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# UNVEILING THE WILDCAT GOLD MINING CASH BOOK

INSTITUTO  
ESCOLHAS





Unveiling the  
wildcat gold mining  
cash book

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# 1. Debits and credits

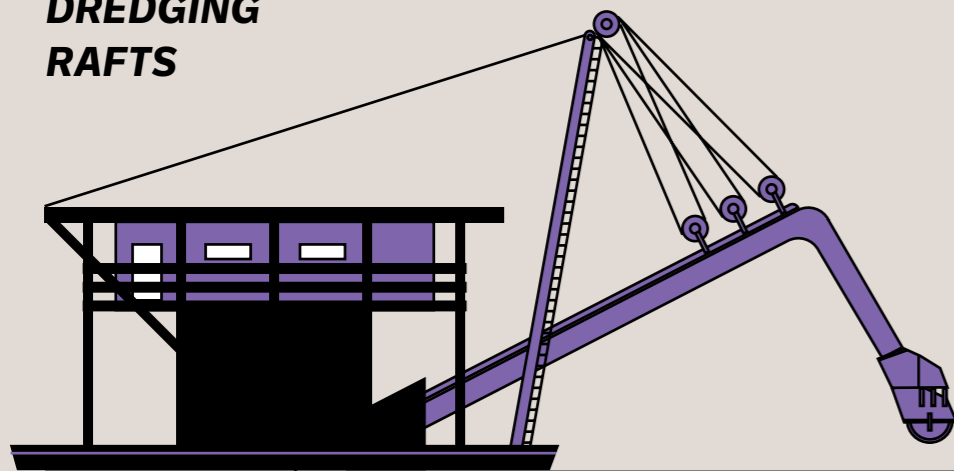


**GARIMPO**  
noun  
[ masculine ] /ga'rimpu/

Brazilian Portuguese term for wildcat mining. However gold *garimpos* in the Brazilian Amazon region operate on an industrial scale and are far from being a small and artisanal activity. Figures in this study proof the real dimension of *garimpos* located on the biggest tropical forest in the world. Those who work in the *garimpos* are called "garimpeiros".

Wildcat gold mining in the Amazon involves considerable financial resources and is far from being considered an artisanal activity. Check out the figures for typical wildcat mining operations below.\*

## DREDGING RAFTS

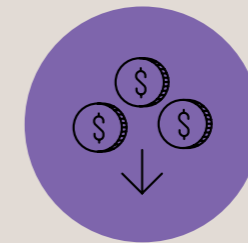


**US\$ 616,7 thousand**

The average investment in machinery, equipment and infrastructure to start operations of a gold mining raft.

**US\$ 238,5 thousand per month**

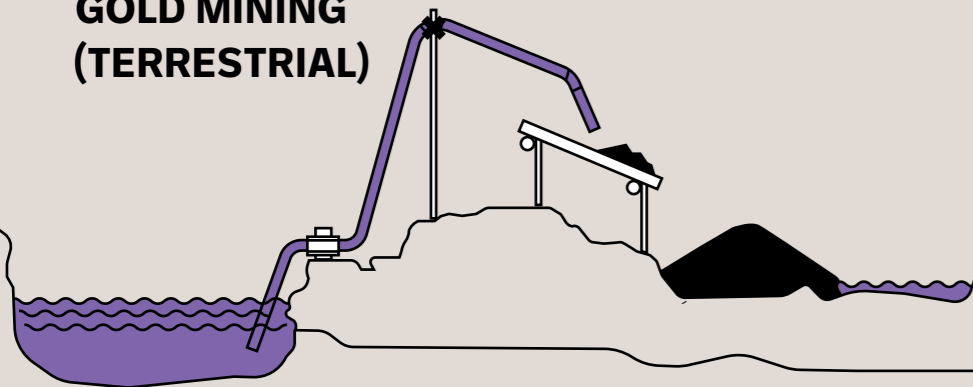
The estimated income of a gold mining raft on the rivers of the Amazon.



**US\$ 130 thousand per month**

The estimated profit of a gold mining raft.

## WILDCAT GOLD MINING (TERRESTRIAL)



**US\$ 281,6 thousand**

The average investment in machinery, equipment and infrastructure for opening a new wildcat gold mining site

**US\$ 191,2 thousand per month**

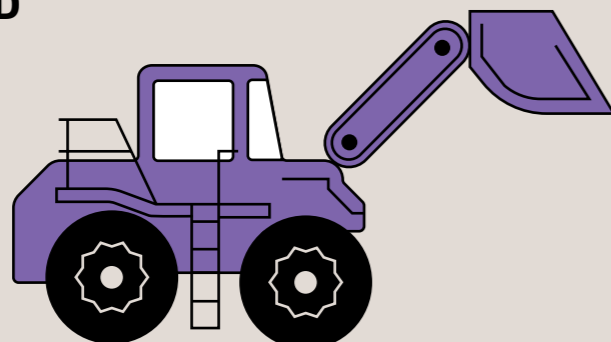
The estimated revenue of a wildcat gold mine in the Amazon.

**US\$ 70,5 thousand per month**

The estimated profit of wildcat gold mine.

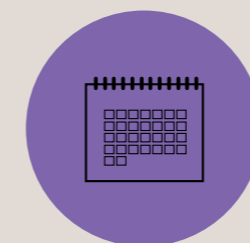


## MOTOR-BASED PRODUCTION RUN



**2012**

Wildcat miners ("garimpeiros") started to use excavators in the mines around 2012.



**1 month**

The time required to open a mining site without excavators.

**> 1 week**

The actual time required to open a mining site using an excavator.

\* US\$ 1 = R\$ 4,8 (Fonte: BCB, 29/06/2023).



# 1. The unbridled expansion of wildcat mining in the Amazon

Wildcat gold mining in Itaituba, Pará, Brazil. Photo: Carlos Bandeira Jr./Instituto Escolhas' Archive

**Far from being an artisanal activity, wildcat mining in the Amazon involves large volumes of financial resources and operates on an industrial basis. Its presence has expanded dramatically in recent years – and this did not occur randomly.**

Historically, several conditions have allowed and encouraged these activities because wildcat mining has always been considered an individual and small-scale activity. Thus, based on this argument, legislation facilitated operations. An example that substantiates this statement is the lack of prior requirement for mineral research and the authorized informality in labor relationships.

These conditions have eased further in recent years. The “presumption of good faith” – established in 2013 by Law No. 12844 – exempts companies that purchase wildcat gold (a metal that accounts for almost all of the country’s wildcat mining output) from any responsibility for its legal origin. These companies are only required to keep paper forms, filled in by hand, in which sellers declare the origin of the gold without providing any proof<sup>1</sup>. This procedure facilitated fraud aimed at the “laundering” of illegal gold and impaired the authorities’ work since the guarantee of good faith prevented the punishment of individuals and companies involved in schemes that could be otherwise framed for money laundering<sup>2</sup>.

In addition, Law No. 12844 established that anyone involved with wildcat gold mining could be a gold seller. After leaving a gold mine, the metal passes from hand to hand until it reaches a point of sale. The provision mentioned above prevented the authorities from holding any individual responsible for illegally mined material.

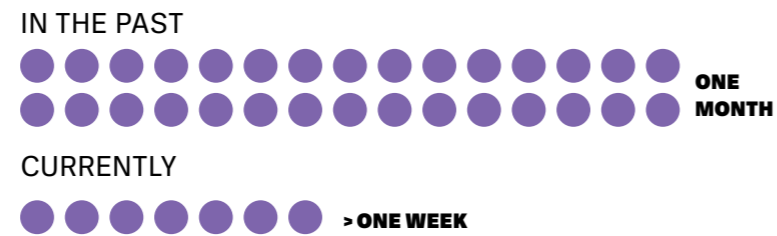
All this construction of legal guarantees allowed wildcat mining operations to structure and capitalize, which led to the increased use of excavators,

<sup>1</sup> In April 2023, the presumption of good faith, which is provided in Art. 39 of Law 12.844/2013, was suspended by decision of the Federal Supreme Court (STF). Said Court has not ruled on the matter yet. There are also legislative initiatives that intend to cancel the good faith, such as Bill No. 2159/2022 and Bill No. 3025/2023. Before using the information contained in this publication, check the status of the suspension or cancellation about the “good faith” provisions.

<sup>2</sup> Law No. 9613, dated March 3, 1998.



## AVERAGE TIME TO OPEN A TERRESTRIAL GARIMPO



mainly after 2012. Thanks to them, areas previously mined within one month were opened within just one week, and from then on, the expansion of wildcat mines was rapid and devastating. Between 2012 and 2021, the wildcat mining area in the Amazon doubled, growing by over 80,000 hectares (see chart). Today, said area is bigger than the entire area dedicated to industrial mining in the country<sup>3</sup>.

Such expansion was accompanied by severe environmental impacts (such as the degradation of forest areas and rivers, which do not recover naturally), damage to human health (due to the use of toxic substances, such as mercury), and human rights violations (with the invasion of protected areas and violence against indigenous peoples).

Despite this, in 2021, the environmental permitting of wildcat mining sites, which should be strict, became even more accessible in Pará, where most wildcat mining operations are located. A state decision transferred the environmental permitting procedures to the municipalities<sup>4</sup>, which have little structure for complex reviews – not to mention that the impacts resulting from operations often surpass the municipalities themselves, which would require centralized permitting.

The authorities must reverse those conditions urgently. The regulatory requirements for carrying out the wildcat mining operations must be strict and demanded from mine owners. Otherwise, the unbridled exploitation of mines will continue, generating huge environmental and social costs.

<sup>3</sup> Mapbiomas data available here. Accessed in June 2023.

<sup>4</sup> In Pará, COEMA Resolution No. 162, dated February 2, 2021, assigned to municipalities the responsibility for granting environmental permits of wildcat mines.

## IMPORTANT DEVELOPMENTS

In recent months, the country has experienced significant developments to help halt the unbridled expansion of wildcat mining in the Amazon. One development was implemented by the **Internal Revenue Service of Brazil** through the establishment of Electronic Invoices in transactions with gold from wildcat mines, which replaced the former paper invoices, reducing the fraud likelihood and facilitating inspection. The **Brazilian Federal Supreme Court** also allowed a critical development by rendering a decision within the scope of the Direct Action of Unconstitutionality 7273, which suspended the effects of good faith in the gold market based on the understanding that said provision impaired the controls in the gold chain. Instituto Escolhas' research contributed to these developments, especially the study [Gold under the microscope: more than 200 tons of Brazilian gold are potentially illegal](#), and the proposal [Blockchain, Traceability, and Monitoring for Brazilian gold](#).

## FINANCING AND INFORMALITY

As high as the cost of an excavator – which can reach more than BRL 1 million currently – is the demand from buyers for these machines in the region of Itaituba, in Pará. This is the finding of a series of interviews conducted by Escolhas' partner researchers with local players on-site, who reported the dynamics of this market in recent years, marked by relationships of trust. Bank credit lines for financing are not readily available since many operations can be carried out violating the legal rules. Some stores offer financing lines and facilities to purchase such machines. They also offer rental contracts and, sometimes, they even become “partners” in the operations, receiving their share in gold and bearing part of the loss in case of seizure by the authorities. These heavy machines have been used extensively, including within protected areas where mining is prohibited. According to a recent study by Greenpeace, between 2021 and 2023, 176 excavators operated illegally in the Yanomami, Munduruku and Kayapó Indigenous Lands<sup>5</sup>.

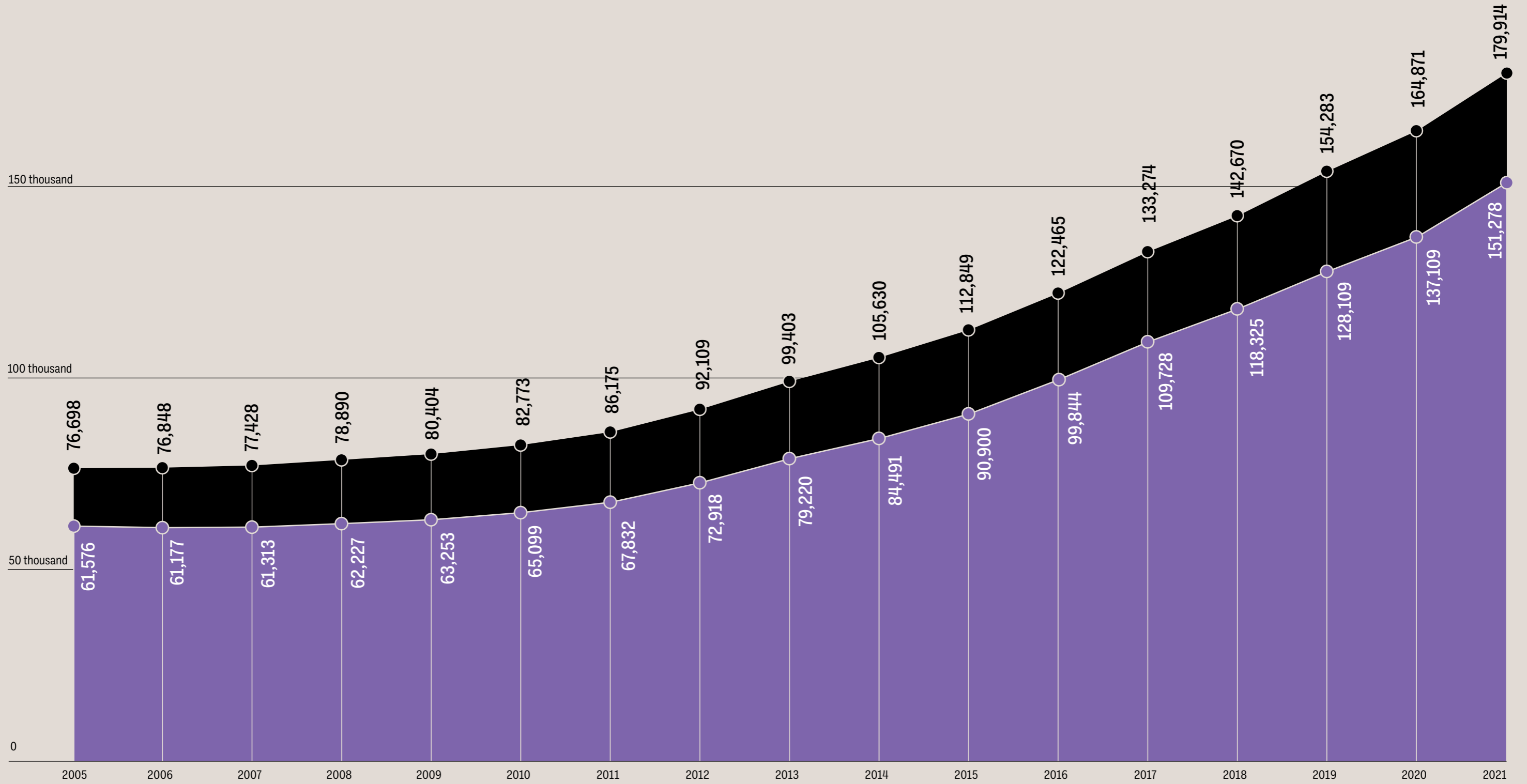
<sup>5</sup> Greenpeace, 2023. “Stop the Excavators”. Available here. Accessed in June 2023.



# Wildcat gold mining x Wildcat mining in Amazon

HECTARES

200 thousand



- ALL MINERALS
- GOLD

**Source:**  
Own elaboration based on data from Mapbiomas, Collection 7.



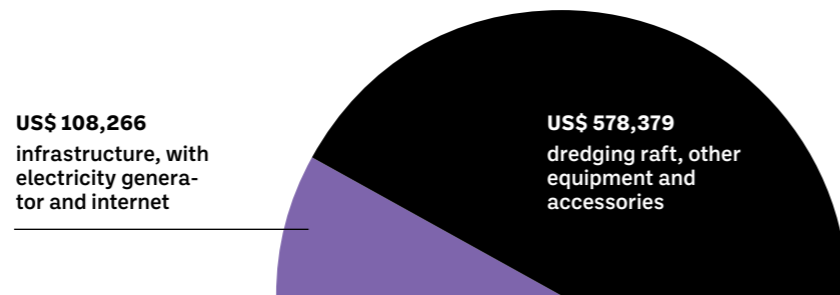
## I. Dredging Rafts

<sup>6</sup> The estimate takes into account the production of 150 g of gold per day and the operation on 25 days per month, since, even if the mining rafts operate uninterruptedly, they stop their activities during some weeks or months during the rivers dry period. One of the wildcat miners also acts as a manager in each team.

To estimate the financial volumes of a typical gold dredging raft operation, calculations considered a large mining raft with eighteen miners divided and rotated into three teams and two cooks. An average production of 3.75 kg of gold per month<sup>6</sup> was considered.

### INITIAL INVESTMENT

US\$ 616,7 thousand



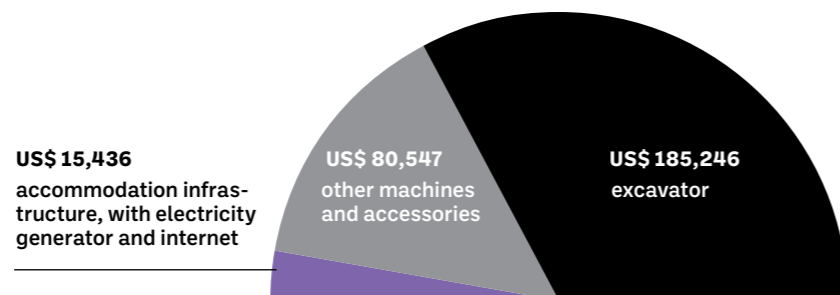
## II. Wildcat Gold Mines (terrestrial)

<sup>7</sup> The estimate takes into account the production of 120 g of gold per day and the operation on 25 days per month, since the wildcat mines stop their activities during a few weeks or months during the rainy season. One of the wildcat miners also acts as a manager in each team.

To estimate the financial volumes involved in wildcat mines along the riverbeds –terrestrial –calculations considered the use of one excavator that operates simultaneously in three areas (three “mining fronts”). Hydraulic pumps also bring down the ravines and pump the sediments. The team comprises eighteen wildcat miners – six per area – an excavator operator, and two cooks. Calculations considered an average production of 3 kilos of gold per month<sup>7</sup>.

### INITIAL INVESTMENT

US\$ 281,6 thousand



Wildcat gold mining in Itaituba, Pará, Brazil. Photo: Carlos Bandeira Jr./ Instituto Escolhas' Archive

## WHICH COSTS ARE LEFT OUT?

Given the financial volumes in the operation of wildcat mines, whether the mining is carried out with dredging rafts or in open sites, we call attention to the critical costs that, today, are not accounted for and end up being paid by the entire society. According to estimates from the Mining Impact Calculator, developed by the Conservation Strategy Fund (CSF) and the Federal Public Prosecution Office (MPF)<sup>8</sup>, the costs for **environmental recovery**<sup>9</sup> of the affected areas range from US\$ 33 thousand<sup>10</sup> to US\$ 89,9 thousand<sup>11</sup> per month, depending on the type of operation. In addition, to deal with the **impacts on the health** of people exposed to the mercury used in gold mining, the necessary resources could range from 411,6 thousand<sup>12</sup> to US\$ 823 thousand<sup>13</sup> per month. The wildcat mining finances also do not include proper and safe working conditions or labor costs – they consider wildcat miners (“garimpeiros”) as “partners,” whose “salary” is an informal compensation without social guarantees.

<sup>8</sup> Conservation Strategy Fund and Federal Public Prosecution Office, 2021. Mining Impact Calculator. Available here. Accessed in June 2023. <sup>9</sup> Recovery costs include backfilling, erosion control and dredging of areas. <sup>10</sup> Considering the regular dredging raft operation estimated in this study, with the extraction of 3.75 kg of gold per month. <sup>11</sup> Considering the regular terrestrial operation estimated in this study, with the extraction of 3 kg of gold per month. <sup>12</sup> Considering terrestrial operation. <sup>13</sup> Considering dredging raft operation.



## I. Monthly financial volumes in the operation of a dredging raft

<b>MONTHLY INCOME</b>	<b>US\$ 239,276.00</b>		For the production of 3.75 kilograms of gold
<b>COST OF CAPITAL</b>	US\$ 11,951.00		Monthly cost related to initial investments in machinery and infrastructure, considering equipment life and depreciation
<b>FIXED COSTS AND SALARIES</b>	US\$ 4,981.00		This sum includes the salary of two cooks and the monthly internet fee.
<b>VARIABLE COSTS</b>	US\$ 44,067.00		This sum includes the team's meal (BRL 25,523) and fuel and mercury costs (BRL 188,575).
<b>VARIABLE EARNINGS</b>	US\$ 47,855.00		This includes the remuneration of miners.
<b>OTHER COSTS</b>	US\$ 351.50		Administrative costs
<b>AVERAGE MONTHLY PROFIT</b>		<b>US\$ 130,069.00</b>	

## II. Monthly financial volumes in the operation of wildcat mines

<b>MONTHLY INCOME</b>	<b>US\$ 191,421.00</b>		For the production of 3 kilos of gold
<b>COST OF CAPITAL</b>	US\$ 2,332.00		Monthly cost related to initial investments in machinery and infrastructure, considering equipment life and depreciation
<b>FIXED COSTS AND SALARIES</b>	US\$ 4,981.00		This sum includes the salary of two cooks and the monthly internet fee.
<b>VARIABLE COSTS</b>	US\$ 48,799.00		This sum includes the team's meals (BRL 26,250) and expenses with fuel and mercury (BRL 210,838).
<b>VARIABLE EARNINGS</b>	US\$ 45,200.00		This sum includes the remuneration of the wildcat miners' team and an excavator operator.
<b>OTHER COSTS</b>	US\$ 19,493.00		Administrative costs
<b>AVERAGE MONTHLY PROFIT</b>		<b>US\$ 70,614.00</b>	

**Source:** Source: Values based on interviews and price surveys.

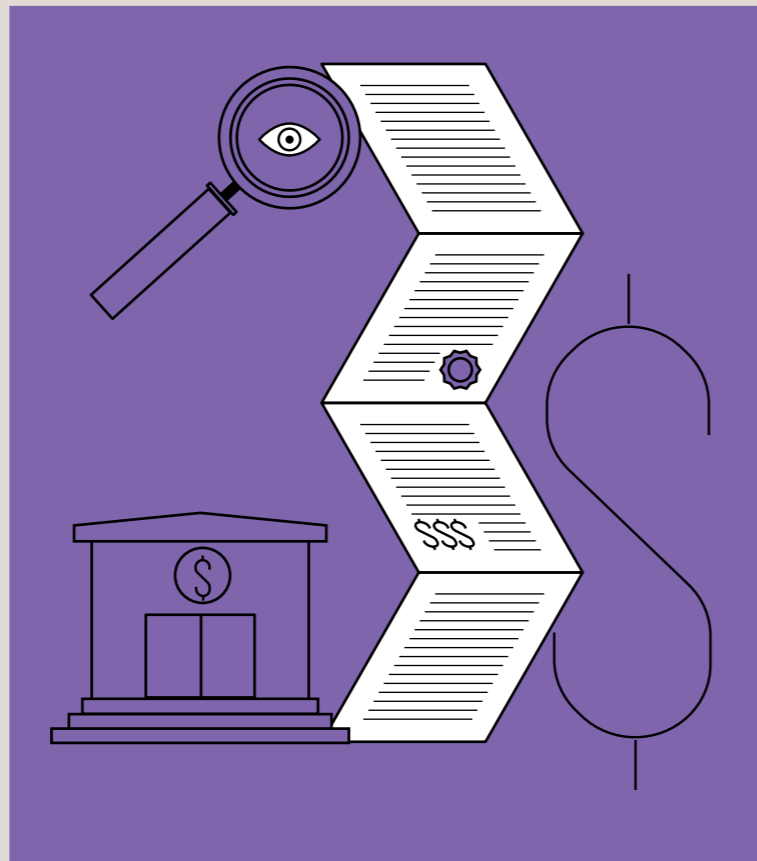
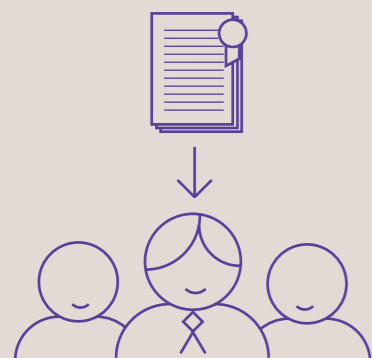




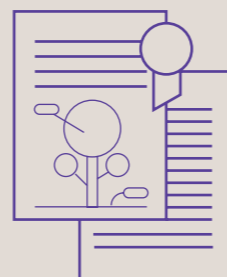
# 3. Urgent measures

The following are some necessary and urgent actions:

- Start demanding mineral research work from wildcat mining operations, with plans for economic use, to estimate the volumes of minerals available in the area and extraction over time<sup>14</sup>.
- Limit the number of wildcat mining permits to just one per person or cooperative, always respecting the limit area defined by law<sup>15</sup>.
- Cancel all mining requests and permits within areas where mining is not allowed, such as Indigenous Lands and other Protected Areas<sup>16</sup>



- Require proof of financial capacity from wildcat mining permit holders to ensure they can fulfill their environmental and social responsibilities.
- Maintain rigid and centralized environmental permitting, consistent with the potential impacts of the activity and do not provide this responsibility to municipal environmental agencies<sup>17</sup>.



**The unbridled expansion of wildcat mining in the Amazon must be halted, given its severe impacts on forest conservation, human health and the rights of affected people and communities. Each authority must do its part to reverse the problems that have settled in the region: Ministry of Mines and Energy, National Mining Agency, environmental agencies and National Congress need to establish strict requirements consistent with the magnitude of operations.**

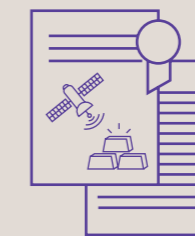


- Demand and inspect the recovery of degraded areas and environmental and social compensation<sup>18</sup>.
- Create a ceiling for gold production in wildcat mines and, based on this, establish a mandatory migration to the mining concession regime<sup>19</sup>.
- Suspend new rounds for making wildcat mining areas available until the bottlenecks in inspection and the fight against illegalities are duly corrected.

- Cancel, definitively, the “presumption of good faith” in the gold trade and other articles of Law No. 12844/2013 that weaken controls (Arts. 37 to 42).



- Create a digital system that integrates information on production, trade and transport of minerals to ensure traceability of origin and transparency in the industry<sup>20</sup>.



- Approve Bills No. 3025/2023 and 2159/2022, which define control and traceability mechanisms for gold, such as transport and custody slips and physical marking of gold lots.

<sup>14</sup> As provided in Art. 6 of Law No. 7805/1986, which provides for the request for research work for mining permits.

<sup>15</sup> According to item III of Art. 5 of Law No. 7805/1989, the permitted area cannot exceed 50 hectares, except when granted to miners’ cooperative. Therefore, the same person cannot have an unrestricted number of mines, which jointly exceed the limit of 50 hectares. This also applies to the case of cooperatives, whose titles should not exceed the area limit.

<sup>16</sup> Mining processes mean not only permits and authorizations, but also requests.

<sup>17</sup> In the state of Pará, where wildcat mining activities are concentrated, COEMA Resolution No. 162, dated February 2, 2021, vested the municipalities with authority for granting environmental permits for wildcat mining. Due to the potential impacts of the activity, this procedure should be centralized.

<sup>18</sup> As provided for in the clauses of the sole paragraph of Art. 6-A of Decree-Law No. 227/1967; in Art. 19 of Law No. 7805/1989; and in the 2nd Paragraph of Art. 5 of Decree No. 9406/2018.

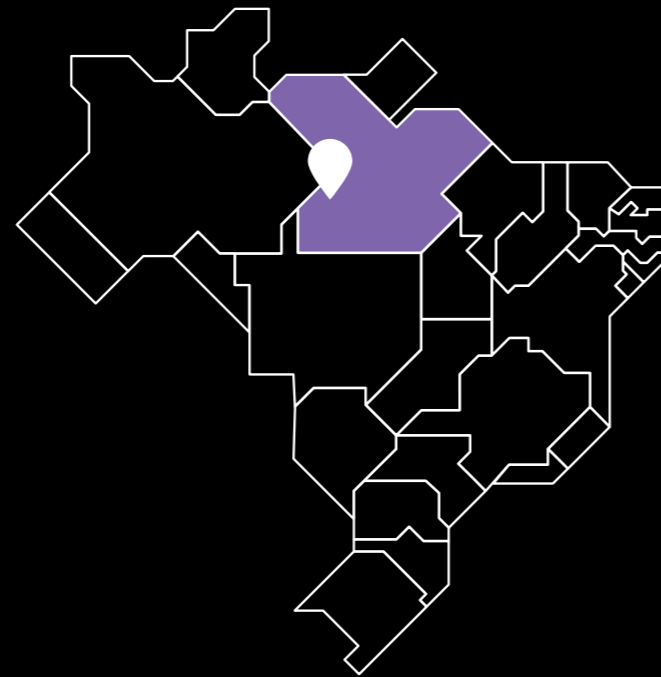
<sup>19</sup> According to the sole paragraph of Art. 1 of Law nº 7805/1989, the managing body of mineral resources is responsible for establishing the criteria for the permissions for wildcat mining.

<sup>20</sup> Whereas the Federal Government is responsible for administering the distribution, trade and consumption of mineral products, in accordance with the provisions of Art. 1 of Decree-Law No. 227/1967, and that the mining activity also covers the transportation and sale of ores, pursuant to the provisions of Art. 5 of Decree No. 9406/2018.



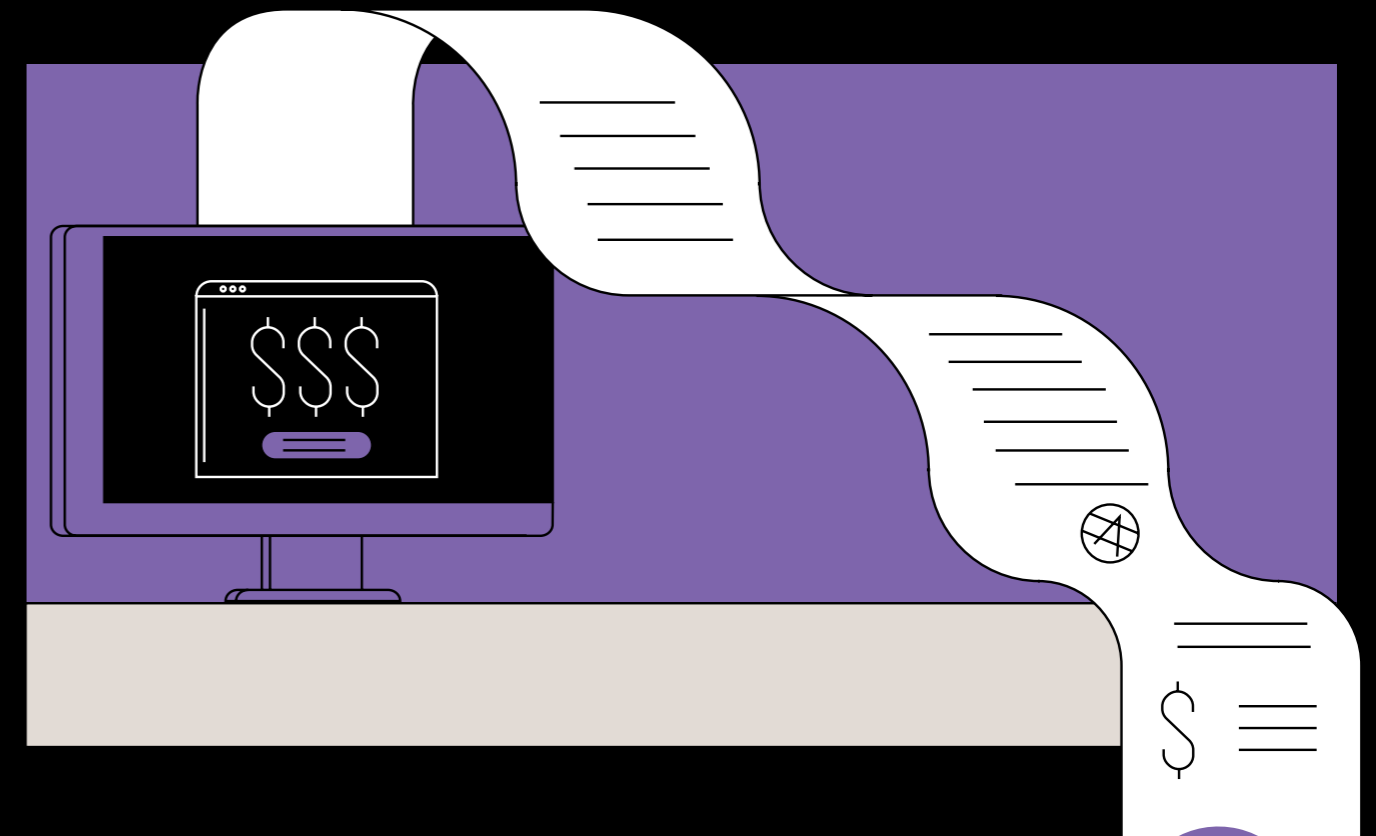
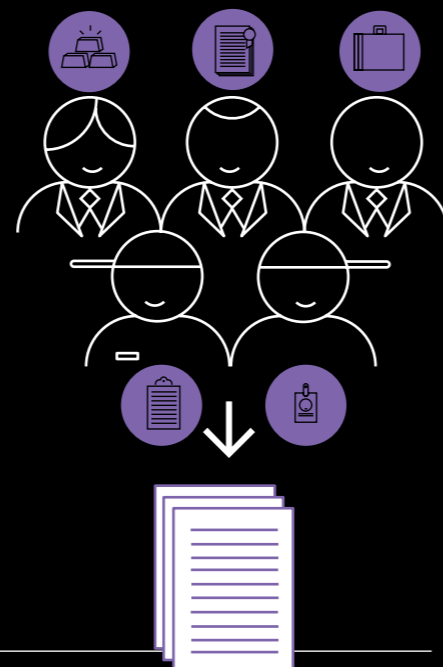
## 4. Methodological note

This study shows the revenues and costs of two typical wildcat gold mining operations: dredging rafts (on rivers) and terrestrial. Analysis and estimations were based on the actual conditions of the Itaituba area, in the State of Pará, the Amazon municipality that is the greatest producer of gold in the country<sup>21</sup>.



<sup>21</sup> According to data from the Agência Nacional de Mineração (Brazilian National Mining Agency), based on the collection of the Compensação Financeira pela Exploração Mineral (CFEM) (Financial Compensation for Mineral Exploration) for the year 2022.

The revenue and cost analysis of these two typical wildcat mining operations was substantiated with fifteen interviews with people located in the municipalities of Santarém and Itaituba, including the district of Moraes de Almeida and the mining region of Jardim do Ouro, in December 2022. The interviews included representatives of public authorities, businessmen, owners of mines, wildcat miners and representatives of wildcat miners' cooperatives.



The analysis also used ancillary data, such as that of general price surveys. The following are calculation parameters used: the reference value for gold based on the average market price for 2021 (BRL 310/gram), the value of diesel based on prices charged at gas stations in the Itaituba region and confirmed during the interviews (BRL 6.68/liter); and the value of mercury (BRL 2,000/kg), also based on interviews.

Realization



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