental Crimes Law (Federal Law No. 9,605/1998) and civil liability, if any environmental damage is identified. In addition, illegal deforestation is the result (or the environmental impact) of the four illicit or illegality-tainted economies described above. In other words, the four economic activities described herein act as drivers of illegal deforestation in the Brazilian Amazon today.

As economic activities with their own characteristics and specificities, these four illicit or illegality-tainted economies impact differently in the Amazon. This means they generate different degrees of deforestation and other social and environmental harm. Impacts also vary according to location within the different states of the Legal Amazon, as well as in different protected areas (environmentally protected areas or indigenous lands). In the case of indigenous lands, illegal logging and illegal gold mining are considered the main drivers of deforestation.²⁰ In environmentally protected areas (such as public forests and non-designated public lands), the main drivers of deforestation include land grabbing and subsequent land conversion for agricultural and livestock farming activities.²¹ Yet, the different illicit or illegality-tainted forest economies intersect and feed one another, unfolding simultaneously or overlapping in a given area, making it difficult to quantify their environmental, social, and economic impacts separately.²²

16 MapBiomias. *Collection 6 Fact Sheet*, August 2021.

17 Rajão, Raoni, Britaldo Soares-Filho, Felipe Nunes, Jan Börner, Lilian Machado, Débora Assis, Amanda Oliveira, et al. 2020. *'The Rotten Apples of Brazil's Agribusiness'*. *Science* 369 (6501): 246–48.

18 Federal Prosecution Office. *Apresentação dos Resultados do 3º Ciclo de Auditorias do TAC da Pecuária - Pará* [Presentation of the Findings of the 3rd Livestock TAC Audit Cycle – Pará]. 10/07/2021.

19 Deforestation monitoring activities carried out by the National Institute for Space Research (INPE) address the conversion of the original forest into other forest covers as a unique process ranging from clear cutting (complete removal of forest cover in a short period of time) to slower and longer processes such as forest degradation arising from continuous logging and successive forest fires. See Brazil's National Institute for Space Research (INPE). *Metodologia Utilizada nos Projetos PRODES e DETER* [Methodology Adopted in the PRODES and DETER Projects]. INPE: 2019.

20 MapBiomias. *Collection 6 Fact Sheet*, August 2021; EcoDebate. *Desmatamento recorde em Terras Indígenas tem garimpo e madeira ilegal como protagonistas* ["Mining and Illegal Logging Lead Record High Deforestation in Indigenous Lands"], 05/23/2018; Ana Beatriz Anjos, Bruno Fonseca, Ciro Barros, José Cicero, Rafael Oliveira and Thiago Domenici., *EcoDebate*, 05/23/2018; Anna Beatriz Anjos, Bruno Fonseca, Ciro Barros, José Cicero, Rafael Oliveira and Thiago Domenici. *"A mineração em terra indígena com nome, sobrenome e CNPJ"* ["Mining in Indigenous Land has a Name, a Surname and a Corporate Tax ID"]. A Pública. 02/20/2020.

21 IPAM. *A grilagem de terras públicas na Amazônia brasileira* [Land Grabbing in Brazil's Amazon Rainforest], Série Estudos 8, Brasília: MMA, 2006; Antonio Oviedo, Cicero Augusto and William Augusto Lima. *Conexões entre o CAR, desmatamento e o roubo de terras em áreas protegidas e florestas públicas* [Connections between CAR, Deforestation and Theft of Land in Protected Areas and Public Forests] Technical note, Instituto Socioambiental: 04/12/2021.

22 Berenguer, Erika, Dolores Armenteras, Ane Alencar, Cláudio Almeida, Luiz Aragão, Jos Barlow, Bibiana Bilbao, et al. 'Chapter 19: Drivers and Ecological Impacts of Deforestation and Forest Degradation'. In *Science Panel for the Amazon – Amazon Assessment Report 2021*. Science Panel for the Amazon, 2021.

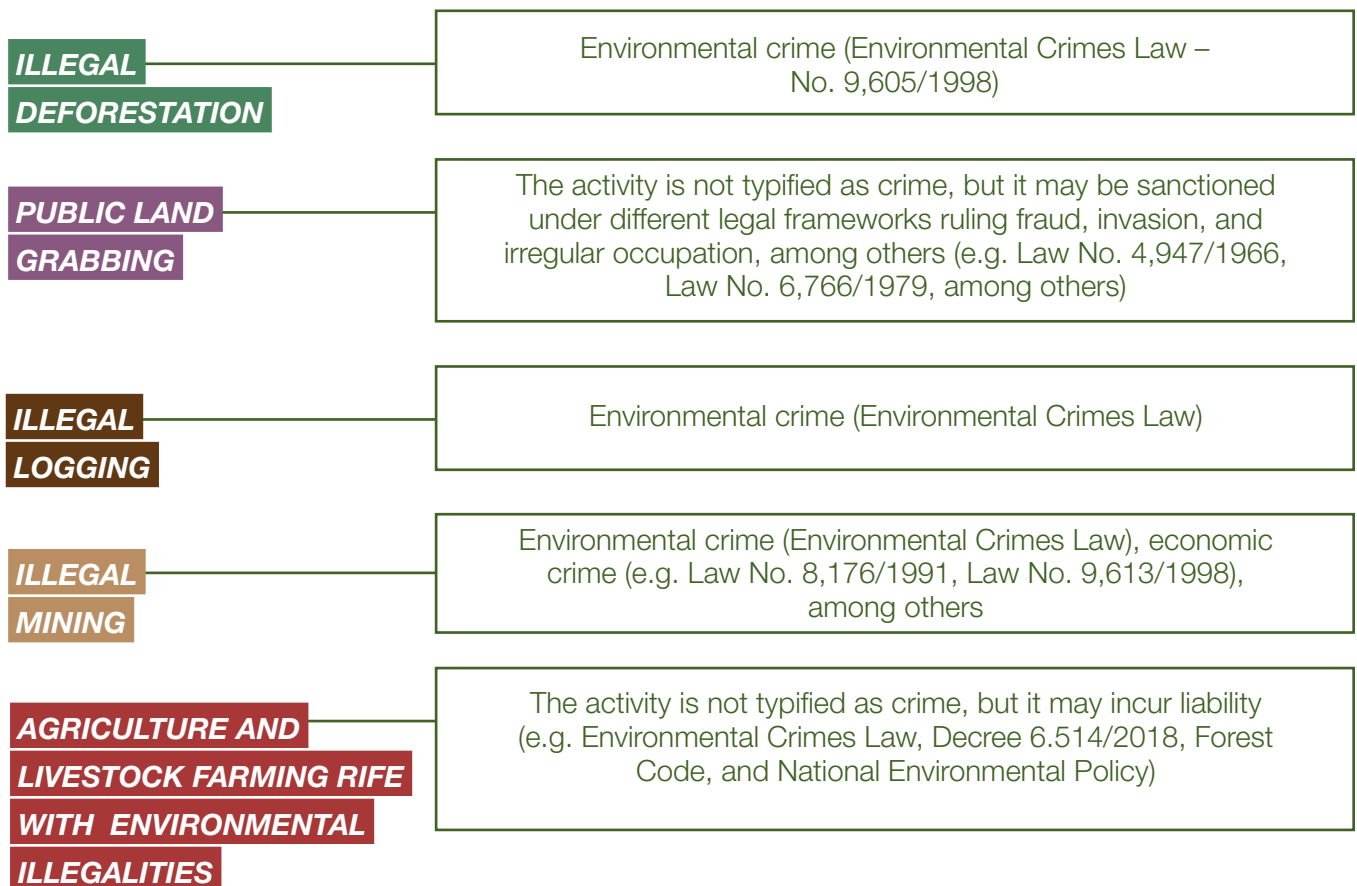
Environmental Crimes and Converging Crimes

The deforestation and degradation of the Brazilian Amazon and the illicit or illegality-tainted economies that escalate these issues can only be understood in association with an ecosystem of illegal environmental and non-environmental practices that connect and feed one another. Such illegal practices are often, but not always, typified as crimes in the Brazilian regulatory framework (see Figure 2 and Box 1, below).

In addition to illegal deforestation and the four illicit or illegality-tainted economies, Federal Police investigates other illicit and environmentally harmful conduct typified in Law 9,605/1998 and referred to in this strategic

article as other environmental crimes. Five sets of additional environmental offenses were considered in this category, namely pollution, criminal fires (or arson), crimes against wildlife (hunting and illegal fishing and trafficking of wild animals), crimes against environmental administration (licensing, authorization and inspection fraud; disobeying or obstructing environmental inspection) and other crimes against flora. Non-environmental offenses, herein generically referred to as converging crimes, consist of conducts typified as crimes under the Brazilian law (especially in the Penal Code) and which concurrently serve as facilitators and/or guarantors of environmental crime in the Amazon. The rationale behind the ecosystem of related environmental and non-environmental crimes allows us to understand the organized macro criminality that currently threatens the standing forest.

FIGURE 2 - Illicit Economies and Typification of Crime under the Brazilian Legislation



BOX 1- CONVERGING CRIMES*

Administrative-related Crimes

Conducts typified in the Brazilian legislation including corruption, misrepresentation, embezzlement, administrative law crime and other crimes against public administration.

Financial and Tax-related Crimes

Conducts typified in the Brazilian legislation including money laundering, tax evasion, smuggling, embezzlement, and other financial crimes.

Violent Crimes

Conducts typified in the Brazilian legislation including homicides, threats and other forms of violence against the person. Such crimes also consist of illegal possession of guns, ammunition and explosives by those involved in illegal economic activities in the Amazon.

Trafficking Crimes

Conducts typified in the Brazilian legislation including drug trafficking and human trafficking, in addition to contemporary slave labor.

Organized Crime

Conduct typified in the Brazilian legislation such as criminal association or belonging to a criminal organization.

*Methodological note: The aforementioned typology is a heuristic device employed for the purposes of this study rather than a characterisation based on existing clusters of criminal offenses defined in the Brazilian legal system.

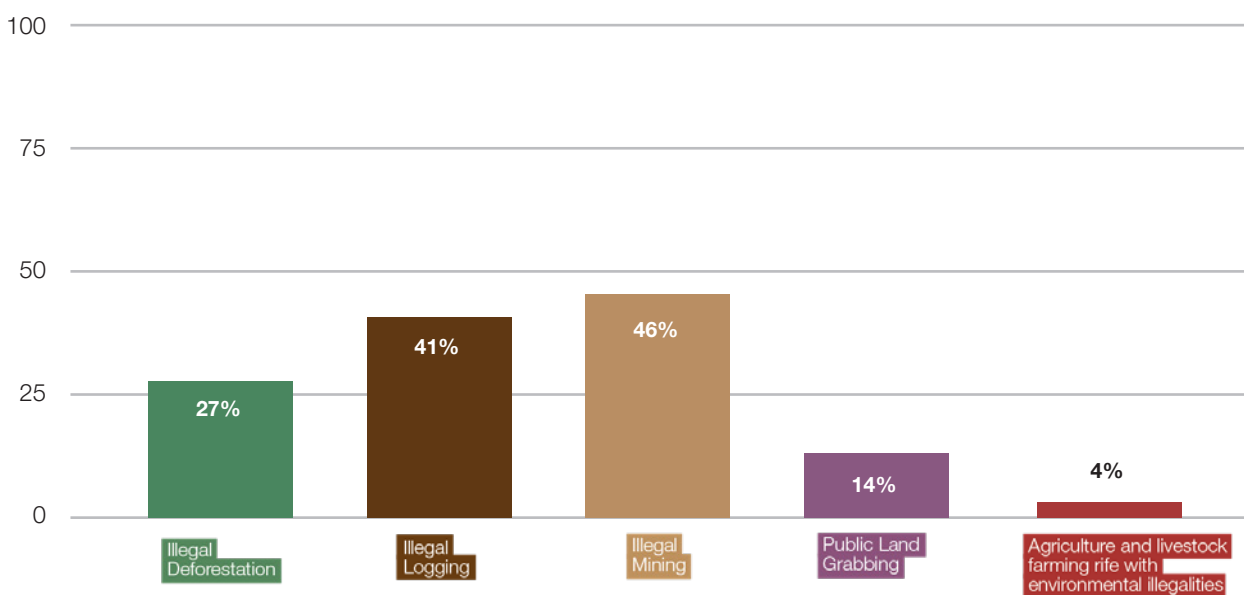
The Fight Against Deforestation and Illicit Economies in the Amazon – Main targets

Which measures is the Federal Police taking to repress environmental crimes in the Amazon associated with illicit forest economies? What are these economies, how do they interact, where are they located, and how do they vary over time? The following analysis provides an overview of Federal Police operations based on five main targets, as detailed below: (1) repression of illegal deforestation crimes and repression of illicit activities that make up four major economic drivers of illegal deforestation in the Amazon: (2) land grabbing, (3) illegal logging, (4) illegal mining and (5) agriculture and livestock farming rife with environmental illegalities.

During the reporting period, the Federal Police mainly acted to repress illegal mining and illegal logging. In total, 170 of the 369 Federal Police operations focused on combating illegal mining, while 151 operations focused on illegal logging (see Figure 3, below).

FIGURE 3 - Scopes of operations by type of illicit economy (2016-2021)*

Data collected from 369 operations carried out by the Federal Police
 *N > 369, as one operation can have more than one target



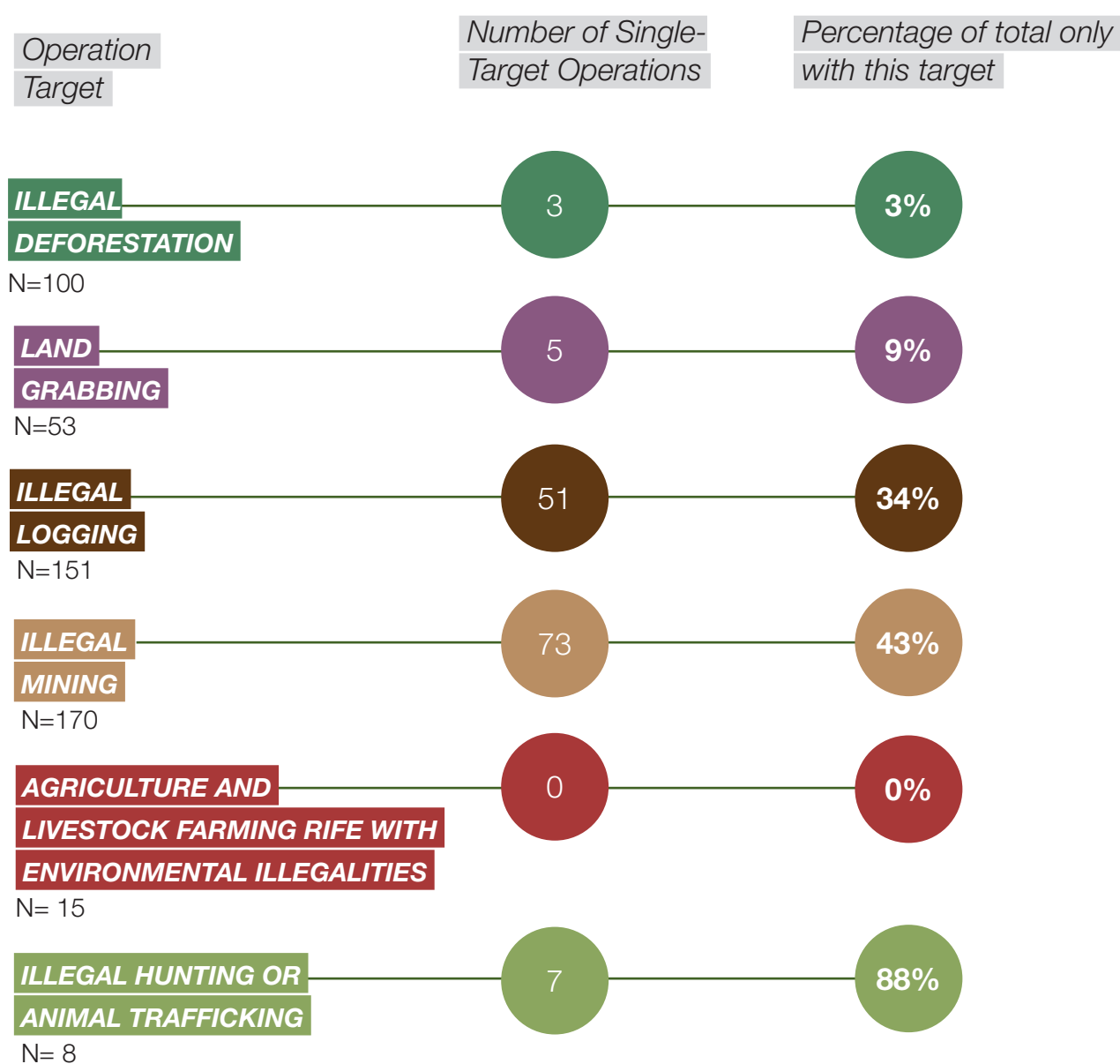
In addition to these five main targets, it is important to mention that eight of the operations mapped out (2%) concern operations to repress crimes against fauna in the Amazon, including trafficking of jaguars (Operation Jaguaruna, in Pará, in 2018) and of zebrafish (also launched in Pará, in 2021).²³

Of the total operations carried out, 140 (38%) had a single target while 229 (62%) had more than one target. The fact that most operations investigated cases with more than one target is a major sign of the interaction and interconnection among the different illicit or illegality-tainted economies on the ground, as illustrated in more detail in Tables 1 and 2 below.

TABLE 1 – Single-Target Operations (2016-2021)

Data collected from 369 operations carried out by the Federal Police

*N = 369

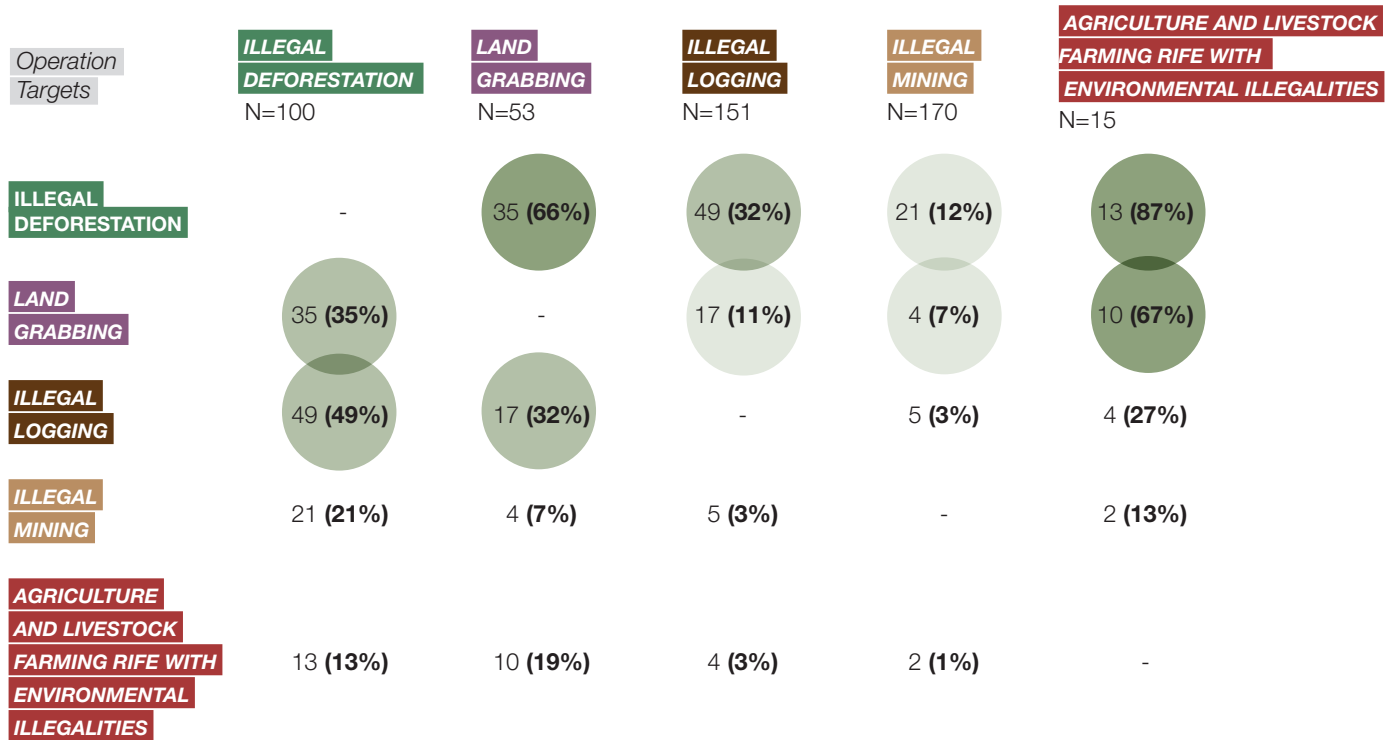


23 Federal Police. *Polícia Federal desarticula organização criminosa especialista em tráfico de peixes em extinção* [Federal Police Dismantles Criminal Organization Specializing in Endangered Fish Trafficking], 03/30/2021. On the international trade of zebrafish, an endangered species found in the Xingu River, see also *Aldem Bourscheit. 'Peixe-zebra do Xingu ainda na rota do tráfico internacional de espécies ameaçadas'* [Xingu River Zebrafish still on the Radar of International Trafficking of Endangered Species]. *InfoAmazônia*, 11/14/2019.

TABLE 2 - Interaction between the Different Illicit Economies*

Data collected from 369 operations carried out by the Federal Police

*N > 362, given that an operation may have more than one target and that the 7 operations exclusively related to crimes against wildlife were not included in the table. The percentage was calculated according to the value of the column. Colored cells indicate the two highest percentages in each column. The color intensity is higher when percentage values are also higher.



The tables above illustrate important aspects of the illicit or illegality-tainted economies that clear and degrade the Amazon rainforest. On the one hand, operations focused on mining and logging were mostly carried out in isolation, that is, without any additional focus (43% in the case of mining-related operations and 34% in the case of logging-related operations). On the other hand, operations targeting land grabbing, deforestation, and environmental depredation on farmland and ranching rarely take place separately (9%, 3% and 0% respectively). These economies are, therefore, the most intertwined in the mapped set of Federal Police operations.

A further inquiry on illegal logging operations shows, nonetheless, that despite often appearing isolated, many anti-logging

operations also targeted illegal deforestation, once again revealing how these two processes intertwine. The intertwining is even greater when it comes to land grabbing, illegal deforestation, and agriculture and livestock farming (despite the low number of operations that investigated the matter). This finding is consistent with the consolidated research on the invasion and appropriation of public lands in the Amazon by individuals as a preceding crime.²⁴ Despite being the number one target of Federal Police operations in the period, mining crimes are less related to the other drivers of deforestation, but are strongly related to other environmental crimes, especially pollution, as discussed further below.

24 Amazon Environmental Research Institute (IPAM). *A grilagem de terras públicas na Amazônia brasileira* [Land Grabbing in Brazil's Amazon Rainforest]. Série Estudos 8, Brasília: MMA, 2006.

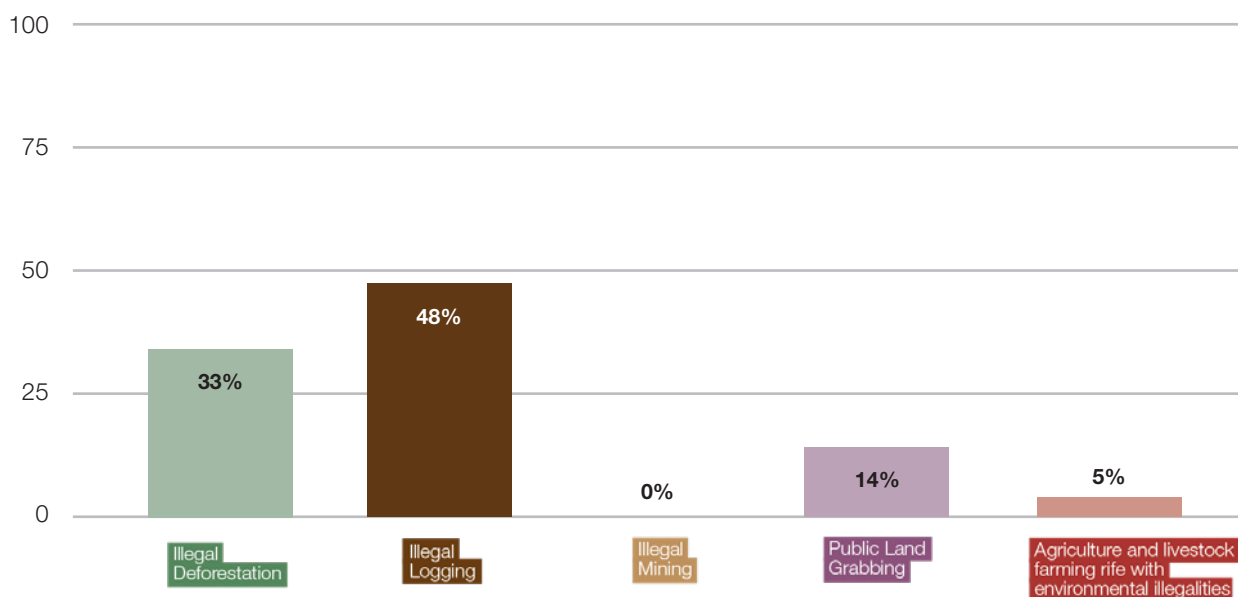
Distribution in the states of the Legal Amazon

Looking at the distribution of operations in each of the nine states comprising the Brazilian Amazon from the viewpoint of the five illicit economies (illegal deforestation, land grabbing, illegal logging, illegal mining, and agriculture and livestock farming prey to environmental plunder or irregularities), we identified the following scenario:

Acre

Data collected from 17 operations carried out by the Federal Police

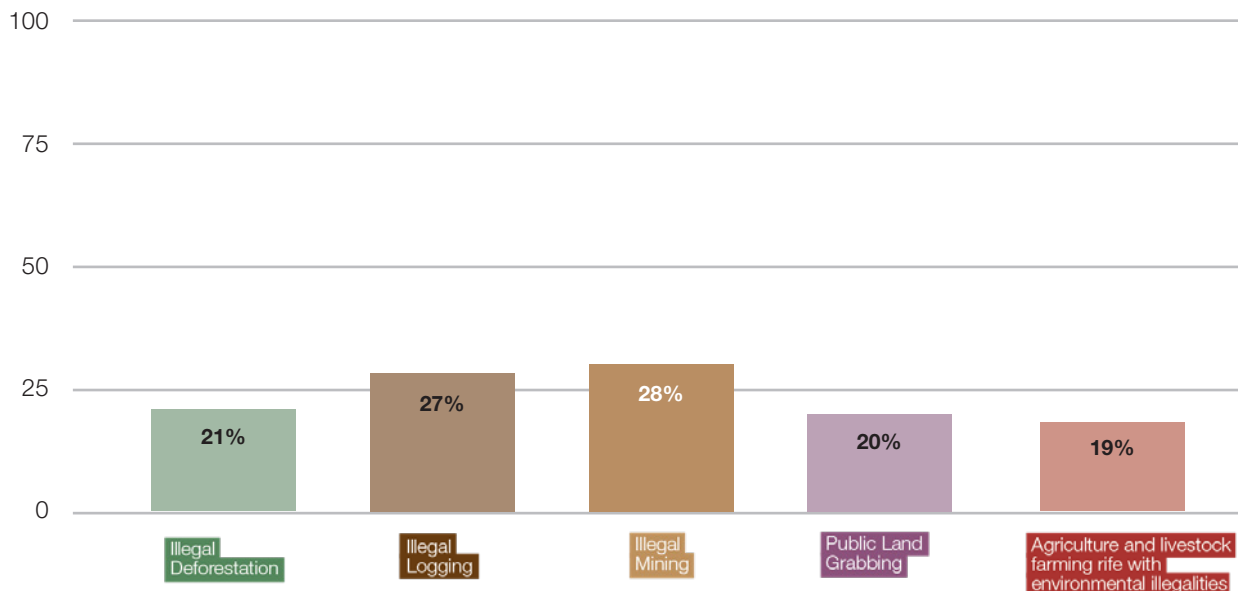
*N > 17, as one operation can have more than one target



Amapá

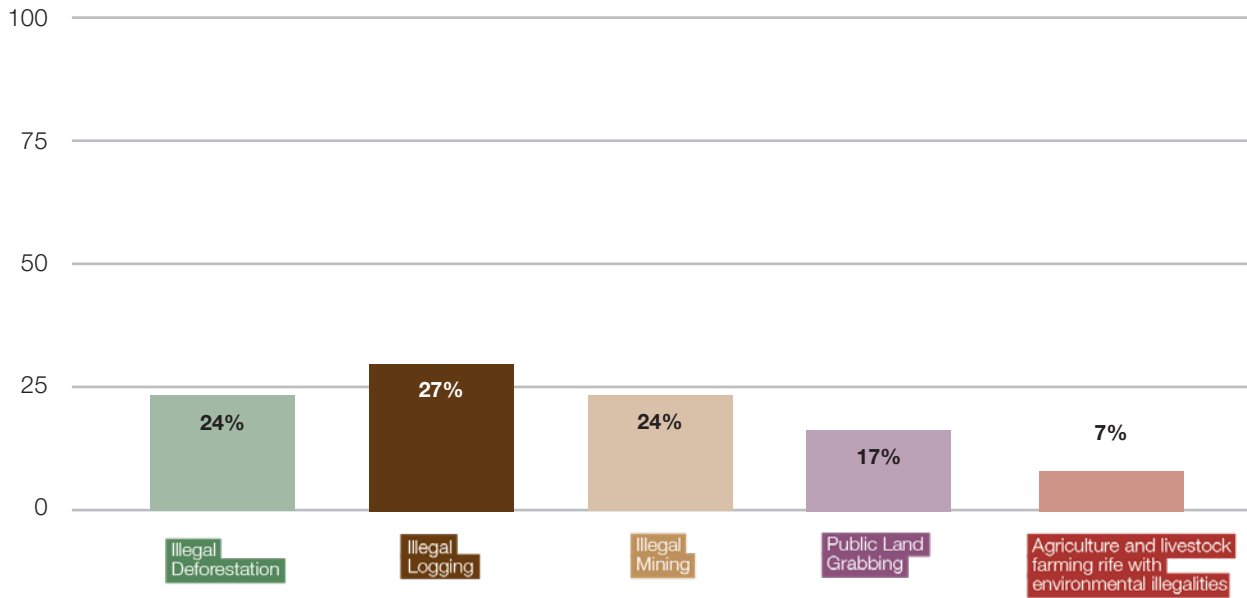
Data collected from 58 operations carried out by the Federal Police

*N > 58, as one operation can have more than one target



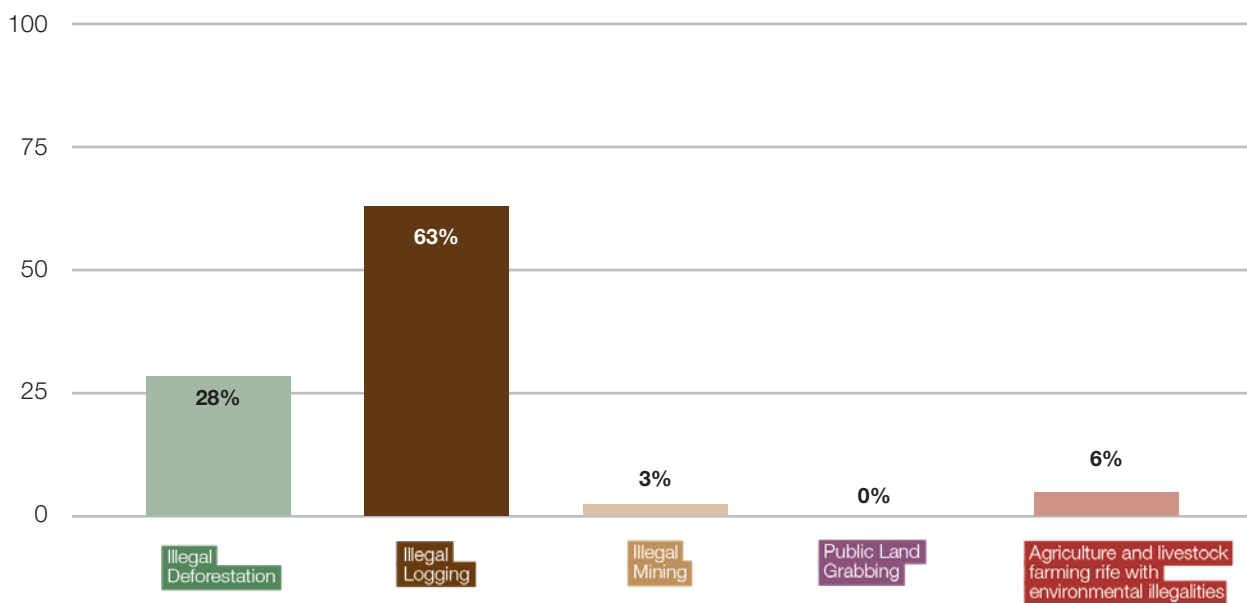
Amazonas

Data collected from 28 operations carried out by the Federal Police
 *N > 28, as one operation can have more than one target



Maranhão

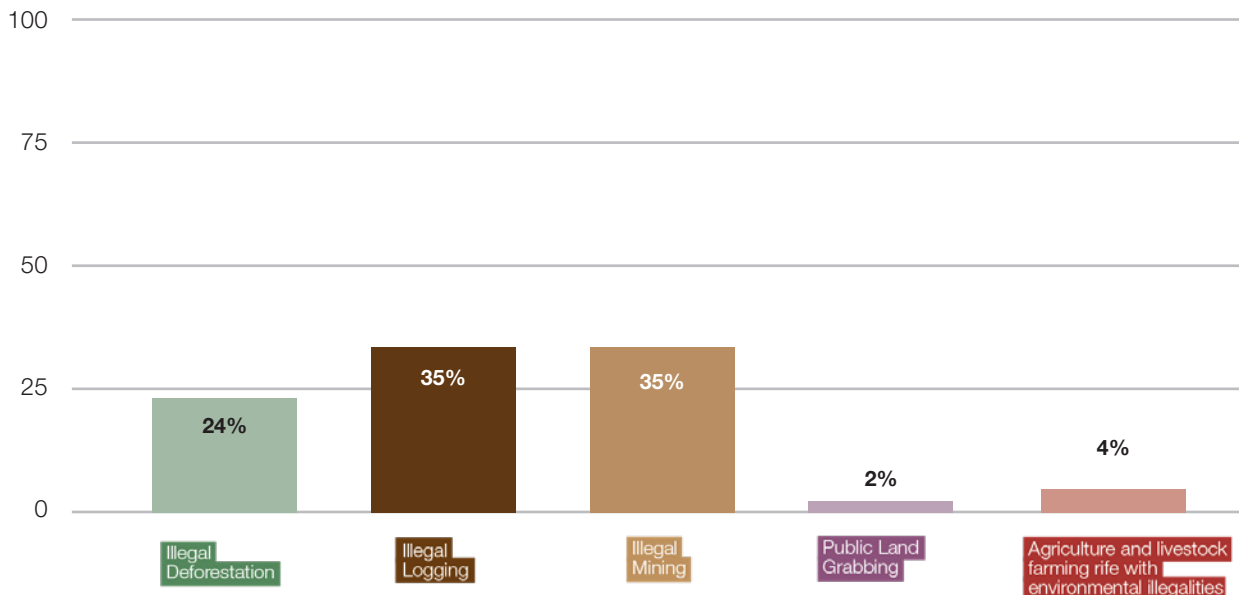
Data collected from 22 operations carried out by the Federal Police
 *N > 22, as one operation can have more than one target



Mato Grosso

Data collected from 39 operations carried out by the Federal Police

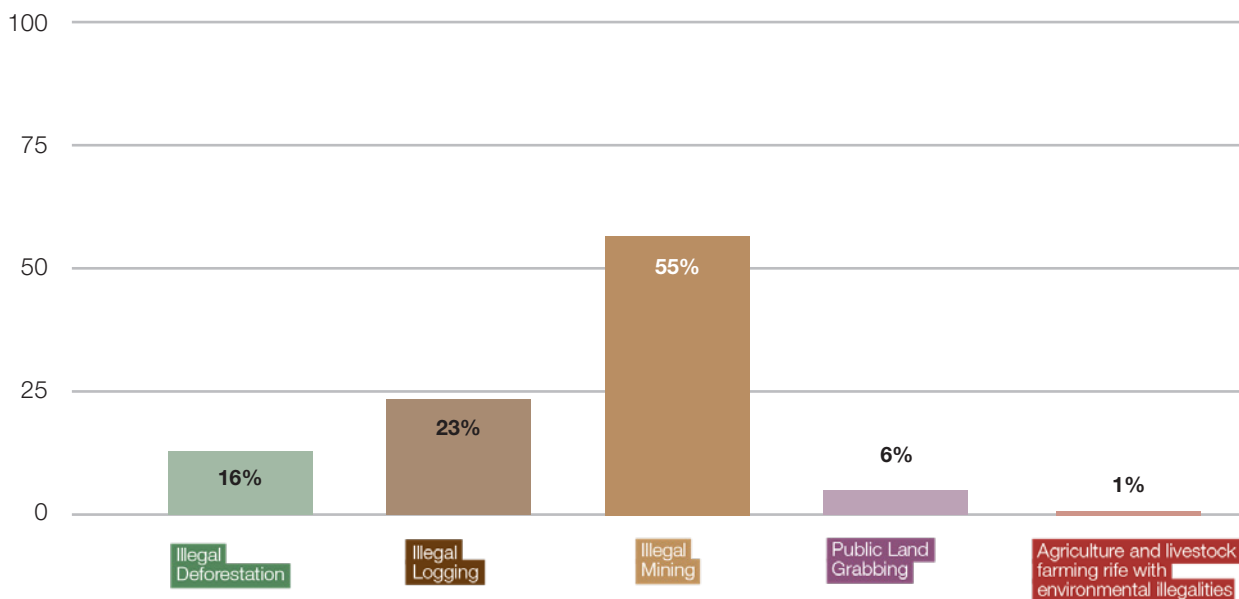
*N > 39, as one operation can have more than one target



Pará

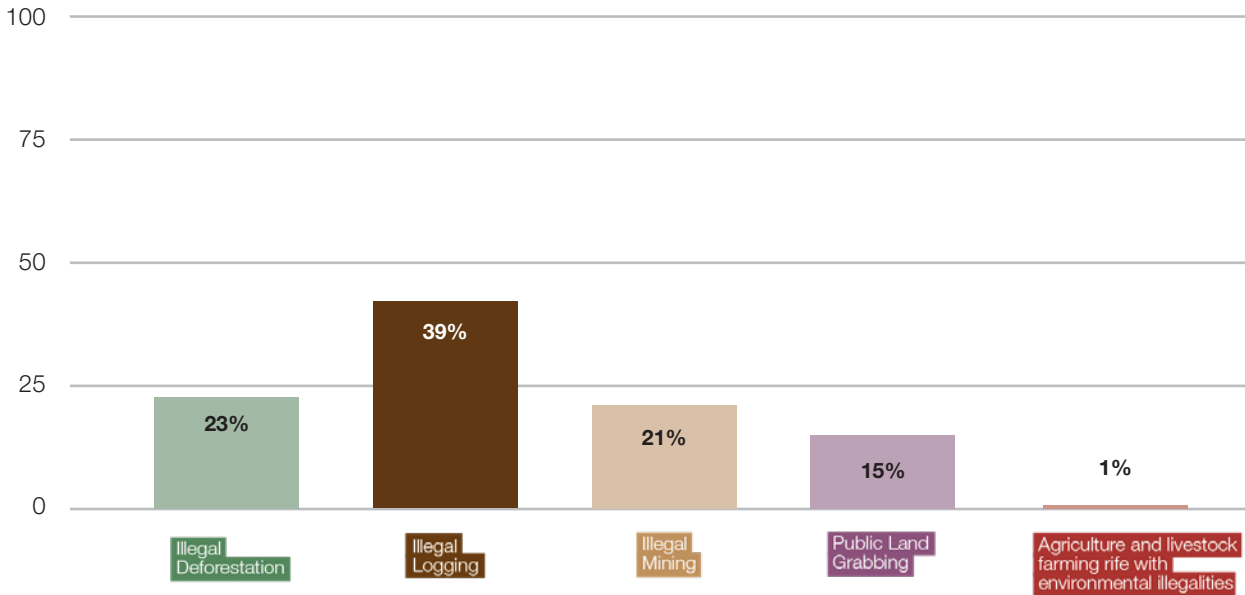
Data collected from 88 operations carried out by the Federal Police

*N > 88, as one operation can have more than one target



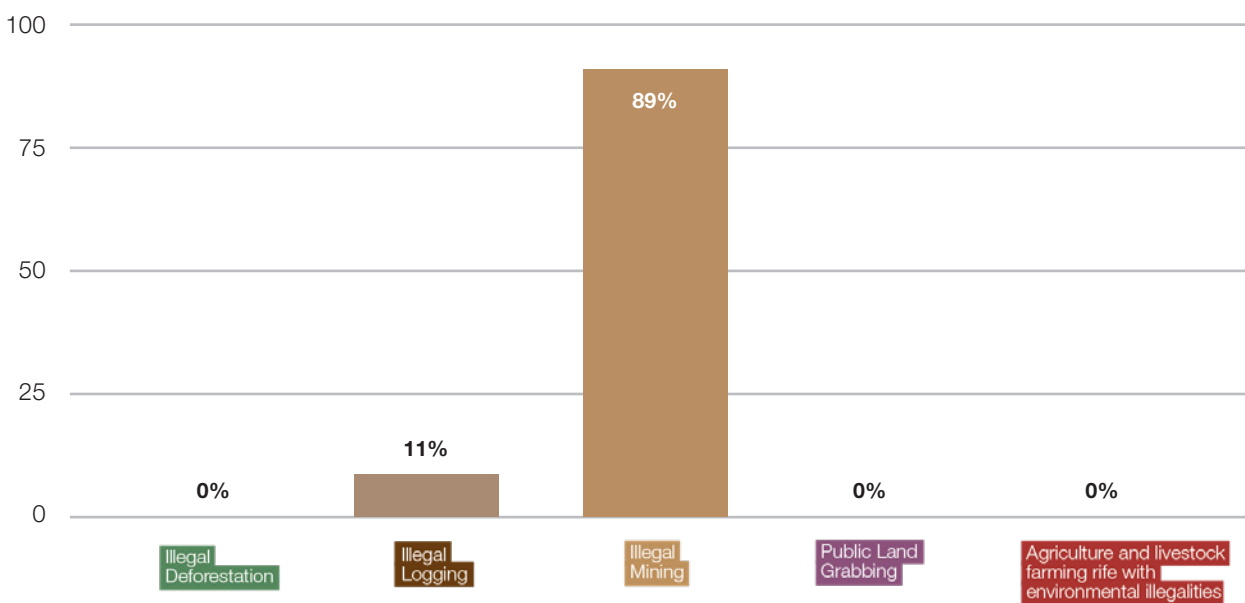
Rondônia

Data collected from 77 operations carried out by the Federal Police
 *N > 77, as one operation can have more than one target



Roraima

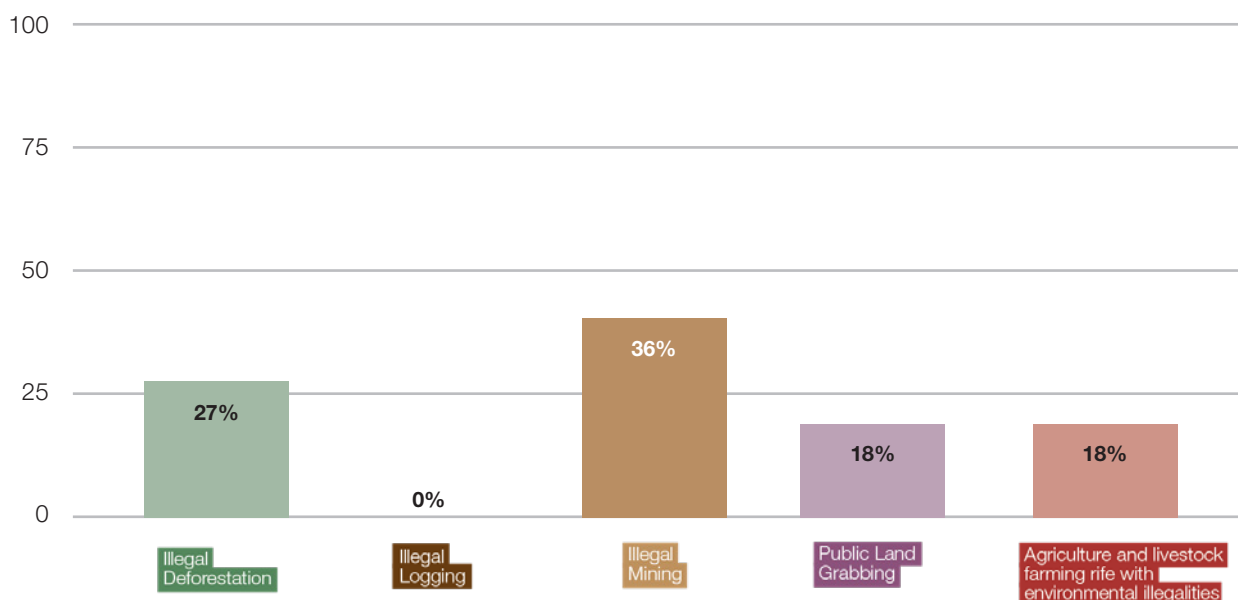
Data collected from 35 operations carried out by the Federal Police
 *N > 35, as one operation can have more than one target



Tocantins

Data collected from eight operations carried out by the Federal Police

*N > 8, as one operation can have more than one target



While most states harbored Federal Police operations related to all or most of the illicit economic activities, the state of Pará harbored most operations into illegal mining (58 operations over the period), with Rondônia leading in illegal logging operations (44 in total) and illegal deforestation (26 in total), while Amapá hosted most land grabbing operations (17 in total). The 15 operations focused on agriculture and livestock farming are distributed quite evenly in almost all the states of the Legal Amazon; however, the states of Amazonas and Amapá saw the highest number of operations with this target. Roraima, however, was an outlier. It has the least diverse panorama, among all states, with almost all operations targeting illegal mining.

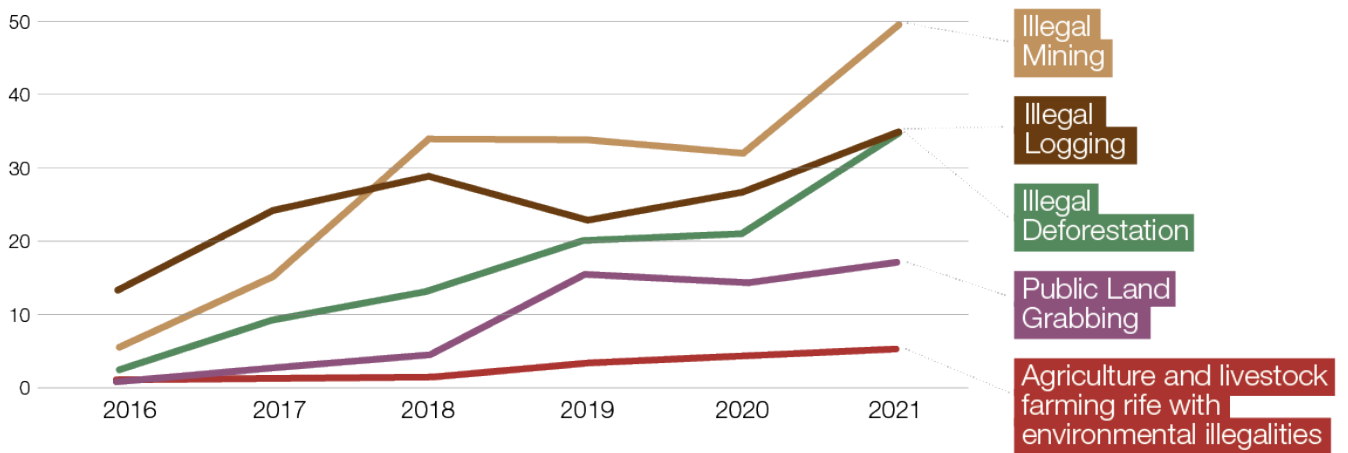
Temporal analysis

Figure 4 shows the evolution of the targets in Federal Police operations between 2016 and 2021. Over the reporting period, illegal logging was the main targeted activity between 2016 and 2017. From 2018 onwards, illegal mining, especially of gold, becomes the main target for the Federal Police, with a significant increase in operations in 2021. The number of operations related to illegal deforestation and public land grabbing also shows an upward trend, but growth was less intense. However, there has been an increase in Federal Police operations targeting areas with intense illegal deforestation, possibly equipped with new technologies for monitoring and alerting illegal deforestation hotspots.

FIGURE 4 - Operations by target and by year (2016-2021)*

Data collected from 369 operations carried out by the Federal Police

*N > 362, given that an operation may have more than one target and that the seven operations exclusively related to crimes against wildlife were not included



USE OF TECHNOLOGY TO FIGHT ILLEGAL DEFORESTATION IN THE AMAZON

The increase in operations focused on repressing the crime of illegal deforestation can be partially explained by an explicit new approach taken by the Federal Police to launch operations based on higher resolution and precision satellite imagery. In 2019 the Federal Police acquired a new system for advanced monitoring of daily alerts for deforestation and other environmental changes sourced by PLANET-SCCON. The system runs in parallel with the deforestation monitoring activities carried out through the DETER System, a methodology developed by the Brazilian National Spatial Research Institute (INPE) in 2004 to support environmental inspection by IBAMA and other SISNAMA agencies.²⁵ The partnership with PLANET is part of the *Brasil MAIS Program*, a national initiative designed to combat crime.²⁶ In a statement, the Federal Police explained that the new technology “enables us to oversee the Amazon rainforest in real-time and detect deforestation and even fires in areas of native forest”.²⁷ The agency also explained that “the prompt availability of images captured by this system has become paramount to the fight against environmental crimes in the country”.²⁸ Operations reporting the use of this new tool in the fight against illegal deforestation include Operation Urutau (in Amazonas), Anhangá (in Maranhão) and Operations Olho da Providência, Caiçara I, and Caiçara II (in Acre), all carried out in 2021.

25 See <http://www.obt.inpe.br/OBT/assuntos/programas/amazonia/deter/deter>.

26 To learn more about the Brasil MAIS Program, see <https://www.gov.br/mj/pt-br/aceso-a-informacao/acoes-e-programas/programa-brasil-mais>.

27 Federal Police. “*Polícia Federal deflagra Operação Olho da Providência para combater desmatamento e invasões de terras públicas no Acre*” [Federal Police launches Operation Olho da Providência to Fight Deforestation and Invasion of Public Lands in Acre], 03/10/2021.

28 Federal Police. “*Polícia Federal deflagra Operação Minamata para combater garimpo ilegal no Amazonas*” [“Federal Police launches Operation Minamata to combat illegal mining in Amazonas”], 09/21/2020.

Investigating Environmental Crimes and Converging Crimes

The set of Federal Police operations between 2016 and 2021 point to the existence of an **ecosystem of environmental and non-environmental crimes** threatening the forest and its populations. A thorough analysis of this ecosystem — through the so-called **criminal hypotheses** (or indictments) adopted by the Federal Police in its investigations — reveals the patterns and dynamics of the phenomenon, as well as its social and economic impacts beyond the environmental sphere.

CRIMINAL HYPOTHESES

The criminal hypotheses arising from Federal Police investigations are the first step in a long process to criminally prosecute individuals for environmental criminal offenses. Criminal hypotheses investigated by the Federal Police guide the different actions by the prosecuting agency (in this case, the Federal Prosecution Office) in Court. It is worth pointing out that the analysis of criminal hypotheses contained in this section draws on official data disclosed to the public and to media outlets through press releases and interviews (see Methodological Note on page 35).

In this section, 69 operations listed by the Federal Police in an Access to Information Law request filed by the Igarapé Institute were excluded from the analysis. Their exclusion occurred because the research team could not confirm the existence of indictments given the lack of public information about them (see Methodological Note). Of the remaining 300 operations, 56 (19%) only included indictments for environmental crimes while 57 (19%) featured indictments only for converging non-environmental crimes. Operations solely featuring investigations on converging crimes often followed previous operations that investigated one or more environmental crimes in the Amazon or sought to investigate other aspects of the criminal network (such as agents involved in corruption, or criminals involved in selling products illegally sourced from the Amazon, especially gold). A total of 24 (8%) operations did not include any indictment. Of these, two consisted of environmental inspection operations with the participation of the Federal Police; eight were inspections of indigenous lands led by FUNAI or the Ministry of Justice, including actions to remove invaders, and 12 were ostensible and repressive operations *in loco* (including those coordinated by state security forces and armed forces to patrol borders). Despite the presence of Federal Police officers, these operations do not seem to have led to immediate search and seizure actions or specific investigations, although, in some cases, the operations may have resulted in **administrative sanctions in loco** by other government institutions with administrative law enforcement power (see Box 2 below).

BOX 2 - OTHER STATE RESPONSES

In the case of environmental offenses, the Brazilian legal system sets out both the possibility of administrative liability and criminal liability for specific types of damage. Although the Federal Police is in charge of judicial law enforcement (therefore taking part in the criminal accountability process), other SISNAMA entities and even the military police of the states (in the event of agreements for the delegation of competence) take charge of administrative law enforcement, also known as environmental inspection (*fiscalização ambiental*). The Igarapé Institute database features 91 operations involving environmental administrative sanctions (87) and labor-related sanctions (4), such as fines, destruction or seizure of assets used in the infraction, and embargoes. The following table describes the sanctions found in each economic activity. In cases involving illegal logging, administrative sanctions gain relevance in number and frequency within Federal Police operations, and are relatively important within the set of operations with this focus. Such high frequency reveals joint and parallel actions by the Federal Police and federal and state environmental agencies.

Table – Administrative Sanctions

Data collected from 300 operations carried out by the Federal Police

*N > 300, as one operation can have more than one target

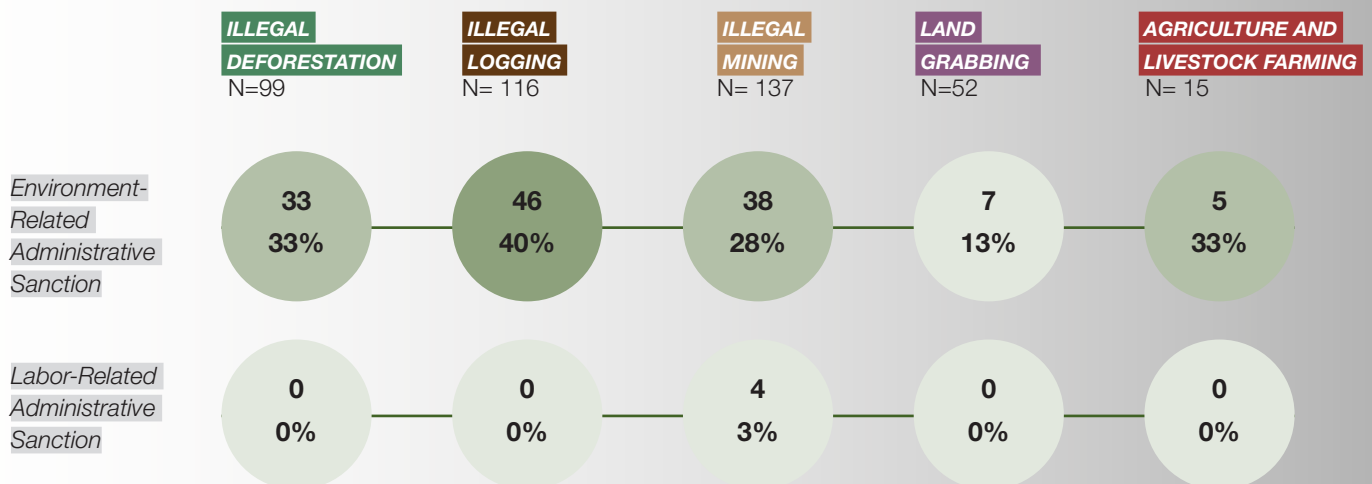


Table 3 below presents an overview of the criminal hypotheses (on environmental and non-environmental crimes) investigated by the Federal Police within the set of operations for each illicit economy.

TABLE 3 - Ecosystem of Criminal Hypotheses*

Data collected from 300 Federal Police operations

*N = 300. 69 operations listed in the Federal Police document provided to the Igarapé Institute via the Access to Information Law have been removed. Further analysis cannot be carried out due to the lack of publicly available information. Neither there was an in-depth analysis on the seven operations solely focused on crimes against fauna – despite being a type of illicit economy, there is no indication that they constitute a driver of deforestation. The colored cells indicate the highest percentage in each column. The color intensity varies according to the percentage values. In each line (which corresponds to a different criminal hypothesis) we have highlighted in bold the illicit economic activities in which the criminal hypothesis is more frequent.

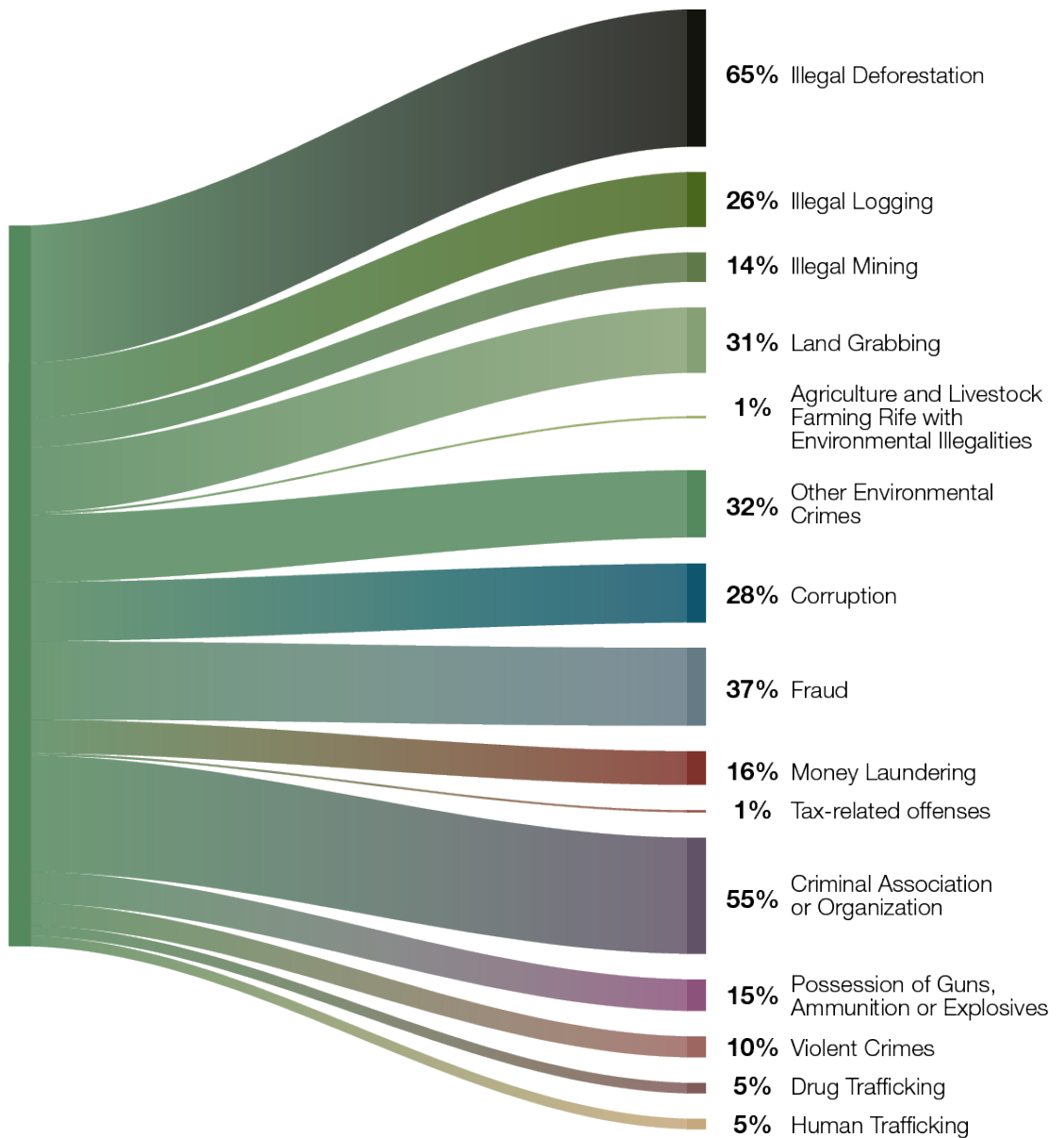
CRIMINAL HYPOTHESIS VS. ILLICIT ECONOMY	ILLEGAL DEFORESTATION (N= 99)	ILLEGAL LOGGING (N= 116)	ILLEGAL MINING (N= 137)	LAND GRABBING (N= 52)	AGRICULTURE AND LIVESTOCK FARMING (N=15)
Illegal Deforestation	64 (65%)	34 (29%)	10 (7%)	28 (54%)	8 (53%)
Illegal Logging	26 (26%)	70 (60%)	2 (1%)	8 (15%)	2 (13%)
Illegal Mining	14 (14%)	1 (1%)	84 (61%)	0 (0%)	1 (7%)
Land Grabbing	31 (31%)	12 (10%)	1 (1%)	40 (77%)	7 (47%)
Agriculture and Livestock Farming Rife with Environmental Illegalities	1 (1%)	1 (1%)	0 (0%)	1 (2%)	1 (7%)
Other Environmental Crimes	32 (32%)	27 (23%)	32 (23%)	14 (27%)	4 (27%)
Corruption	28 (28%)	36 (31%)	15 (11%)	22 (42%)	6 (40%)
Fraud	37 (37%)	48 (41%)	21 (15%)	31 (60%)	6 (40%)
Money Laundering	16 (16%)	20 (17%)	35 (26%)	8 (15%)	3 (20%)
Tax-related offenses	1 (1%)	4 (3%)	10 (7%)	2 (4%)	2 (13%)
Criminal Association or Organization	54 (55%)	58 (50%)	64 (47%)	38 (73%)	7 (47%)
Possession of Guns, Ammunition or Explosives	15 (15%)	12 (10%)	29 (21%)	6 (12%)	4 (27%)
Violent Crimes	10 (10%)	9 (8%)	5 (4%)	10 (19%)	3 (20%)
Drug Trafficking	5 (5%)	8 (7%)	9 (7%)	3 (6%)	1 (7%)
Human Trafficking	5 (5%)	4 (3%)	12 (9%)	3 (6%)	3 (20%)

The information in the table offers a characterization and greater understanding of the ecosystem of crimes associated with each of the different illicit or illegality-tainted economies. **Illegal deforestation** emerges in association with investigations into land grabbing, illegal logging, and other environmental crimes provided for in Law No. 9,605/1998, especially pollution, criminal fire, and administrative crimes (such as defrauding or obstructing environmental inspections). A little more than half of the cases (55%) concerned investigations on

criminal association or organization, indicating the nature and complexity of this type of crime. A significant number of operations with this focus investigated cases of fraud (37%) and corruption (28%). There is also an important number of violent crimes against individuals and illegal possession of guns related to this economic activity. Despite the low percentages (10% and 15%, respectively), the absolute numbers of incidents indicate a significant degree of violence associated with this illicit economy.

FIGURE 5 -
Criminal
Ecosystem
of Illegal
Deforestation

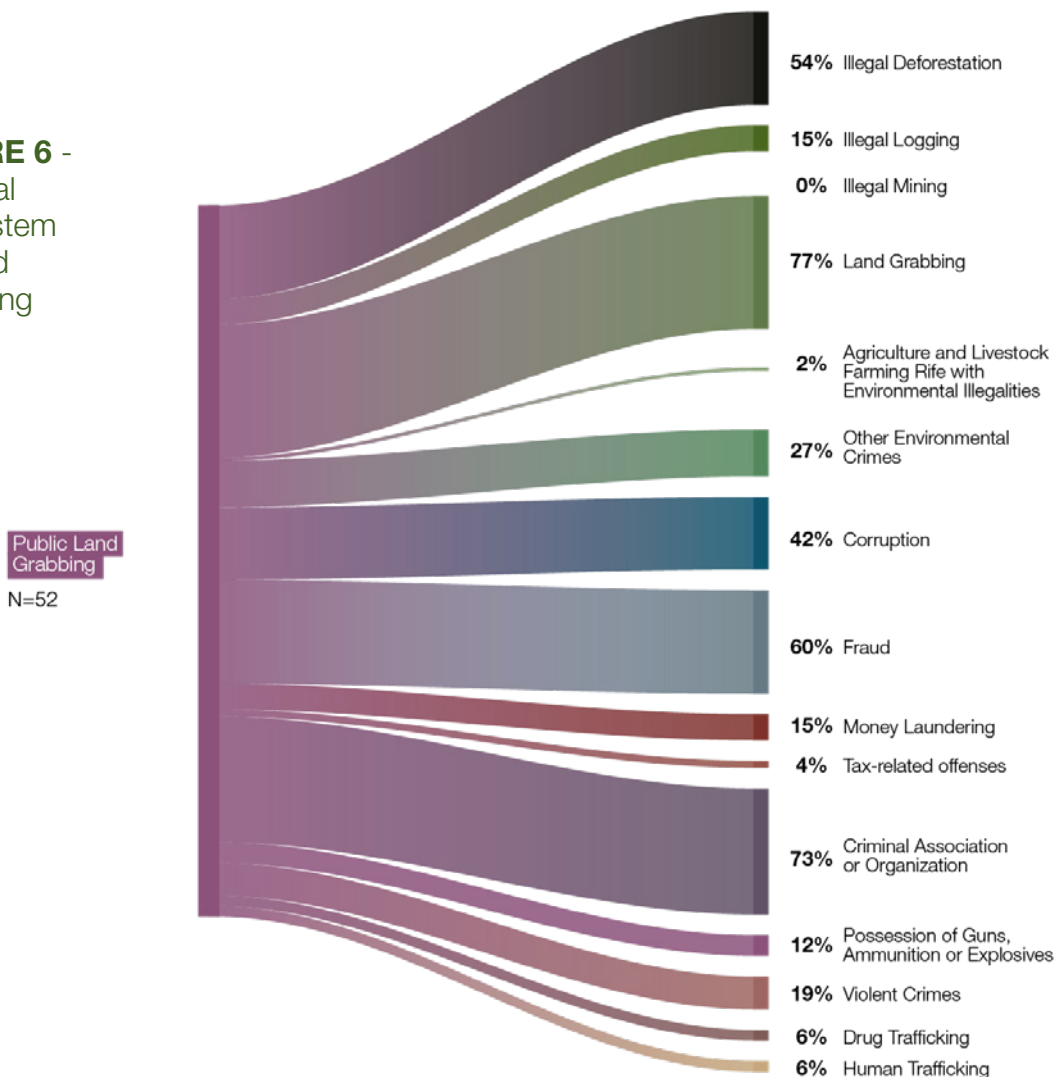
Illegal
Deforestation
N=99



Land grabbing cases predominantly involve criminal investigations related to the crime of illegal deforestation (a little over 50% of cases). The 14 cases concerning other environmental crimes investigated jointly consisted mostly of forest fires, illustrating the modus operandi of this illicit economy. The analysis of the set of operations targeting land grabbing also indicates a high proportion of investigations into corruption and fraud (42% and 60%, respectively) and the key role played by these administrative-related offenses in the criminal dynamics of the illegally claiming and occupying of public lands in the Amazon. In addition, 73% of the cases of land grabbing point to an investigation of criminal association or organization made up of civil servants defrauding authorization documents (and therefore also subject to investigation for a crime of corruption) as well as state or other agents using violence. Land grabbing is the

illicit economy featuring the highest relative proportion of converging violent crimes. This is illustrated in Operation Ojuara, for instance, launched in partnership with the Federal Prosecution Office in southern Amazonas, in the so-called “arc of deforestation”, in 2019. At the time, the arrests of 18 people were authorized and 31 people were subjected to various precautionary measures. Police agents also seized BRL 800,000 in cash, in addition to agricultural machinery, 7,000 cattle units and a single-engine plane, among other items. The operation gave rise to an unprecedented prosecution and is considered “one of the most significant works carried out by the Federal Prosecution Office through the Amazon Task Force during its term,” as it resulted in 22 individuals accused of various crimes including corruption, creation of a private militia, disclosure of confidential information, money laundering, and criminal association.²⁹

FIGURE 6 -
Criminal
Ecosystem
of Land
Grabbing



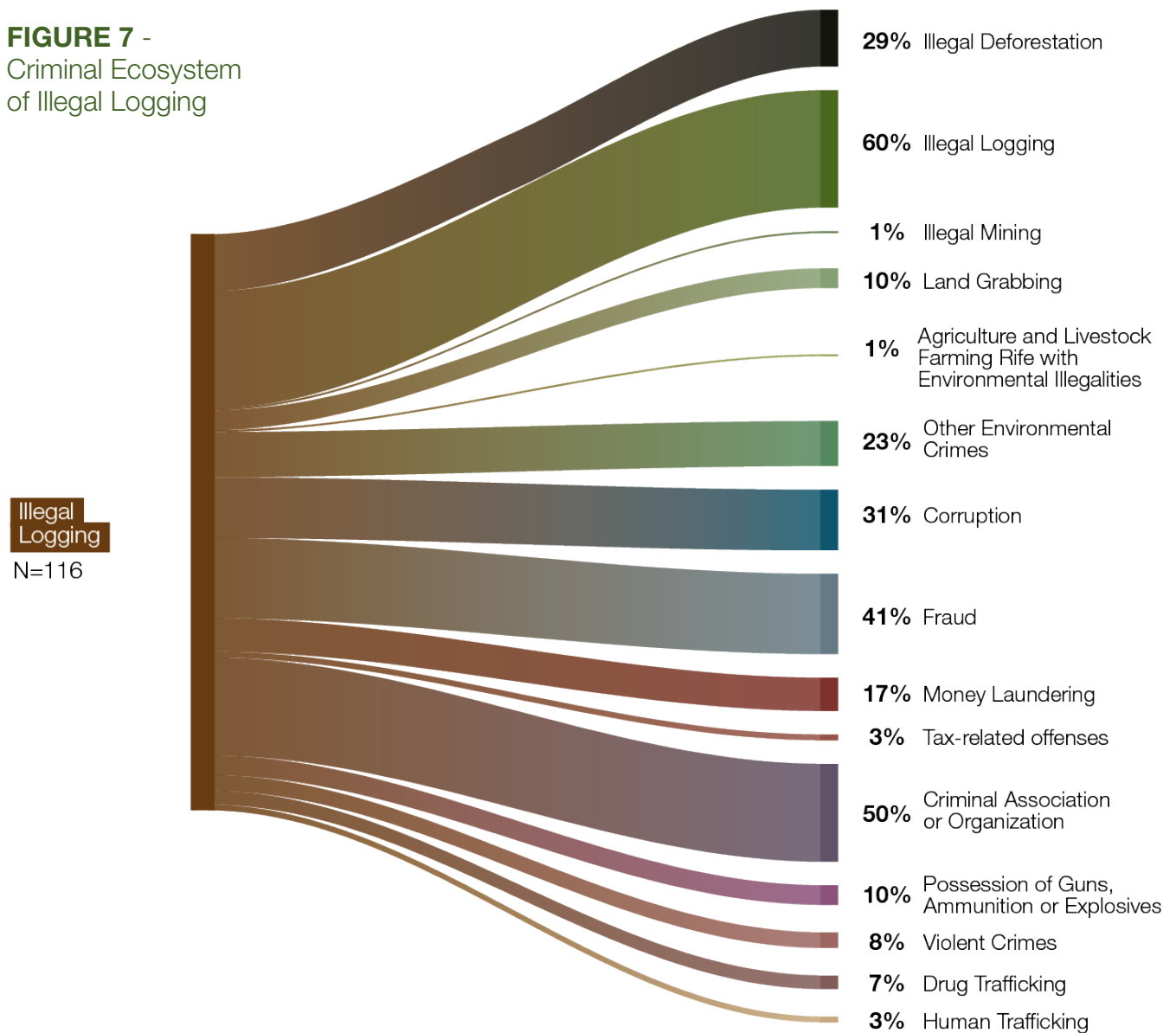
29 Federal Prosecution Office. 'MPF denuncia duas pessoas por desmatamento e invasão de terras da União em Lábrea (AM)' ['Federal Prosecution Office (MPF) Accuses two Individuals for Deforestation and Invasion of Lands Owned by the Federal Government in Lábrea (Amazonas)'], 12/15/2021.

In operations aimed at **illegal logging**, the joint investigation into deforestation covers almost one third of the cases (29%) and there is a significant number of parallel investigations into other environmental crimes, especially pollution, criminal forest fires, and crimes against environmental public administration, such as counterfeiting of licensing documents. This ecosystem is also characterized by investigations of several non-environmental crimes: fraud (41%) and corruption (31%), proportionately higher than in operations motivated by illegal deforestation;

criminal organization, found in half of the operations; and financial and tax crimes (20%). Possession of guns, ammunition, or explosives (10%) was also found in indictments of illegal logging operations.

Figure 7 below depicts the operations targeting illegal logging and the set of environmental and non-environmental crimes related to this activity.

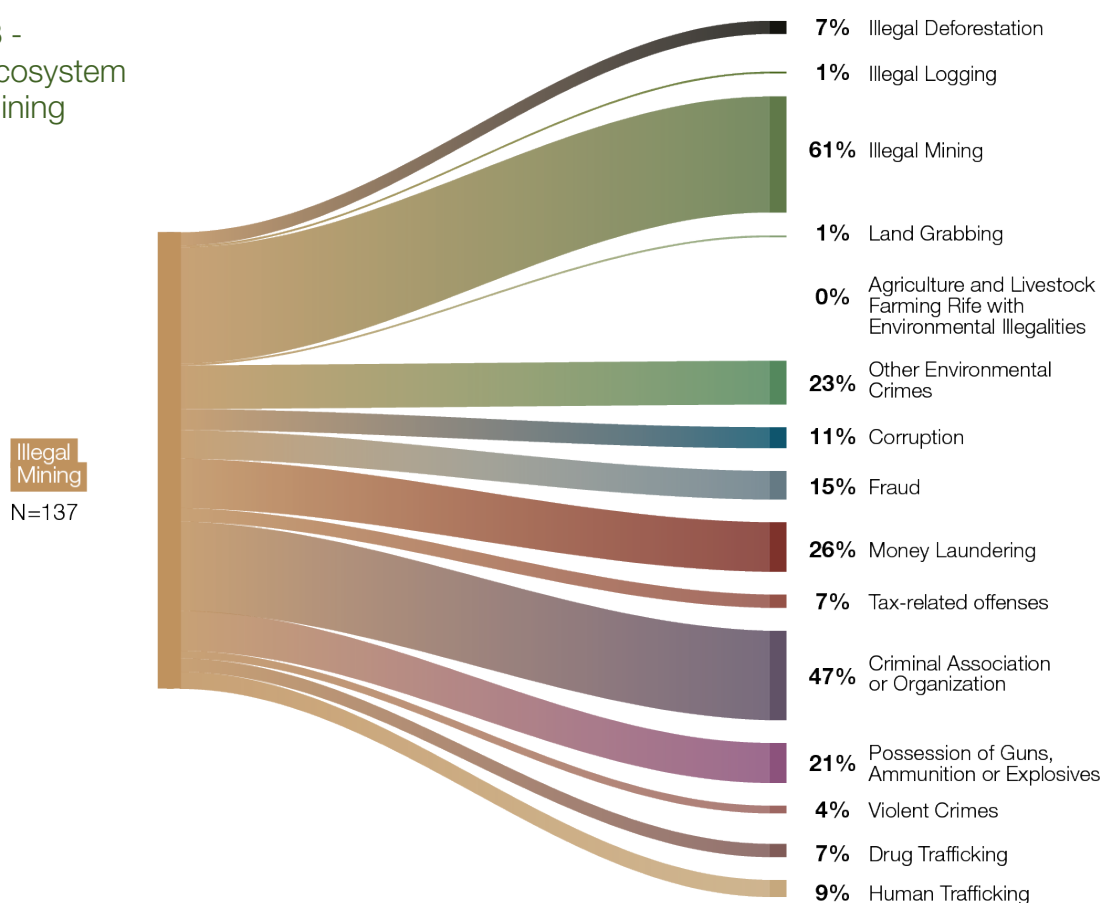
FIGURE 7 -
Criminal Ecosystem
of Illegal Logging



Illegal mining is the illicit economic activity or illegality-tainted activity in the forest that is least connected to the other economic drivers of deforestation. However, it is the activity most targeted by investigations of tax, financial, and money laundering crimes (despite relatively representing a small part of the total anti-mining operations). Anti-mining operations also feature the highest occurrence (in absolute numbers) of related investigations of drug trafficking. There is also a high incidence (in absolute numbers) of violent crimes – against individuals or illegal possession of guns, ammunition or explosives (34 incidents) – and investigations into the involvement of a criminal organization (64 incidents). The same can be said of human trafficking and forced labor, which in Brazil are understood and typified as contemporary forms of slave labor. In fact, the past few years saw an increase of slave labor at the borders of areas of deforestation in the Amazon, especially in mining of alluvial gold (in addition to the more traditional outbreak of contemporary slave labor

in Brazil, which is concentrated in agriculture and livestock farming activities).³⁰ This fact was uncovered jointly by the Federal Police and the Labor Prosecution Office, especially in the state of Pará, in operations such as Napuru (in 2020), Terra Desolata and Cangaia Gold (both in 2021). Investigations into illegal mining in the Amazon are also associated with other environmental crimes, especially pollution. This is because the absolute majority of operations targeted illegal gold mining, an activity that makes intensive use of toxic mercury in the extraction process. Gold-related operations took place mostly in the states of Pará and Roraima (as illustrated in the previous section). Besides gold, other minerals illegally extracted from the Amazon in the period include manganese, diamonds (especially in the Roosevelt Indigenous Reserve in the state of Rondônia and in Chapada dos Guimarães in Mato Grosso)³¹, uraninite, copper, and gravel. Figure 8 below depicts the operations targeting illegal mining and the set of environmental and non-environmental crimes related to this activity.

FIGURE 8 -
Criminal Ecosystem
of Illegal Mining



30 International Labour Organization. 'Trabalho forçado' [Forced Labor], available at <https://www.ilo.org/brasilia/temas/trabalho-escravo/lang-pt/index.htm>

31 To learn more about the extraction of diamonds in the Amazon, see Amazônia Real. '*Diamantes de sangue na Amazônia*' [Bloody Diamonds in the Amazon], 20/12/2015.

BOX 3 - OPERATIONS AGAINST ILLEGAL GOLD MINING IN THE AMAZON

Operations to combat illegal gold mining in the Amazon have increased in size and complexity in recent years. The operations mapped out in this report consist of a mosaic of repressive actions with different aims and intended results. These include investigative operations that lead to civil and criminal actions by the Federal Prosecution Office as well as environmental inspection operations of environmental authorities such as IBAMA and ICMBio and border inspection by the Armed Forces borders, in which the Federal Police also participate. It also includes operations aiming at protecting indigenous peoples. These are cross-institutional efforts, often led by FUNAI, that also include the participation of Federal Police agents (such as in the case of Operations Ianomâmi 709, in Roraima, and Trincheira Parakanã I and II, in Pará, in 2021). Finally, some operations are carried out together with security forces and military forces, namely those taking place in border strips and within the scope of Environmental Law and Order Assurance Operations (GLOs), such as Verde Brasil I and II (in 2019 and 2020-2021), and Operation Bertholletia, in Rondônia, or Operation Embaúba in Pará, both in 2020.

This diverse set of operations produce several immediate outcomes, including not only in flagrante delicto arrests and seizure of evidence by the Federal Police itself, but in some cases criminal or administrative sanctions *in loco*. Sanctions include the dismantling of illegal mining operations and closure of establishments, seizure, or destruction of machinery. Those involved in illicit mining activities can be sanctioned by both the Federal Police (upon authorization from the Justice) and by environmental agencies and the Special Mobile Inspection Group (GEFM) of the Sub-Department for Labor Inspection and the Labor Prosecution Office (as discussed above). One example is the destruction by IBAMA of rafts used in illegal river mining in protected areas (as in the case of Operation Uíara, in Amazonas, in 2021), as well as operations in which workers were rescued in degrading working conditions by labor inspection and prosecution authorities.

Given the complexity of the chain of illegal gold extraction in the Amazon, some operations are fully focused on dismantling the logistical support to illegal mining, as in Operation Mercúrio (in Amapá, in 2020), while others only investigate illegalities committed during the commercialization of the Amazonian gold and, therefore, focused on investigating converging crimes, especially financial crimes (as in the case of Operation Ruta 79 launched in 2021). 10 of the 137 operations related to illegal mining also contain investigations of transnational crimes. In this case, it is worth emphasizing operations that investigate cross-border connections between individuals and organizations with counterparts in other Amazonian countries, such as Venezuela (Operations Dhahab, Hespérides, La Cadena and Zózimo), French Guiana (operations Hunter-Russell, Ouro Perdido, Quinino and Quinino II), Suriname (Operations Ouro Perdido, Quinino and Quinino II) and Colombia (Operation Alóctonas). In the latter, dissidents from the Revolutionary Armed Forces of Colombia (FARC) were among the individuals arrested in the operation. However, only one operation was investigated jointly with official agencies from another country (Operation Ouro Perdido carried out with French Guiana). All operations to combat illegal mining with criminal hypotheses pointing to international connections in the region concerned gold.

Finally, despite the low number of Federal Police operations focused on **agriculture and livestock farming rife with environmental illegalities** – and due to the fact this was never a single-target –, the incidents mapped out point to a strong association with investigations into illegal deforestation and land grabbing crimes. Of the converging crimes, corruption and fraud stand out the most. Despite the low absolute number of operations involving investigations of slave labor, these correspond to 20% of the total operations focused on agriculture and livestock farming activities. The same can be said of violent crimes against

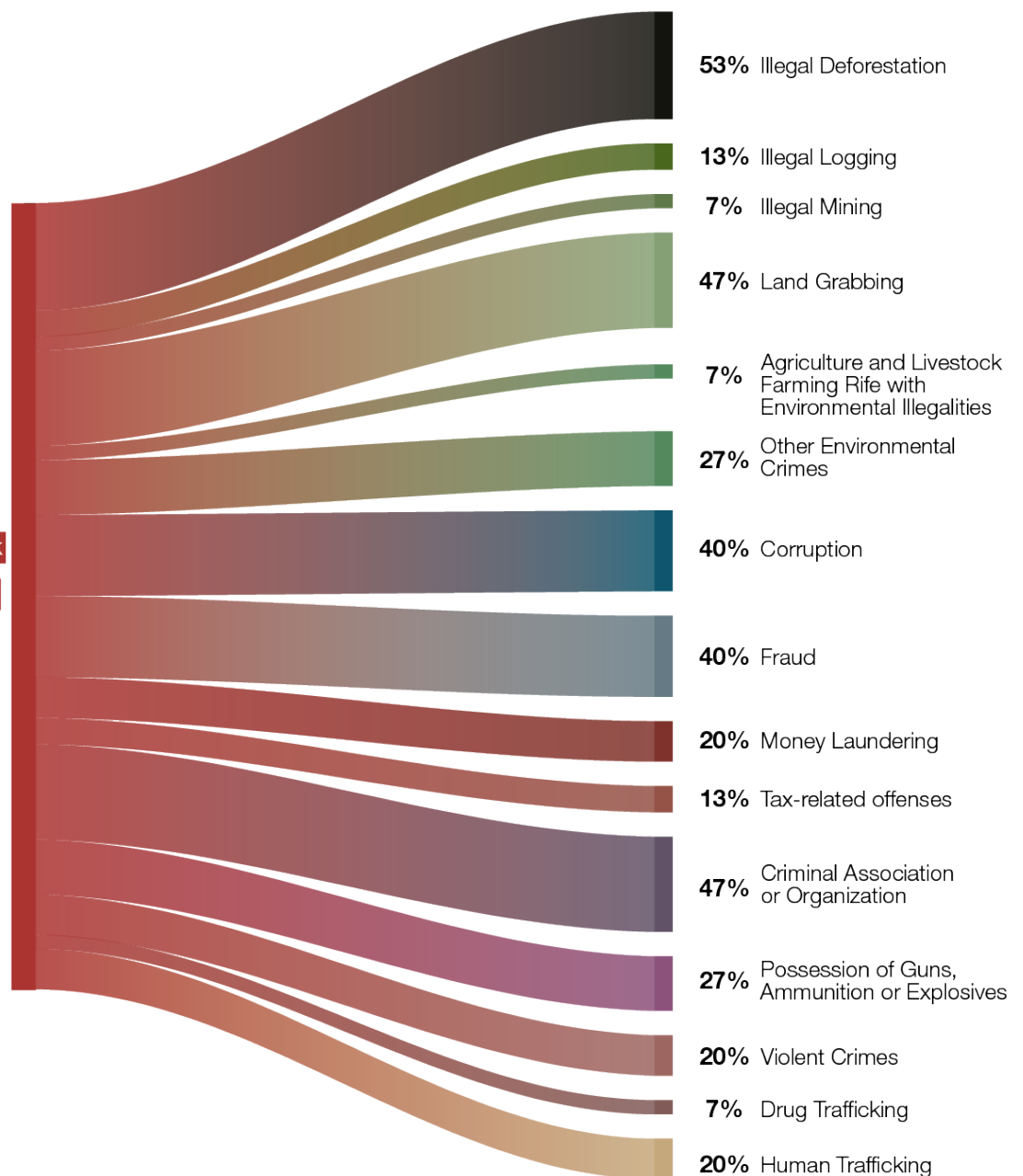
individuals and illegal possession of guns, ammunition, or explosives found in 20% and 27% of operations mapped out with this scope, respectively. The other environmental crimes investigated in parallel in connection with agriculture and livestock farming activities consisted predominantly of pollution.

Figure 9 offers a view of the operations targeting agriculture and livestock farming activities that incur environmental liabilities and the set of environmental and non-environmental crimes related to this activity.

FIGURE 9 -
Criminal Ecosystem
of Agriculture and
Livestock Farming
Activities Rife with
Environmental
Illegalities

Agriculture and livestock
farming rife with
environmental illegalities

N=15



BOX 4 - ACCOUNTABILITY CHALLENGES IN AGRICULTURE AND LIVESTOCK FARMING CHAINS IN THE AMAZON

Only few operations somehow point to illegalities in the agriculture and livestock production chain (15 operations out of the 369 mapped out, or 4% of the total). Of these, five referred to grain farming activities (mainly soy) and 11 to livestock farming activities. In almost all cases, investigations traced the connections between forest land grabbing and illegal clearing. However, in only one operation (Operation Rios Voadores) launched in 2016 in the Menkragnoti Indigenous Land and its surroundings, located in the municipality of Altamira in Pará, there is an explicit intent to criminally prosecute individuals for the set of environmental crimes (illegal deforestation, criminal fire and illegal occupation of federal public lands) aimed at raising or selling cattle and planting or selling soy and rice.³² However, five of the 15 operations mapped out by Igarapé Institute (see Box 2, on page 21) mentioned administrative sanctions by environmental agencies (such as embargoes on properties and cattle seizures) or administrative sanctions for slave labor by the Labor Prosecution Office.

Concerning the correlated land grabbing category, it can be seen that, although the activity is not classified as an environmental crime either (see Figure 2), the phenomenon of illegally claiming and occupying public lands in the Amazon, especially the federal ones, is a growing target of criminal investigations by the Federal Police. Indictments used by the Federal Police in such cases were the ones related to “invasion of public lands of the Federal Government” (Article 20 of Law No. 4,947/1966), as well through environmental crimes of illegal deforestation or other crimes against flora provided for in the Environmental Crimes Law. Not all cases of land grabbing mapped out had explicit criminal hypotheses about the destination or subsequent use of the stolen land, but many do indicate (either in the narratives in the official report of the Federal Police itself, or in the news) that these lands have been converted into farming land, mainly pastures. These pastures can be used for meat production or land speculation, in which “the cattle act as caretakers,” to give the appearance of a productive enterprise.

32 See Internal Revenue Service. *‘Operação Rios Voadores: Receita Federal combate organização criminosa especializada em grilagem de terras públicas, crimes ambientais e lavagem de dinheiro’* [‘Operation Rios Voadores: Internal Revenue Service Fights Criminal Organization Specialized in Land Grabbing, Environmental Crimes and Money Laundering’]. 06/30/2016; IBAMA. *‘Operação desarticula quadrilha de desmatadores que movimentou R\$ 1,9 bi no Pará’* [Operation Dismantles Gang of Deforesters that Moved BRL 1.9 bi in Pará], 06/30/2016.

Converging Crimes

The analysis of converging crime investigations is key to understanding the ecosystem of environmental crime in the Amazon. Such crimes often facilitate and/or support the commission of the actual environmental crimes. Within the set of operations analyzed in this study, the first category that stands out consists of **criminal association or belonging to a criminal organization** (as provided for in the Penal Code and Law No. 12,850/2013). These crimes were found in 152 operations (51%). Such high frequency indicates not only the increasingly organized nature of environmental crime in the Amazon (networks of criminals including individuals, legal entities, individual agents and organizations), but also the strategy adopted by the Federal Police and environmental and non-environmental agencies in prioritizing this type of case with greater environmental impact and complexity.

Fraud is the second most prevalent category of converging crimes in the investigations and criminal hypotheses of the Federal Police between 2016 and 2021. It was identified in 90 operations (30%) and covers investigations of crimes described in the Brazilian Penal Code such as embezzlement, fraudulent misrepresentation, among others. The recurrence of fraud in the related crimes investigated indicates its central role in contemporary environmental crime in the Amazon. The Brazilian Amazon is no longer a lawless region. Rather the countless regulations and prohibitions in force in the Amazon lead criminals to adopt different fraud mechanisms (especially the document-based ones) to conceal or “launder” the natural resources obtained illegally and introduce them

in legal supply chains. Moreover, other offenses such as **corruption, money laundering** and **tax-related crimes** are also found in several operations (in 64, 61 and 10 operations respectively), attesting to their major role in environmental crimes in the Amazon and the growing importance of the financial resources obtained with the illicit forest economies in the licit and illicit funds flowing in and out the Amazon territory.³³

As mentioned earlier, although found in all illicit forest economies, it is in illegal mining that **financial crimes** such as money laundering and tax-related offenses (tax evasion, smuggling, embezzlement, among others) prevail (in absolute terms, in the set of operations, as well as in relative terms, for each type of illicit economy). The same applies to an important set of **more violent crimes** (drug trafficking, human trafficking, illegal possession of guns, ammunition and explosives). Despite the small number of violent crimes against individuals (homicides, assaults and threats), such crimes stand out in operations intended to fight land grabbing and in agriculture and livestock farming prey to environmental plunder or irregularities.

In 29% of all operations one or more violent or menacing crimes (guns, drugs, violent crimes against individuals and slave labor) were investigated (see Figure 10). And the number of operations in which these crimes were present grew significantly in recent years (see Figure 11). Such findings corroborate previous studies about the increased violence associated with environmental crimes in the Amazon in the period.³⁴ The number of flagrant in delicto operations involving guns, ammunition and explosives, for example, rose from less than 10 between 2016 and 2019, to 10 in 2020, and 24 in 2021, showing a steeper curve than the

33 Igarapé Institute and INTERPOL. *Guia para o enfrentamento de crimes ambientais: lições do combate à mineração ilegal de ouro na Amazônia* [Guide to Fighting Environmental Crimes – Lessons Learned from the Fight Against Illegal Gold Mining in the Amazon]. December 2021; Transparência Internacional Brasil. *Governança fundiária frágil, fraude e corrupção: um terreno fértil para a grilagem de terras* [Poor Land Governance, Fraud and Corruption: a Fertile Ground for Land Grabbing]. December 2021.

34 Igarapé Institute. *Vitórias-Régias na proteção dos direitos humanos e do meio ambiente* [Water Lilies in the Protection of Human Rights and the Environment]. December 2021; Brazilian Forum on Public Security. *Cartografias das violências na região amazônica* [Cartographies of Violence in the Amazon Region]. 2021. Amazon 2030 project. *Illegalidade e Violência na Amazônia* [Illegality and Violence in the Amazon]. December 2021.

other related crimes analyzed. Drug-related crimes were mainly targeted by operations related to logging and gold, highlighting the growing connection between these illicit economies and criminal networks linked to

drug trafficking in the Amazon. Although relatively small in the set of converging crimes, drug trafficking cases have shown a sharp curve since 2018 (see Figure 11).

FIGURE 10 - Converging Crimes Investigated by the Federal Police (2016-2021)*

Data collected from 300 Federal Police operations

*N > 300, assuming that operations may investigate more than one converging crime

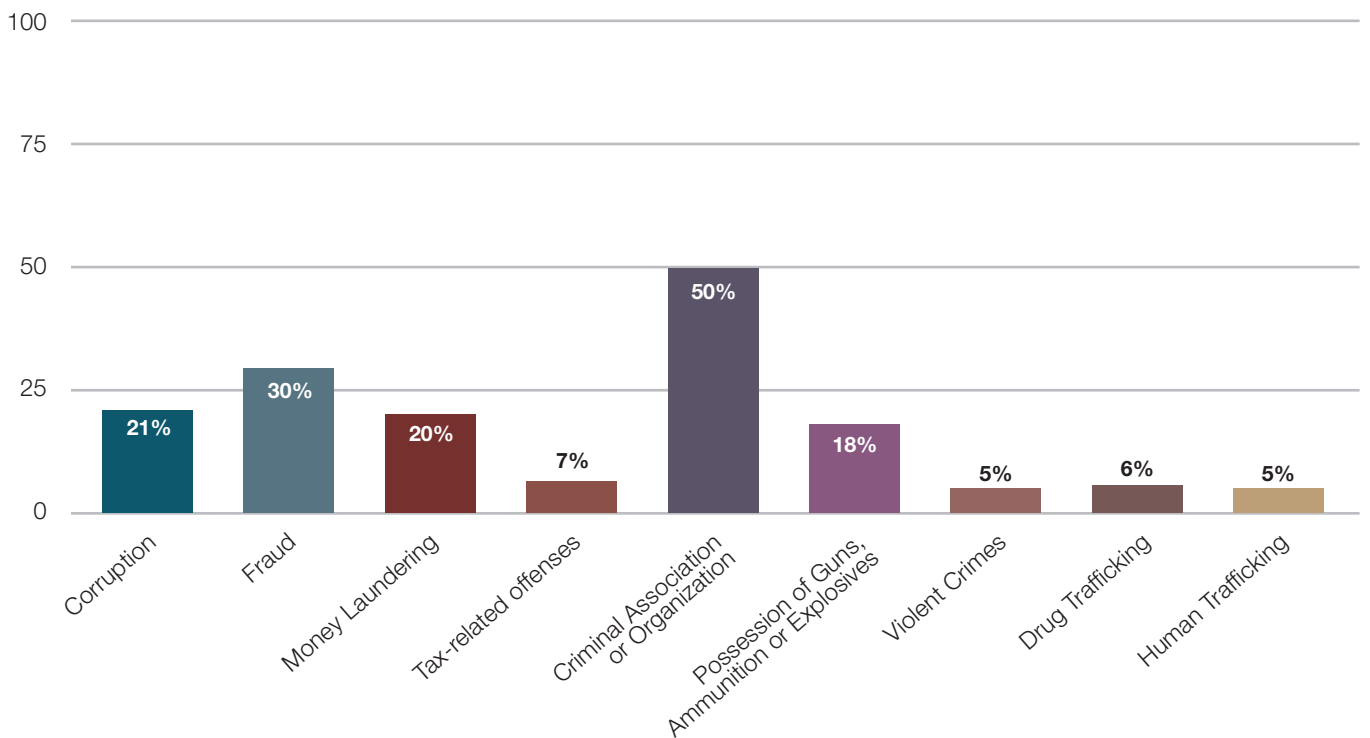
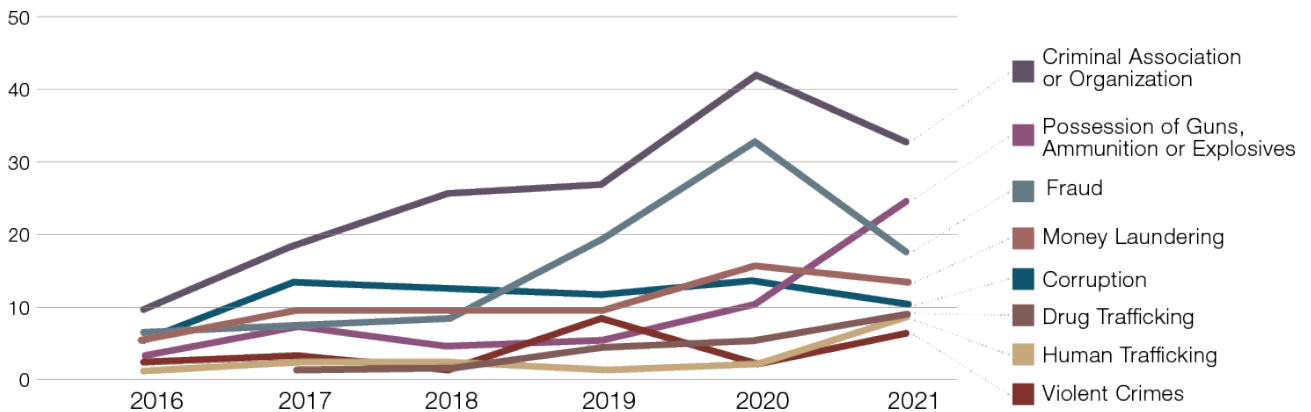


FIGURE 11 - Evolution of the Investigation of Converging Crimes per Year (2016-2021) *

Data collected from 300 Federal Police operations

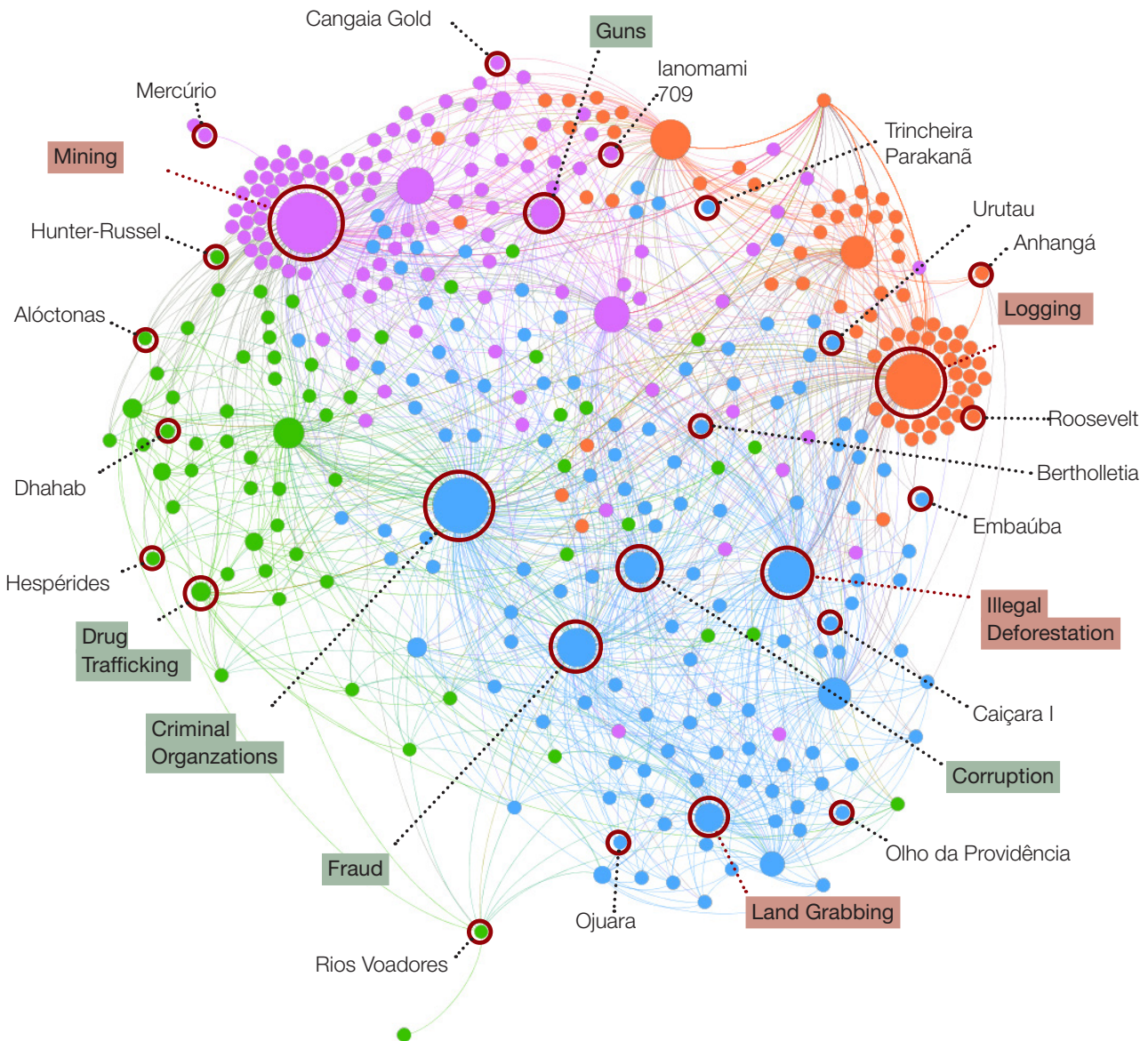
*N > 300, considering that operations may investigate more than one converging crime



To conclude this section, Figure 12 illustrates the entire ecosystem of environmental crime in the Brazilian Amazon uncovered through the set of Federal Police operations mapped out in the period. The figure highlights four subsystems interconnecting the operations, differentiated by color. The first subsystem (in orange) revolves around the illegal logging economy. The second (purple) revolves around

illegal mining. The third, in blue, refers to illegal deforestation, land grabbing, and agriculture and livestock farming. The fourth subsystem revolves around some non-environmental converging crimes, such as money laundering, drug trafficking, and tax-related offenses. The figure also highlights some emblematic operations carried out by the Federal Police, mentioned throughout this paper.

FIGURE 12- Ecosystem of Environmental Crime in the Amazon: Network of Federal Police Operations (2016-2021)



Conclusions

This strategic paper seeks to shine a light on an entire ecosystem of environmental crime in the Brazilian Amazon rainforest that flourishes largely unseen and unchecked on local and regional public policy agendas. Our study is a deep dive into containment strategies based on an analysis of multi-year actions carried out by the Federal Police in the fight against illicit and crime-tainted economies in the region. The paper highlights the growth and diversification of federal operations spanning half a decade and nine states comprising the Legal Amazon, with a particular focus on interventions in Pará, Rondônia, and Amapá. Analyzing data on federal police operations from 2016 through 2021, we tracked task forces as they fought illegal deforestation and targeted the four main drivers of Amazon plunder: land grabbing, illegal logging, illegal mining and agriculture and livestock farming compromised by environmental illegalities. Our study takes a close look at federal actions to suppress illegal logging and mining – especially wildcat gold prospecting.

The operations we mapped show a clear pattern: a criminal *modus operandi* that commands and thrives off of an increasingly complex ecosystem of unlawful acts that not only razes the forest and threatens the lives and wealth of Amazonian populations, but also puts global climate security in jeopardy. We draw special attention to the array of converging non-environmental crimes, which interact with, often accelerate and nearly always aggravate the assault on the Amazon. Hence the strategy by the Federal Police and the Federal Prosecution Office to widen the dragnet to catch those responsible for a cluster of converging crimes, such as fraud, corruption and money laundering. Taken together, these violations raise environmental offenses to a broader, systemic threat to order, well-being and the rule of law.

It is increasingly clear that the fight against organized environmental crime in the Amazon ultimately demands better intelligence and strategic prioritization. The goal must be to strengthen Brazilian State authority to deter and repress crimes and those who commit them. This implies fortifying administrative inspection capacity and criminal prosecution, both of which are currently constrained by scarce human and financial resources. This does not mean creating new types of penalties or toughening existing sanctions, except, perhaps, in the especially grievous case of land grabbing. Nor is this a cry for singling out those at the most vulnerable end of the illicit economies of the Amazon, especially day laborers and petty offenders who do the bidding of illicit networks. They need a living wage and licit alternatives not the blunt force of the law, not least when big criminals remain at large. Conversely, the Brazilian State must expand its capacity to investigate the complex networks of offenders behind environmental crime in the Amazon. This means prioritizing the apprehension of criminals and accountability for those who perpetrate environmental offenses – whether in government, the private and productive sectors, or those who ultimately stand to benefit from the looting of natural resources.

Beyond better operational strategies for investigation and criminal prosecution, authorities must heed the work of institutions such as the Federal Police – both its strengths and shortcomings. That entails confronting the constraints and governance challenges faced by public entities tasked with combating organized environmental crime in the Amazon. As evidenced in this paper, lawkeeping operations involve multiple institutional players working in tandem with the Federal Police. Prospects for successful operation turn on teamwork within specialized entities (environmental, social or even logistical, as in the case of the Armed Forces), that bring technical competence and institutional acumen in the field and at the policy tables. Hence the need to deploy criminal investigations to where they are needed most - to environmental

hotspots and territorial blindspots - and to broaden the conversation on how to make the official responses to such existential challenges effective. That involves improving strategic and operational coordination between different federal and subnational players, especially the police forces, the SISNAMA entities (responsible for the administrative policing of and accountability for environmental law violations) and the law enforcement agencies, such as the Prosecution Office and other judiciary institutions. In the Brazilian federal system, state governments, who prevail over the majority of Brazil's land, have the last word on inspecting, policing and curtailing illegal deforestation.³⁵ However, the federal government must also be willing to do its part to reduce illegal deforestation and slash greenhouse gas emissions to fulfill its national climate commitments under international agreements such as the UN Framework Convention on Climate Change. In this sense, the private sector must also step up and help Brazil make a more robust response to the environmental emergency at hand. That can't happen unless the productive sectors of the Brazilian economy join the effort to ensure traceability and transparency of supply chains, the adoption of best environmental compliance practices, risk analysis and damage mitigation mechanisms. This goes not only for goods and services companies produce directly but also ones they farm out to third parties who may fall under the official radar. The challenge is no different for the financial sector, where investors and creditors must agree on mechanisms to detect risks and liabilities incurred in environmental crimes and converging crimes all across the supply chain.

As well as giving greater visibility to the problem of organized environmental crime in the Amazon, local and national authorities must better comprehend the Federal Police mandate to carry out criminal investigation and

the broader need to improve the mechanisms of law enforcement. The country's highest law enforcement institution will be better for those coordinated efforts. So will the Brazilian State as it strives to control national territory, guarantee citizen rights, and safeguard the rule of law in the world's greatest tropical biome and beyond.

The fight against environmental crimes in the Amazon demands intelligence and strategic prioritization by institutions and government branches related to accountability and criminal persecution. There are tasks for the public sector, such as states and the federal government, and also for the private sector.

35 Jair Schmitt. *Crime sem castigo: a efetividade da fiscalização ambiental para o controle do desmatamento ilegal na Amazônia* [Crime without Punishment: the Effectiveness of Environmental Inspections in Controlling Illegal Deforestation in the Amazon]. PhD Thesis. Sustainable Development Center. Universidade de Brasília. Brasília: 2015.

Methodological Note

This strategic paper is based on a database prepared by the Igarapé Institute on Federal Police operations to dismantle the ecosystem of environmental crime in the Legal Amazon between 2016 and 2021. The database was built from a compilation of different sources of public information – starting with a list of official records until August 2021 of Federal Police operations to combat deforestation and other environmental crimes. The list was obtained through requests for information based on the Access to Information Law (Federal Law No. 12,527/2011). Secondly, the Igarapé Institute compiled a supplementary set of operations through an active search of news of Federal Police operations in the Legal Amazon in public sources, until December 31, 2021. Sources consulted include: the Federal Police website and websites of other government agencies involved in those operations, namely the Federal Prosecution Office and the Brazilian Institute for the Environment and Renewable Natural Resources (IBAMA), newspaper websites and news portals.³⁶

After reading the official public notes and news about each operation, the Igarapé Institute research team classified them according to a series of variables, as follows:

- State in which the Federal Police launched the operation.
- Specific location of the environmental crime that gave rise to the operation.
- Thematic focuses (or targets) of the operations (illegal deforestation and other illicit economies – land grabbing, illegal logging, illegal mining, and agriculture and livestock farming rife with environmental illegalities.
- Environmental crimes investigated related to the aforementioned focuses and targets or other illegalities provided for by Federal Law No. 9,605/1998 (pollution, crimes against fauna, criminal fires, administrative crimes such as violations by environmental civil servants while carrying out their activities, and other crimes against flora).
- Non-environmental converging crimes investigated in the course of the operation (such as corruption, fraud, money laundering, and violent crimes, among others).

Based on these data, the Igarapé Institute research team ran qualitative and quantitative analysis supported by descriptive statistics and network analysis. It is worth noting that the insights put forward in this study about the scope, scale, and dynamics of environmental crime in the Amazon have both strengths and weaknesses. The first methodological limitation concerns the database itself, as it was built using simplified administrative records from the Federal Police and public news, and not the entirety of police investigations (*inquéritos policiais*, in Portuguese), which are not necessarily public (except when they have

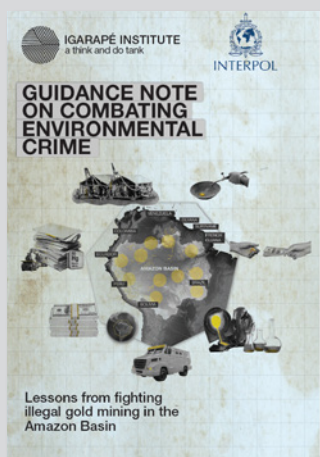
³⁶ It is important to point out that the Federal Police website became unstable by the end of December 2021. Thus, news regarding operations between the years 2016 and 2018, which had been consulted until December 2021, were no longer accessible to the public in 2022. Examples of newspaper websites and news portals queried: Portal G1, Isto É Magazine, O Globo newspaper, among others.

been included in a criminal case already filed and not subject to legal confidentiality). In this sense, the database does not contain information about operations still in progress or other less publicized Federal Police activities, such as flagrante delicto.

The second is the analytical limitation of the exercise proposed herein. Federal Police operations, while valuable, are also limited as indicators of the patterns of organized environmental criminality in the Amazon. When combined, the operations serve as a proxy for understanding the phenomenon, but do not give an entire picture of it. Administrative or criminal accountability operations are types of responses by the Brazilian State to this multidimensional problem. In the specific case of the Federal Police, analyzed herein, criminal investigation is inevitably limited to repressing criminal offenses, while the environmental agencies act as administrative police in charge of preventing or repressing environmental law violations (*infrações ambientais*, in Portuguese), among other attributions. The Federal Police has its own responsibilities in relation to environmental offenses, such as investigating federal crimes and crimes committed on lands owned by the Federal Government. Furthermore, the agency lacks human resources in the Amazon, especially to tackle environmental issues. Finally, operations are invariably the subject of political and operational decisions by those involved in designing and conducting them.

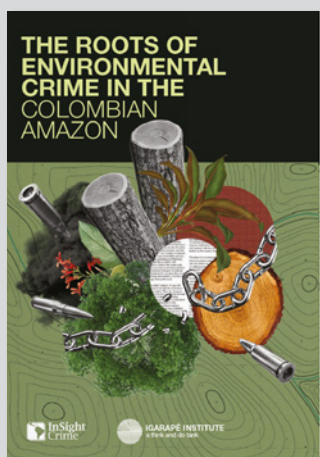
Aware that this is remains an initial effort to unpack the phenomenon, the Igarapé Institute will continue to work to collect and analyze these and other sources of information about the scope, scale and dynamics, as well as the responses of the Brazilian State and other players to dismantle organized environmental crime in the Amazon in Brazil and in other countries of the Amazon Basin, especially Colombia and Peru, on a regular basis.

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