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The impact of the independent canine policing company of the Amazonas Military Police with its drug detection dogs in reducing drug seizure rates in the southeastern region of Brazil

The impact of the performance of the independent police company with dogs of the Amazonas military police with its narcotic substance detector dogs to reduce the rates of narcotic seizures in the southeast region of Brazil

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ABSTRACT: The work of the Independent Canine Policing Company (CIPCÃES), part of the Amazonas Military Police, has proven to be a strategic element in combating drug trafficking in the Amazon region, particularly through the Arpão River Bases. This study analyzes the impact of this unit in reducing the flow of narcotics to the Southeast region of Brazil. The research begins with the question of the effectiveness of CIPCÃES operations in disrupting primary trafficking routes and raises the hypothesis that its integrated action with the Arpão Bases increases seizures, significantly reducing the volume of drugs reaching the Southeast. The qualitative and quantitative study combined a literature review and data analysis on seizures made between 2019 and 2024. The results showed that Arpão Base operations accounted for an average of 20.5% of drug seizures in Amazonas, with CIPCÃES contributing between 41% and 70% of this total, highlighting the importance of drug-detection dogs in anti-trafficking strategies. The study concludes that integrating regional efforts and using specialized technologies are crucial to disrupting criminal networks, and continued investment in infrastructure, training, and police intelligence is essential.

Keywords: Police dogs; Drug trafficking; Amazon; Arpão Bases.

ABSTRACT: The operations of the Companhia Independente de Policiamento com Cães - CIPCÃES, of the Amazonas Military Police, have proven to be a strategic element in combating drug trafficking in the Amazon region, especially through the Arpão River Bases. This study analyzes the impact of this unit on reducing the flow of narcotics to the Southeast region of Brazil. The research starts from the problem of the effectiveness of CIPCÃES operations in dismantling primary trafficking routes and raises the hypothesis that its integrated action with the Arpão Bases enhances seizures, significantly reducing the volume of drugs reaching the South-east. The work, with a quali-quantitative nature, combined literature review and data analysis on car seizures appeared out between 2019 and 2024. The results showed that the operations of the Arpão Bases were responsible for an average of 20.5% of drug seizures in Amazonas, with CIPCÃES contributing between 41% and 70% of this total, highlighting the relevance of substance-detecting dogs in anti-trafficking strategies. The study concludes that the integration of regional efforts and the use of specialized technologies are crucial to dismantle criminal routes, with continuous investment in infrastructure, training, and police intelligence being essential.

Keywords: Police dogs; Drug trafficking; Amazon; Harpoon Bases.

1. INTRODUCTION

The Amazon region, with its unique geographical characteristics, plays a central role in the fight against drug trafficking, not only because of its environmental and geopolitical relevance, but also as a one of the main routes for the flow of drugs produced in the Andean countries, denoting one of the main main concerns in the field of public security in Brazil (Couto and Oliveira, 2017; Couto, 2020).

The vast territorial extension and hydrographic network, combined with dense forest cover and limited government presence in remote areas, favor the operations of criminal organizations, making the Amazon region a hotspot for drug trafficking. In this context, the Amazon plays a key role.

RCMOS – Multidisciplinary Scientific Journal of Knowledge.
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double: it serves both as an entry point for drugs from Andean countries – Colombia, Peru and Bolivia – and as an outflow route to the large consumer centers in Southeast Brazil and to international markets (Couto and Oliveira, 2017; Jacarandá, 2024).

Furthermore, Machado (2001) attributes to the city of Manaus the nickname of "center of operations" for drug trafficking organizations in the Amazon Basin. As the largest metropolis in the region, the city became a strategic transshipment hub in the international cocaine trafficking circuit. Urban development provided a complex intermodal system of national and international water, road, and air transportation, which favored international drug trafficking (Pfrimer and Motta, 2021).

Among the routes through which drugs are transported from producing countries to Brazilian territory, the Amazon routes (Couto, 2020) and the so-called “country route” (Abreu, 2017) stand out as the most important.
Although the rural route is notable for the ease with which cocaine crosses Peru and Bolivia via those countries' extensive rail networks, reaching Paraguay and entering Brazil via the triple border, thus reaching the major consumer markets of the Southeast, the Amazon route, according to Couto (2020), is an important primary supply route for the South and Southeast markets. From there, this route also supplies European markets, utilizing the international port infrastructure of these regions.

Given this reality, the National Border and Border Security Program is part of the government's strategy to combat cross-border crimes, with the aim of strengthening the integrated action of public security institutions in the Amazon (SSP-AM, 2024).

A milestone in this strategy was the creation and implementation of the Arpão River Base, inaugurated on August 4, 2020, in the municipality of Coari, 363 km from Manaus. Located on the Solimões River, this base's main objective is to support integrated police operations, focusing on combating drug trafficking. With an initial investment of R$17.5 million, the project is the result of a partnership between the Amazonas State Public Security Secretariat and the Ministry of Justice and Public Security (SSP-AM, 2024).

The expansion of this project was completed on January 3, 2024, with the delivery of the Arpão River Base 2, located between the Negro and Branco rivers. This new facility features advanced monitoring technology and covers strategic municipalities such as Barcelos, Novo Airão, and Santa Isabel do Rio Negro.

Furthermore, the government announced the creation of two additional river units: the Tiradentes River Base, which will operate in the Upper Solimões River basin, and the Paulo Pinto Nery River Base, which will be relocated to Itacoatiara, covering large areas such as Urucurituba, Maués, Autazes, and Parintins. All bases operate on several fronts, including combating drug trafficking, biopiracy, and the illegal extraction of natural resources, such as timber and gold (SSP-AM, 2024).

The River Bases bring together integrated personnel from the Amazonas Military Police, Civil Police, Amazonas Military Fire Department, Technical-Scientific Police Department and, in the case of Base Arpão 2, they have the support of the Roraima police forces.

In these integrated operations, provided by the Arpão Bases, the Independent Canine Policing Company (CIPCÃES-PMAM) has been instrumental in dismantling criminal networks through the use of illicit substance detection dogs, which operate 24/7. It is worth noting that dogs are highly accurate, reliable, and low-cost drug detection mechanisms compared to other detection techniques (Jantorno et al., 2024).

The complexity of the drug trafficking networks operating along these extensive Amazonian river routes poses an additional challenge for law enforcement agencies in intercepting drugs in the region. Therefore, CIPCÃES's operations at strategic points in the Amazon emerge as a potential solution to reduce the flow of drugs to Southeast Brazil, where consumption is high and violence associated with trafficking is rampant.

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is increasing.

From this perspective, the scientific question that arises is: does the work of CIPCÃES in the State of Amazonas, with substance detection dogs, directly impact the arrival of narcotics in the Southeast region of Brazil?

To answer this question, the guiding hypothesis consists of the fact that the integrated action of the Independent Canine Policing Company of the Amazonas Military Police, together with the Bases Fluvial Arpão, contributes significantly to reducing the flow of narcotics destined for the region Southeast Brazil, by disrupting primary and strategic drug trafficking routes through the seizure of narcotics.

Furthermore, the use of substance-detection dogs increases the efficiency of police operations, resulting in significant financial losses for criminal organizations and a reduced supply of drugs in large consumer centers.

To understand this context, the research's general objective is to determine whether CIPCÃES's activities in the state of Amazonas directly impact the flow of narcotics to the Southeast. The specific objectives include: 1. Mapping the main trafficking routes connecting the Amazon to the Southeast; 2. Describing drug seizure rates in Amazonas and Espírito Santo; 3. Identifying the main challenges faced by CIPCÃES in combating drug trafficking.

Given the above, the topic is relevant in the current scenario, as combating drug trafficking is a global priority due to its direct impacts on public safety, the economy, and the health of the population. In Brazil, drug trafficking is directly associated with the increase in urban violence, the strengthening of criminal gangs, and the escalation of crimes such as homicide, robbery, and arms trafficking, especially in the southeast region of the country, which is the main consumer market.

CIPCÃES has demonstrated a significant role in seizing drugs along strategic routes in the Amazon. Therefore, understanding the impact of this activity is essential to identify best practices that can be replicated in other regions and to justify investment in specialized technologies and training. Furthermore, this analysis can inform the formulation of more effective public policies to combat drug trafficking at the national level.

The proposed article will be authored by two officers of the Espírito Santo Military Police, members of the institution's Canine Action Battalion, who work directly in combating drug trafficking using dogs. Through their experience in the Substance Detection Course, sponsored by CIPCÃES-PMAM, they observed how the work developed in this Unit can bring direct benefits to Espírito Santo society by reducing the amount of narcotics entering Espírito Santo and reducing the power of criminal organizations.

2. THEORETICAL FRAMEWORK

2.1 DRUG TRAFFICKING ROUTES BETWEEN THE AMAZON AND SOUTHEAST BRAZIL

Drug trafficking routes in Brazil reflect the complexity of the criminal logistics that connect production and distribution regions. In the Amazon, the unique geography, composed of long rivers, dense vegetation, and difficult-to-access areas, facilitates the movement of drugs from producing countries such as Colombia, Peru, and Bolivia. These narcotics then travel to major consumer centers in the Southeast, such as São Paulo, Rio de Janeiro, and Espírito Santo, using both rivers and highways (Forum

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Brazilian Public Security, 2023; Jacarandá, 2024).

The Solimões River route is often cited as the main transit corridor, particularly for cocaine, due to its proximity to the Brazil-Colombia-Peru tri-border, passing through the central region of Amazonas, Tabatinga, and Manaus, before entering the Southeast region. This route highlights the alliance between two criminal factions: the Comando Vermelho of Rio de Janeiro and the Comando Vermelho of Amazonas (Couto, 2020).

Other routes widely used for the drug to reach the Southeast originate in Paraguay, in border regions with Paraná and Mato Grosso do Sul; and in Mato Grosso, on the border with Bolivia, passing through São Paulo until reaching Rio de Janeiro and Espírito Santo (Abreu, 2017).

However, recent studies highlight the importance of land routes, such as BR-364, which connects Rondônia to the Southeast, and BR-319, which connects Amazonas to Acre and Mato Grosso. These routes offer greater agility and multiple diversion options, making them essential for the overland flow of narcotics (Jaca-randá, 2024; SSP-AM, 2024).

One of the little-known routes, however, important in this flow process, is the Manaus - Palmas - Vitória corridor, which connects the North to the Southeast region, connecting production and transport areas to the ports used for export (UNODC, 2023).

This specific route begins in Manaus, with cocaine arriving in the city via the Solimões River and land routes connecting the Brazil-Colombia-Peru tri-border. From Manaus, the drugs are transported by river and road, using the local road network to reach Palmas, in the state of Tocantins.

Palmas plays a pivotal role in this corridor, serving as an intermediary point for the storage and redistribution of drugs. Its strategic location facilitates access to highways connecting the North and Southeast regions, allowing for the transportation of large shipments in cargo vehicles. BR-153, known as the Belém-Brasília Highway, is widely used in this section, ensuring speed and discretion in the transit of narcotics.

Upon reaching Vitória, in Espírito Santo, the drug finds an important exit point to the international market. The ports of the Espírito Santo capital are used by criminal organizations to export the drugs, primarily to Europe and Africa. Vitória's proximity to other major consumer centers in the Southeast, such as São Paulo and Rio de Janeiro, also favors the domestic distribution of cocaine, solidifying this route as one of the main drug trafficking corridors in Brazil (Carone and Pinheiro, 2023).

Along this route, criminal organizations employ various methods to conceal and transport drugs. Among the most common are the use of cargo vehicles disguised as regular freight transport, the use of vessels on less-regulated rivers, and the division of cargo to hinder large-scale seizures. Furthermore, the use of technology, such as GPS trackers, helps criminals monitor the route and react quickly in the event of police operations (Jacarandá, 2024; Brazilian Forum).
of Public Security, 2023).

These routes, as seen in Figure 1, are reflected in the seizure rates recorded in Amazonas and Espírito Santo. While in Amazonas, operations focus on riverine areas and the initial interception of cargo, in Espírito Santo, actions focus on port and road inspections. Despite joint efforts, the sophistication of criminal networks and the vastness of the territory pose significant challenges for security forces (SSP-AM, 2024; UNODC, 2023).

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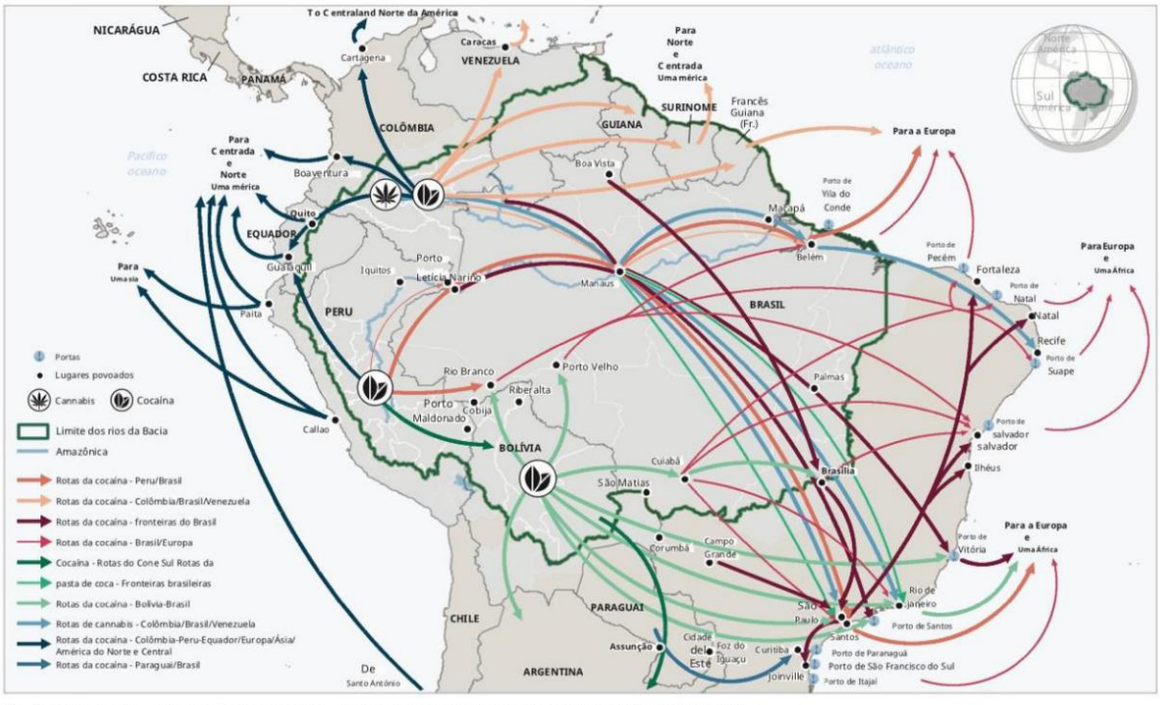
ISSN: 2675-9128. São Paulo-SP.

FIGURE 1. Routes used by drug trafficking in the Amazon Basin



TOs limites e nomes mostrados e as designações usadas neste mapa não implicam endosso ou aceitação oficial pelas Nações Unidas.

Source: UNITED NATIONS OFFICE ON DRUGS AND CRIME – UNODC, 2023.

2.2 SEIZURE RATES IN AMAZONAS AND ESPÍRITO SANTO

Analysis of seizure rates reveals distinct dynamics between the regions of origin and destination of drugs. In Amazonas, the implementation of integrated policies, such as the Arpão River Bases, has been a determining factor in the increase in seizures in recent years. For example, the Arpão Base alone was responsible for the seizure of more than fourteen tons of narcotics in 2024, demonstrating the effectiveness of interception actions at the initial points of the routes (SSP-AM, 2024).

In Espírito Santo, the seizures are mainly related to the state's role as a strategic logistical hub, with access to ports that facilitate the export of drugs to international markets.

Despite its smaller territorial area compared to Amazonas, Espírito Santo stands out for the high volume of narcotics intercepted in urban areas and along the logistics corridors connecting the state to the rest of the Southeast. In 2024, there was an increase of over 200% compared to the previous year, with the seizure of 7.5 tons of drugs (Brazilian Public Security Forum, 2023).

According to the National Waterway Transportation Agency (ANTAQ), maritime exports are one of the country's strongest economic sectors, generating approximately $200 billion annually. Drug trafficking uses these logistics to maintain clandestine operations, particularly involving cocaine, to other continents (Carone and Pinheiro, 2023).

2.3 CHALLENGES FACED BY THE INDEPENDENT POLICE COMPANY WITH DOGS (CIPCÓES)

The Independent Canine Police Company (CIPCÃES) plays a crucial role in combating drug trafficking, notably using detection dogs in large-scale operations. However,

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ISSN: 2675-9128. São Paulo-SP.

CIPCÃES's performance faces significant challenges, which include:

- •Limited logistical infrastructure: The Amazon region presents operational challenges due to the lack of adequate infrastructure, such as paved roads and fixed operational bases. This directly impacts team mobility and the continuity of operations in remote areas (SSP-AM, 2024).

- •Training and Resources: Dog training and technical development for police officers require ongoing investment. Despite the positive results, the need for greater financial support to acquire equipment and expand teams remains an obstacle to broader operations (Brazilian Public Security Forum, 2023).
- •Adapting to changing trafficking routes: Criminal organizations frequently alter their routes and methods to avoid areas of increased surveillance. This requires constantly updating strategies and using intelligence tools, such as data analysis and integrated monitoring (UNODC, 2023).

3. MATERIAL AND METHOD

This study is qualitative and quantitative in nature, aiming to collect data on drug seizures in the state of Amazonas, through the primary drug trafficking routes, and analyze them, seeking to understand their relationship with the flow of narcotics reaching the Southeast region of Brazil. This qualitative and quantitative approach allows for a more comprehensive understanding of the object of study, combining objective and subjective aspects (Gil, 2002).

The purpose of this research is exploratory, through the analysis of existing literature, seeking to “provide greater familiarity with the problem, with a view to making it explicit or constructing hypotheses” (Gil, 2002, p. 41), as well as explanatory, when analyzing the performance of the Independent Canine Policing Company (CIPCÃES) in the State of Amazonas and its influence in reducing the flow of narcotics to the Southeast region of Brazil.

The hypothetical-deductive approach method was adopted, characterized, according to Lakatos and Marconi (2003), by starting from a problem, formulating a hypothesis that may be able to adapt to the facts, solve it or explain it and, then, proceeding deductively, through experimentation and observation, to test the hypothesis.

The choice of this methodology is justified by the relevance and scope of the topic, which involves multiple aspects, such as public safety, drug trafficking logistics, the impact of public policies, and the use of specialized technologies, including the use of substance-detecting dogs.

As for the method of procedure, the research consists of carrying out a bibliographic review that is “developed based on material already prepared, consisting mainly of books and scientific articles” (Gil, 2002, p. 44). Thus, relevant sources were consulted, such as academic articles, government reports, official documents, studies published by public security organizations and specialized literature. specialized in the area of combating drug trafficking.

4. RESULTS AND DISCUSSIONS

This chapter will provide a preliminary analysis of drug seizure data by region of Brazil and, consequently, a parallel analysis of seizures in the State of Amazonas and Espírito Santo, between

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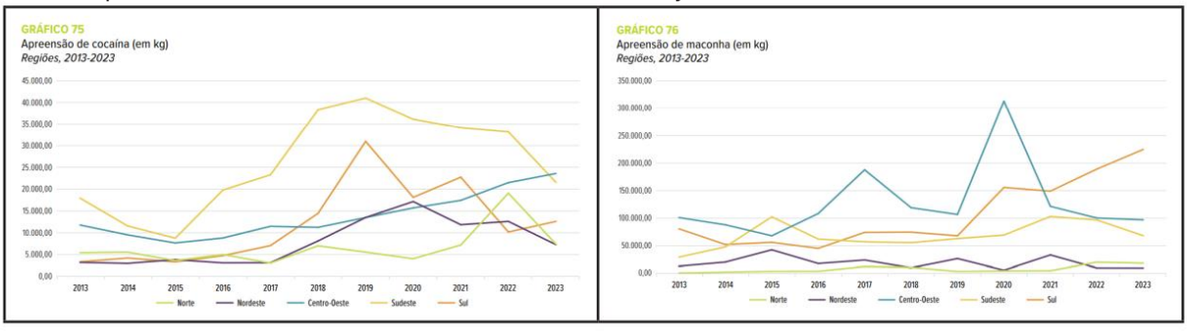
ISSN: 2675-9128. São Paulo-SP.

2019 and 2024, highlighting the effectiveness and challenges faced by public security forces in combating drug trafficking.

However, during data collection, a gap was identified in the lack of data submitted by some states to the National Secretariat for Drug Policy, such as Rio de Janeiro and Minas Gerais. One of the goals of the Federal Government and the Brazilian Public Security Forum (FBSB) is to systematically integrate data from state police forces, but this has not yet been achieved. This lack directly impacts the completeness of analyses and the formulation of integrated public policies, hindering a comprehensive view of the flow of narcotics within Brazil.

As a way of resolving this issue, the data, extracted from the FBSP, presents national data on drug seizures in Brazil, compiled from information from the Federal Police (which may contain data on seizures from other federal public security institutions), thus allowing the first intended analysis to be carried out, by regions of Brazil, as observed in Graph 1.

Graph 1. Seizure of narcotics in Brazil from 2013 to 2023 by the Federal Police



Caption: A) Cocaine seizure (in kg); B) Marijuana seizure (in kg). Source: Brazilian Public Security Forum, 2023.

The Southeast Region leads the Federal Police in seizures of cocaine and its derivatives, with a peak of approximately 40,000 kg in 2019 and a downward trend since then. The Central-West Region, in turn, has shown steady, gradual growth, eventually leading the ranking in 2023, overtaking the Southeast. The North Region is gaining prominence mainly in

2022.

These changes in the seizure ranking reflect a possible shift in trafficking routes, seeking to reduce vulnerability in regions with greater oversight. The Southeast's prominence highlights its relevance as a consumer market and a logistical hub for drug exports to Europe, Africa, and Asia.

Regarding seizures of marijuana and its derivatives, reported by the Federal Police, the Central-West and South regions are the most frequent, with peaks of over 300,000 kg in 2020 and over 200,000 kg in 2023, respectively. The predominance of these regions reflects their geographic location,

close to the entry and production routes of marijuana (mainly Paraguay and Bolivia).

The second analysis will highlight drug seizures made by the Public Security Agencies of the States of Amazonas and Espírito Santo, based on information provided by their respective Public Security Departments. Unlike the previously analyzed data, which focused on the Federal Police's actions, this time it will be possible to verify the actions, primarily of the military and civil police, in combating drug trafficking.

This distinction is interesting to understand the importance of public security agencies.

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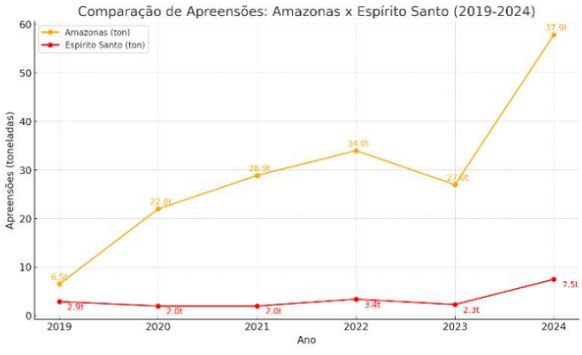
ISSN: 2675-9128. São Paulo-SP.

state authorities in their actions against organized crime. For example, based on Graph 1, it was found that the Federal Police, combining all the states in the Northern Region, seized approximately 25 tons of cocaine and marijuana, while, as shown in Graph 2, in the state of Amazonas alone, the military and civil police seized almost 30 tons of these drugs.

Graph 2. Seizure of narcotics in the State of Amazonas and Espírito Santo

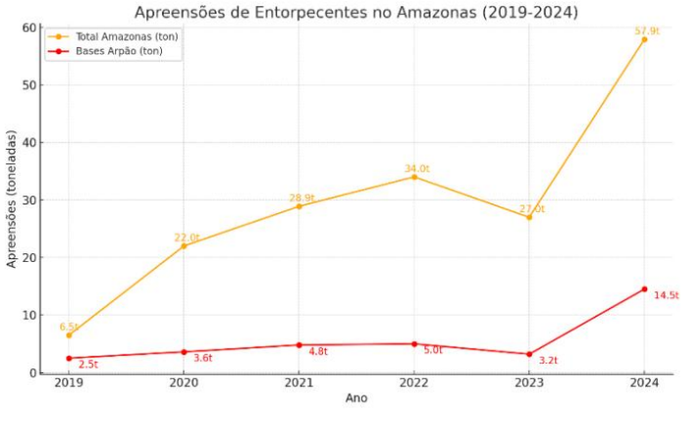


Source: SSP-AM (2024); SESP-ES (2024). Prepared by the author.

Unlike what was observed in the northern region as a whole, where there were fluctuations in the seizure of narcotics by the Federal Police from 2019 onwards (Graph 1), in the State of Amazonas, there was a dizzying increase in these seizures by the State Police, demonstrating the relevance in the national context of the Amazon drug trafficking routes.

This significant increase in seizures since 2019 highlights the positive impact of the Arpão River Bases (created that same year) and the work of the Independent Canine Policing Company (CIPCÃES). Operations with substance-detecting dogs have enabled the interception of large volumes of drugs on the primary routes connecting the Amazon to the Southeast, particularly in 2020, which saw a 238% increase compared to the previous year, totaling 22 tons of drugs seized (Graph 3).

Chart 3. Seizure of narcotics in the State of Amazonas (2019-2024)



Source: SSP-AM (2024); Prepared by the author.

However, the 20.6% drop in seizures in 2023 raises concerns about the adaptation of criminal organizations to enforcement strategies, such as the redistribution of routes and the use of sophisticated technologies, and the State must quickly adopt new action strategies.

In 2024 (data up to October), seizures in the State reached record amounts of 57.9 tons.

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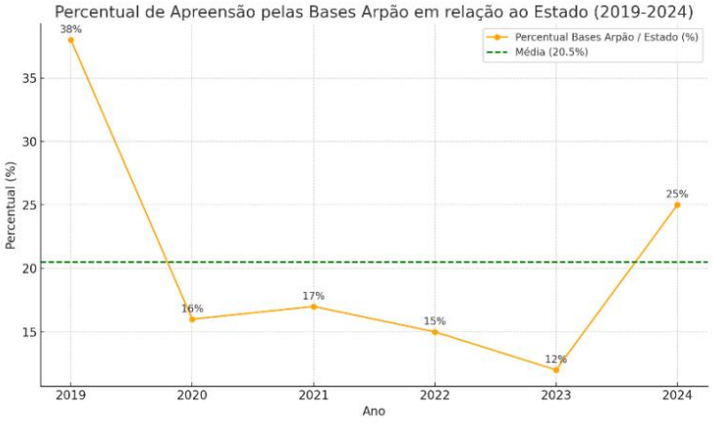
seized (+114% compared to the previous year), of which 14.5 tons (25%) were intercepted at the Arpão Bases alone, demonstrating the effectiveness of this strategy. As can be seen in Graph 4, since its implementation, the Arpão Bases have been responsible for an average of 20.5% of drug seizures in the entire state of Amazonas.

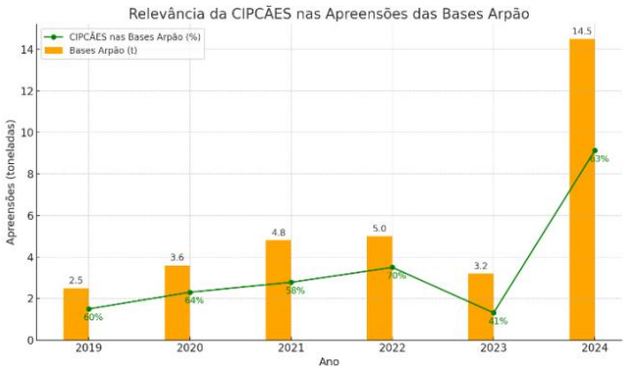
Graph 4. Percentage of narcotics seized by Arpão Bases compared to the total seized by the State of Amazonas (2019-2024)



Source: SSP-AM (2024); Prepared by the author.

It is important to emphasize that the effectiveness of this operation is largely due to the decisive use of CIPCÃES substance detection dogs, highlighting the continued importance of this form of action as a crucial component in strategies to combat drug trafficking, as can be seen in Graph 5.

Graph 5. Percentage of drug seizures carried out by CIPCÃES compared to the total seized by Arpão Bases (2019-2024)



Source: SSP-AM (2024); Prepared by the author.

Throughout the years of operation of the Arpão Bases, CIPCÃES has maintained a substantial contribution to operations, with percentages ranging from 41% to 70%. This demonstrates the effectiveness of using substance-detection dogs in areas critical to drug trafficking. These data reinforce the need for continued investment in CIPCÃES's training and infrastructure to ensure successful results.

increasingly expressive states.

In Espírito Santo, drug seizures followed a distinct pattern, reflecting the characteristics of the State as a strategic logistical point in the Southeast, with great relevance for the flow of

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drugs for the international market.

As shown in Chart 2, between 2019 and 2021, the State of Espírito Santo saw a 32% cumulative reduction in seizures, with volumes stabilizing at around 2 tons per year. From 2022 onward, there was a significant 73% increase, reaching 3,468 tons of drugs, until reaching a peak in 2024 (data up to October), where it registered 7,513 tons (+213% compared to the previous year), possibly associated with the strengthening of operations in logistics corridors.

It is possible to verify based on the analyzed data that, while the State of Amazonas focuses on initial interception on river routes (Arpão Bases), Espírito Santo focuses on port and road operations, reflecting its function as an exit and redistribution point.

FINAL CONSIDERATIONS

This study demonstrated how the actions of the CIPCÃES of the Military Police of the State of Amazonas, with the use of substance detection dogs at the Arpão Bases, strategically positioned at key points along the Amazonian drug routes, significantly contribute to the seizure of narcotics from producing countries such as Colombia and Peru, enhancing the efficiency of police operations, resulting in significant financial losses for criminal organizations and a reduced supply of narcotics in large centers, including the Southeast Region, the main consumer within Brazilian territory.

Espírito Santo, although it records lower absolute volumes of seizures, plays a crucial role in the flow of drugs to the international market, with a focus on port and road inspections.

Both states face distinct but complementary challenges in combating trafficking: while Amazonas acts as an initial interception point on entry routes, Espírito Santo positions itself as a barrier to the flow of drugs abroad.

The integration of regional strategies, such as the Arpão Bases in Amazonas and logistics operations in Espírito Santo, reinforces the need for national coordination to effectively combat drug trafficking through integration between different public security forces.

Although the lack of consolidated data on seizures carried out by some state police forces in the Southeast (such as Rio de Janeiro and Minas Gerais) limits a more robust analysis of the direct impact on the final destination of narcotics, it was possible to confirm the hypothesis raised and achieve the proposed objectives, reinforcing the importance of dismantling the primary drug trafficking routes to reduce the flow of narcotics destined for the Southeast, the main consumer region.

This highlights the importance of the Federal Government's effective participation in strategic leadership and coordination of the actions of other federated entities, considering the global dynamics of drug trafficking and its direct impact on all regions.

In this context, it is therefore essential to create systems that expand the exchange of information between states to dismantle alternative routes, in addition to expanding the use of technologies and intelligence, including substance detection dogs and data analysis, to anticipate adaptations in drug trafficking.

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