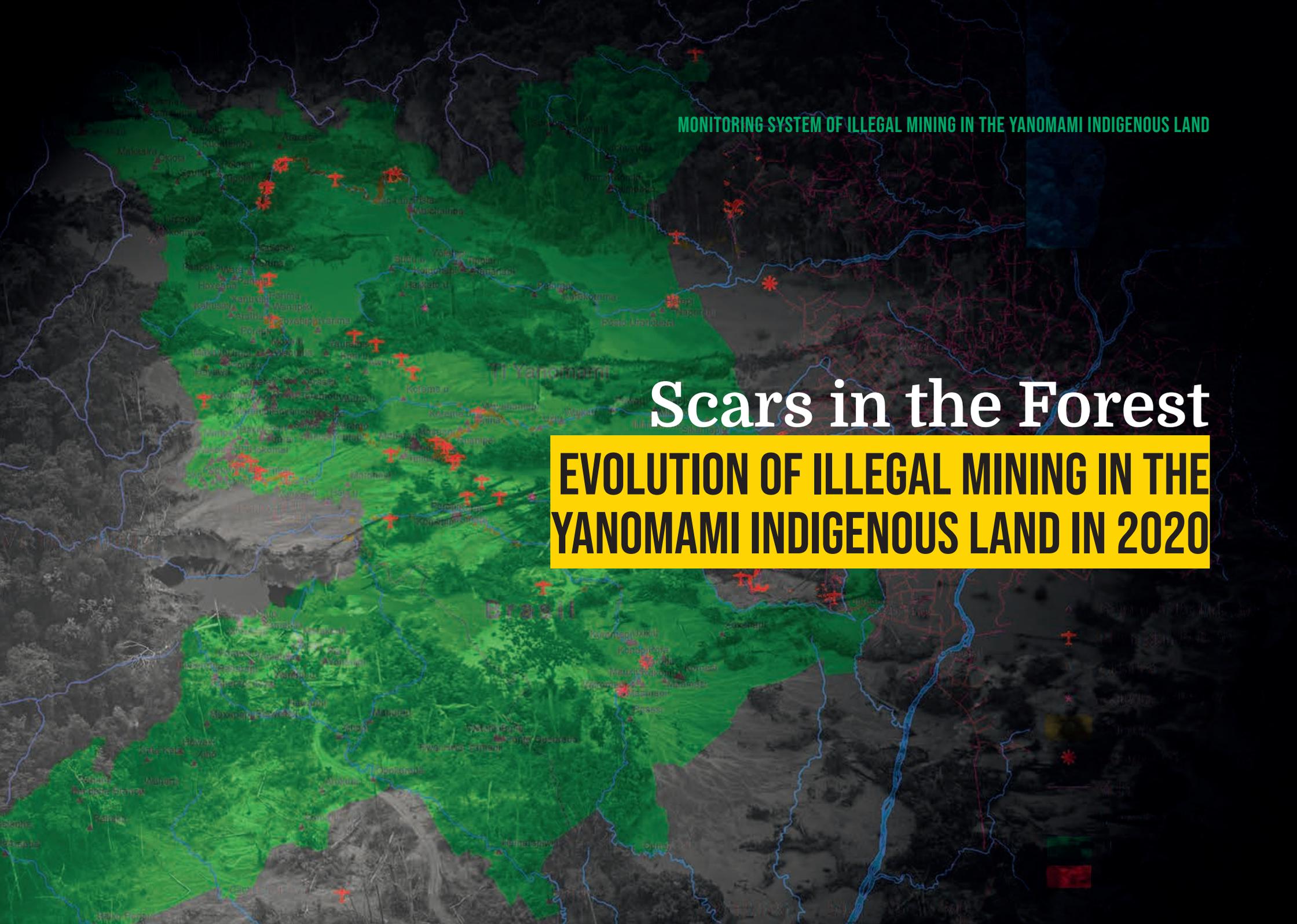


MONITORING SYSTEM OF ILLEGAL MINING IN THE YANOMAMI INDIGENOUS LAND

# Scars in the Forest

**EVOLUTION OF ILLEGAL MINING IN THE YANOMAMI INDIGENOUS LAND IN 2020**



**EXECUTION**

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## Executive Summary

March, 2021

The report *Scars in the Forest: Evolution of Illegal Mining in the Yanomami Indigenous Land in 2020* provides information on the evolution of forest degradation caused by illegal mining in recent years, consolidating data observed in 2020. These were interpreted along with information on the impacts of the illegal exploitation on the lives of the Yanomami and Ye'kwana peoples over the past year, which were compiled by the indigenous associations that sign this document.

The report is based on data obtained through a methodological innovation that incorporates Planet constellation's image records of degraded areas in the Yanomami Indigenous Land (YIL), which made possible the identification of new gold mining areas and the refinement of polygons already registered by radar and optical images of the Sentinel 1 and Sentinel 2 satellites. Complaints and reports from communities organized by the Hutukara Associação Yanomami and the Wanassedume Associação Ye'kwana, material published in the media, and the photographic record of the last monitoring overflight, in December of 2020, have also been utilized to compose the analysis.

The analysis demonstrates the consolidation of an increasing trend of degradation in the Yanomami Indigenous Land. At the end of 2020, the degraded area of the YIL totaled 2,400 hectares. Of these, 500 hectares were first registered between January and December of 2020 – an increase of 30 percent, with more pronounced growth in the first semester.

Once analyzed by macro-regions based on the YIL's main rivers, the data indicates that gold mining activity has skyrocketed in the basins of the Mucajaí, Uraricoera, Catrimani and Parima rivers. Among the YIL's administrative regions affected by it, Waikás leads the rank, with about 35 percent of the degraded areas, followed by Kayanau, with 23 percent, and Aracaçá, with 17 percent.

More than half (52 percent) of the entire area degraded by gold mining identified by remote sensing is located in the Uraricoera River. Until recently, most of the illegal exploitation took place in the Tatuzão do Mutum mining field (*garimpo*). Other *tatuzões* – *tatu* is Portuguese for armadillo; *tatuzão* is the augmentative for *tatu* – have appeared, such as the mine near the community of Aracaçá; the Tatuzão Brabinho, downriver from Tatuzão do Mutum; the mining area next to the Korekorema community; and the Tatuzão Cabaré, below the Ye'kwana village of Waichannha.

The report also highlights the widespread use of expensive heavy machinery and the operation of an extensive, complex multimodal logistical network (land, river and air), which makes feasible the illegal extraction of gold on an intense scale in the Indigenous Territory. These data confirm that today the gold mining activity in the YIL takes on characteristics similar to medium-sized mining, demanding a business-like organization, high financial investment and complex logistical organization, with high potential impact over the environment and human lives.

The intensification of gold mining, measured in terms of degraded area, reflects on an increased pressure on the indigenous communities of the Yanomami Indigenous Land and their lives. For instance, an unusual proximity of some of the mines and camps to indigenous communities was observed in the regions of Kayanau, Homoxi and Xitei. Historically, such proximity resulted in weakened the health of indigenous families and gave cause to economic disruption and violent conflicts. The report mentions at least two examples – the murder of two indigenous individuals in the Parima region and the kidnapping of Yanomami women by *garimpeiros* (gold diggers) in Surucucus. The potential escalation of conflicts could result in situations similar to the 1993 Haximu massacre (when 16 Yanomami were murdered by *garimpeiros*), the first case of genocide recognized by the Brazilian Judiciary.

Another serious effect experienced by the indigenous communities is the worsening of the health situation lived by families. Gold mining settlements have spurred a sharp increase of cases of malaria, which has quadrupled since 2014, and serving as the gateway to COVID-19. In addition to this epidemiological aggravation, gold mining is related to high rates of contamination by mercury in certain individuals, causing long-term and irreversible damage to their health.

In early 2020, there were reports of a trail opened by *garimpeiros* with the intention to connect the gold mines of the Catrimani River with the Novo River's through a trail that would cross the hills on the headwaters of the Apiaú River. The trail would start near

the limit of the Yanomami Indigenous Land and cross the Roraima National Forest, and would be traveled with quadricycles under the canopy of the trees, making it difficult to detect it by satellite.

These results were observed within a context of loss of capacity of public agencies to carry out the territorial protection of the Yanomami Indigenous Land, with loss of the existing infrastructure with the closure of the Ethno-Environmental Protection Bases (Bases de Proteção Etnoambiental, BAPes) starting in 2015 and less frequent inspection operations, which are more limited in scope. In the past, policies for the territorial protection of the YIK served as an inhibitor of gold mining in the region, preventing its expansion and complexification and giving a clear sign that it is an illegal activity that would be effectively combated. With the loosening of territorial protection mechanisms, therefore, the way was opened for the intensification of gold mining, stimulated by the official discourse of support to it and the consequent expectation of no impediment and eventual legalization.

The document concludes that the solution to the problem must involve the full resumption of policies for the territorial protection of the Yanomami Indigenous Land as a State policy. It also brings recommendations to authorities and public bodies, such as the need for an integrated plan for the full removal of mining activities in the YIL; the resumption of periodic operations in the YIL to dismantle the existing illegal infrastructure; and advances in investigations to identify and hold responsible the main actors in the illegal gold chain that finance and benefit from it directly or indirectly, among others.

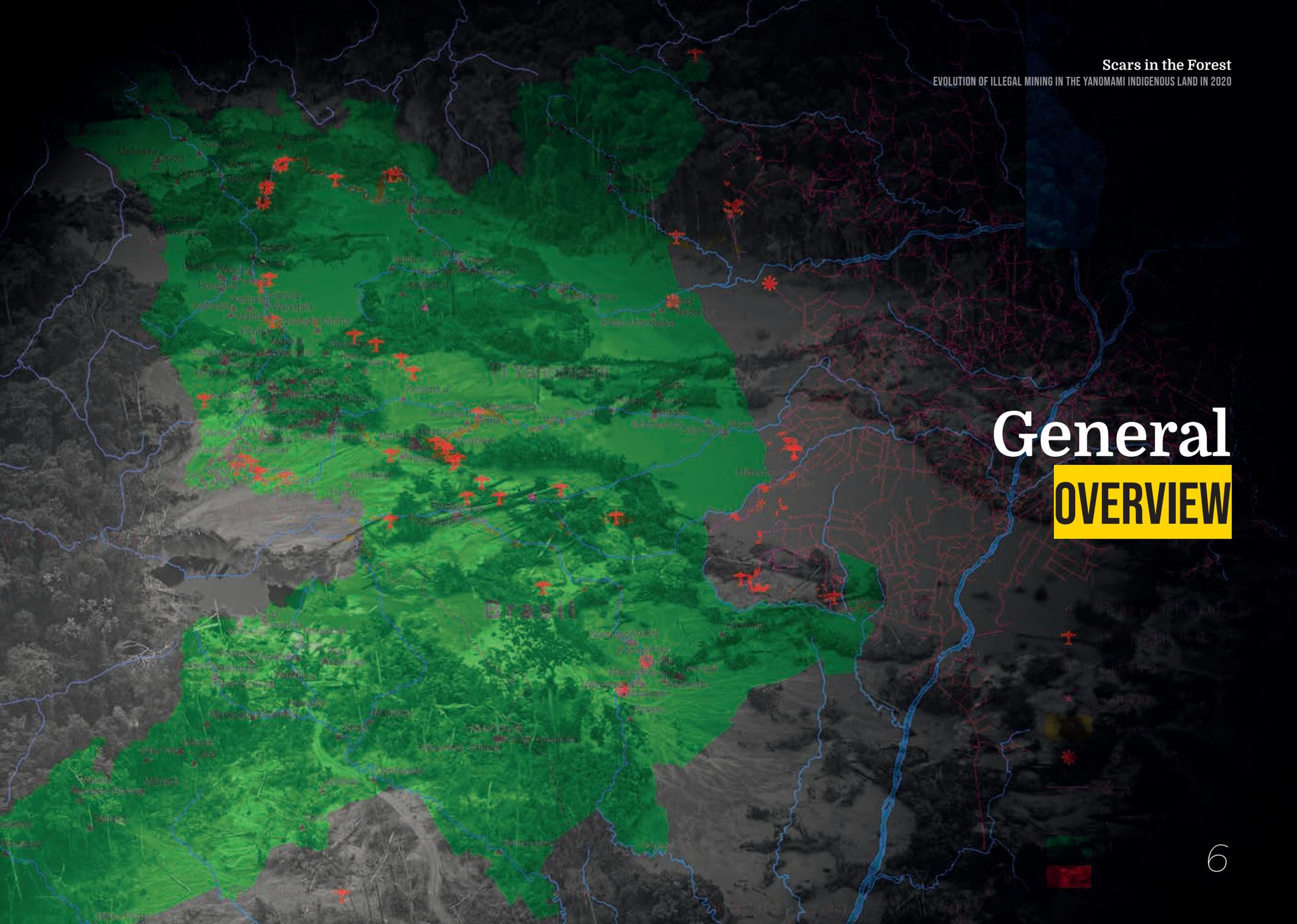
## Introduction

This document aims to present an overview of the evolution of illegal mining in the Yanomami Indigenous Land (YIL) during 2020, within the Monitoring System of Illegal Mining (Sistema de Monitoramento do Garimpo Ilegal, SMGI) in the YIL, carried out by the Hutukara Associação Yanomami (HAY) and technical partners. To this end, we will use the data produced by the monthly mapping of degraded areas in the YIL, information from denunciations and reports from communities systematized by the Hutukara Associação Yanomami and the Wanassedume Associação Ye'kwana, material published in the media, and the photographic record of the last monitoring overflight held in December of 2020.

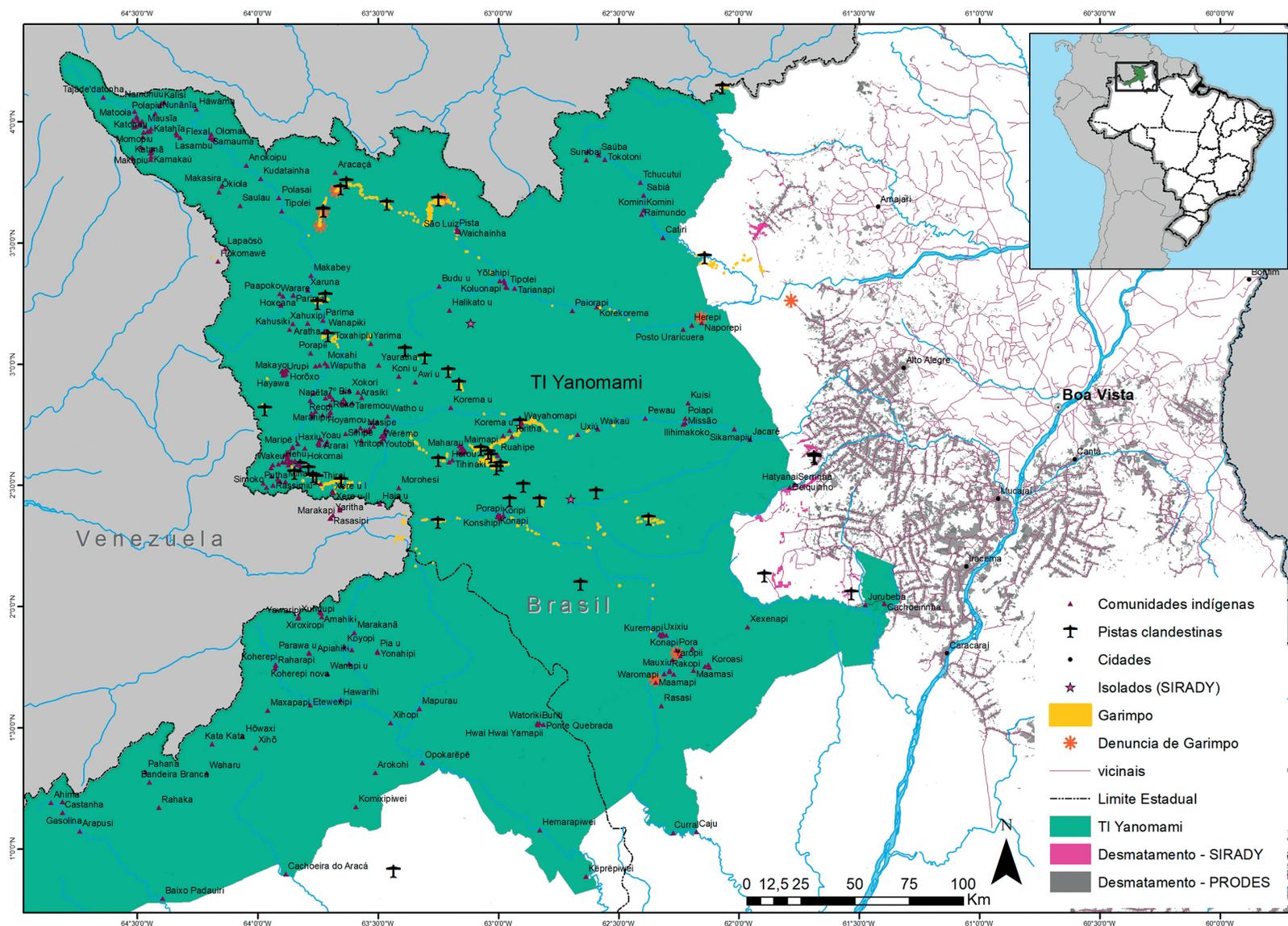
Until recently, the mapping of degraded areas used multi-temporary mosaics of radar images (Sentinel 1) and optical images with a 10-meter spatial resolution (Sentinel 2). In the past year, however, image analysis of the Planet constellation, which has a spatial resolution of 5 meters, has been incorporated into the methodology. The innovation made possible the identification of new areas affected by gold mining (*garimpo*) and the refinement of already registered polygons. Therefore, some of the figures presented below may differ slightly from those described in previous

monthly bulletins, which have been produced since October, 2018. Likewise, it is important to note that the figures produced in this type of monitoring should not be taken as absolute values. It is recommended that they be interpreted as estimates, which can vary both upwards and downwards. The temporal accuracy of the record also needs to be put into perspective. As we work mainly with optical images, sometimes cloud cover or problems in image processing when composing the mosaic can hide certain targets. Thus, it is common for certain scars to be accounted for some time after its opening; they are added in the month of observation and not in the month in which it was actually created.

This report is divided into four parts: 1) an overview that shows the total degraded area and its variation in the analyzed period; 2) details by four macro-regions of the Yanomami Indigenous Land, chosen according to the four main rivers impacted by illegal gold mining, intended to discuss its patterns, main aspects and trends; 3) considerations about the implications of the observed data for the territorial protection policies of the Yanomami Indigenous Land; and 4) a conclusive synthesis with recommendations for the control of illegal gold mining.



# General OVERVIEW



**Figure 1.**  
Map of gold mining in the Yanomami Indigenous Land (YIL) in December 2020 (Source: SMGI)

Since the end of the 20<sup>th</sup> Century, gold mining in the Amazon has moved away from the historical figure of the *garimpeiros* (gold diggers), commonly represented in the national imagination as individuals working in isolation with their gold pans on the banks of rivers. The progressive adoption of industrial techniques for the extraction of alluvial gold has transformed mining into a business activity that requires high investments and complex logistics of inputs and labor<sup>1</sup>. One of the notorious effects of this technical conversion is the deepening of its impacts on the environment and on the traditional communities<sup>2</sup>. Gold mining at the Yanomami Indigenous Land is no exception.

**Figure 2. Example of typologies associated with mining in satellite image (Planet/MapBiomas). Tatuzão do Mutum Mining Field, YIL, December 2020**



Gold mining at the YIL, as a rule, is carried out in two ways:

### 1) on floating dredgers

On the beds of large rivers (Uraricoera, Mucajaí, Carimani and Parima;

### 2) on dry land

Also in a semi-mechanized way, in which prospectors use hoses and combustion engines to extract sediment from pits or ravines.

Through remote monitoring, it is possible to examine the set of scars left by this second modality, which includes:

- a) recent deforestation;
- b) exposed soil;
- c) recently abandoned areas, which have an incipient advance of vegetation, essentially composed of grasses covering gravel; and
- d) small tailings ponds<sup>3</sup>.

In relation to the first type, the great variation in the water level during the year and the sedimentation dynamics of each river make it difficult to interpret the damage caused by the floating dredgers in the monitored rivers and, for this reason, the data presented in this report is necessarily undersized.

**1.** About the technological evolution of illegal gold mining and the consequent intensification of its impacts: BRASIL. Ministério Público Federal. Câmara de Coordenação e Revisão, 4. Mineração ilegal de ouro na Amazônia: marcos jurídicos e questões controversas – Brasília: MPF, 2020. 259 p. – (Série Manuais de Atuação; v. 7). Pp. 10-51.

**2.** VEIGA, M. M.; SILVA, A. R. B.; HINTON, J. J. O garimpo de ouro na Amazônia: aspectos tecnológicos, ambientais e sociais. In: Extração de ouro: princípios, tecnologia e meio ambiente. Cap. 11. Rio de Janeiro: CETEM/MCT, 2002. pp. 277-305.

**3.** Le TOURNEAU, F-M; ALBERT, B. Sensoriamento remoto num contexto multidisciplinar: atividade garimpeira, agricultura ameríndia e regeneração natural na Terra Indígena Yanomami (Roraima). Anais do XII Symposium Brasileiro de Sensoriamento Remoto, Dec 2004, São José dos Campos, Brasil. Instituto Nacional de Pesquisa Espacial (INPE), pp. 583- 591.

**Table 1. Geographic coordinates indicating the location of clandestine airstrips (ID) for supplying gold mining in the Yanomami Indigenous Land, December 2020. (SMGI)**

ID	X	Y
1	-63.02775412	2.618229879
2	-62.89511704	2.496870393
3	-62.65716652	2.092796014
4	-63.04085268	2.631894684
5	-63.24953482	2.348511695
6	-63.46140578	3.660604859
7	-62.82622143	2.437828855
8	-62.06723421	4.140318317
9	-63.70756459	3.116705424
10	-63.6547818	3.724684674
11	-63.71718683	3.279277798
12	-63.76873532	2.535665134
13	-62.9081361	2.759540206
14	-63.07208969	2.64813305
15	-62.98917428	2.584638422
16	-62.37403428	2.361070902
17	-63.24808987	2.602504733
18	-63.65159413	2.516966804
19	-63.75442655	2.529548905
20	-63.84580196	2.550364985
21	-63.78772031	2.565713853
22	-63.96867664	2.812204946
23	-63.24861795	3.676823199
24	-63.72724123	3.63163496
25	-63.16267176	2.91770501
26	-63.00637417	2.569456915
27	-63.7493673	3.251715768
28	-63.30363422	3.025702897
29	-63.20650349	2.96937872
30	-63.38702033	3.057190097
31	-62.95144038	2.437818863
32	-62.59073318	2.469215476
33	-63.72660954	3.63312452
34	-63.82238088	2.583013825
35	-63.62947449	3.749560833

Photographs recorded in an overflight held in December of 2020 are especially illustrative of the current technical model of the activity.

**Figure 2** records the action of prospectors on the Parima River, is one of them. In the center of the photograph, it is possible to identify the cavity from which the sediment is extracted.

Using a motorized pump, *garimpeiros* dredge mud from the hole through a hose system. A floodgate separates the sediment from the water and removes the light material. The liquid waste is dumped in a small lake (see the fan of mud on the left) and the material with the gold is extracted manually, after amalgamating with the use of mercury.

Note that this system is less dependent on manpower and is capable of producing major environmental damage.

It is estimated that the initial investment to build a similar structure is approximately R\$ 150,000<sup>4</sup>. Consideration should also be given to the amount of fuel and lubricants spent to keep the equipment running, and especially the high logistical costs to transport the material<sup>5</sup>.

Mention should also be made of the dense flow of aircraft and helicopters for personnel and input logistics for the mining industry, using with impunity both clandestine airstrips inside the YIL – in December of 2020 there were 35 of them (**Table 1**) – and the official structure of local health posts.

**These are some of the elements that reinforce the diagnosis that today gold mining in the Yanomami Indigenous Land is a complex activity organized essentially by groups of entrepreneurs with great investment capacity<sup>6</sup>.**

4. Data collected by SMGI considering inputs such as: one to two engines; an amalgamating box/machine; rigid and flexible hoses 100 to 150 meters in length; sieves; and mercury.

5. The gold mining regions at TI Yanomami are difficult to access and therefore are supplied either by small single-engine airplanes, operated illegally from clandestine runways, or by small boats, which travel on rivers that are difficult to navigate, requiring a lot of expertise from pilots.

6. This phenomenon has already been described in other contexts, such as Guyana. See Colchester, M., 2005. Maps, power, and the defense of territory: The Upper Mazaruni land claim in Guyana. In: Brosius, J.P., Tsing, A.L., Zerner, C. (Eds.), *Communities and Conservation: Histories and Politics of Community-Based Natural Resource Management*. Altamira Press, New York, pp. 271–304.



**Figure 3.**  
Semi-  
mechanized  
mining on the  
Parima River,  
YIL, December  
2020



**Figure 4.**  
Floating dredger  
on the Parima  
River, YIL,  
December 2020



**Figure 5.**  
Motorboat feeds  
the floating  
dredgers on the  
Parima River,  
YIL, December  
2020



**Figure 6.**  
Mining in the  
Mucajaí River  
Region, YIL.  
Garimpeiros with  
the “caneta”  
(pen), a water  
hose used for the  
excavation of the  
earth



**Figure 7.**  
Clandestine  
landing strip  
runway showing  
6 operating  
aircraft on the  
Couto Magalhães  
River, Papiu  
Region, YIL,  
December 2020

Following the SMGI analysis method, the sum of the area degraded by mining in the Yanomami Indigenous Land observed until December of 2020 is 2,400 hectares. From January to December 2020 alone, the increase in degradation identified by remote monitoring (scarring) was 30 percent, which corresponds to approximately 500 hectares, with a more pronounced growth in the first two quarters of the year (Figure 8).

The acceleration of the area degraded by illegal gold mining in the Yanomami Indigenous Land coincides with a weakening of territorial protection policies in the region, leaving the YIL vulnerable to invasions – we shall delve into this theme in part 3.

One of the consequences of this process is the greater proximity of the mines and non-indigenous camps to communities. The photographs of the overflight carried out by SMGI in December of 2020 registered this in Kayanau, Homoxi and Xitei (Figure 9).

Protected by the inertia of public agencies, the mining settlements impose themselves on the dynamics of indigenous communities and use their infrastructure in a parasitic way – airstrip, health posts, fields etc.

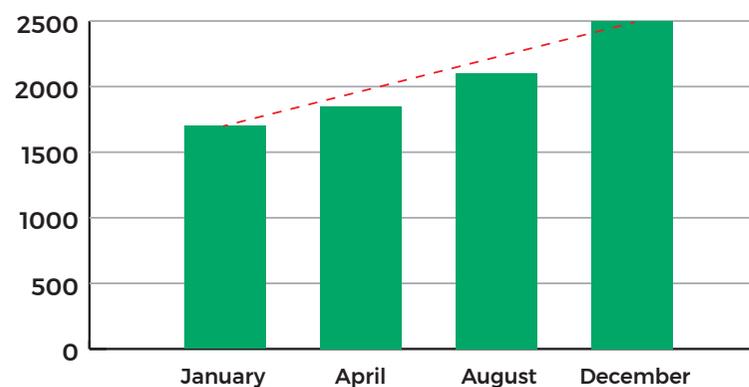
Historically, such proximity has resulted in the weakening of the health situation of indigenous families, economic disruption and violent conflicts<sup>7</sup>.

The murder of two Yanomami in June 2020 by *garimpeiros* in the Parima region<sup>8</sup> is an example of the situation described. In December of 2020, a young Yanomami female was kidnapped by *garimpeiros* in Surucucus, creating a situation of high social tension in the community<sup>9</sup>. Cases like these exemplify the latent conflict that

gold mining in an Indigenous Area represents. In 1993, a similar situation escalated to the first case of genocide recognized by the Brazilian State, in which heavily armed miners ambushed and exterminated a group of at least 16 Yanomami from the Haximu community<sup>10</sup>.

The greater intensity of the gold mining activity at the Yanomami Indigenous Land and its consequent environmental impact has serious implications for the health of indigenous communities.

**Figure 8. Accumulated area degraded by mining in the Yanomami Indigenous Land in selected months of 2020 (Source: SMGI)**



7. Do PATEO, R. D. Niyao: Antagonismo e Aliança entre os Yanomami da Serra das Surucucus (RR). PhD dissertation, Department of Anthropology, Universidade de São Paulo, 2005.

8. <https://amazoniareal.com.br/saude-yanomami-denuncia-a-pf-conflito-entre-indigenas-e-garimpeiros-em-roraima/> - Jun 23, 2020.

9. ISTOÉ. Yanomamis brasileiros alertam sobre forte tensão com garimpeiros ilegais. Dec 17, 2020. Available at: < <https://istoe.com.br/yanomamis-brasileiros-alertam-sobre-forte-tensao-com-garimpeiros-ilegais/> > Access Feb 26, 2021.

10. ALBERT, BRUCE (1994): "Gold Miners and Yanomami Indians in the Brazilian Amazon: The Haximu Massacre". In: Johnston, Barbara Rose (ed.): Who Pays the Price? The Sociocultural Context of Environmental Crisis. Washington, D.C.: Island Press, pp. 47- 55.



**Figure 9.**  
Mining field next  
to a community  
in the Xitei  
Region, YIL,  
December 2020

The increase in the incidence of malaria cases, for example, is associated with increased forest degradation, whose open area facilitates the proliferation of mosquitoes that carry the disease – between 2014 and 2019, there was a 473 percent increase in malaria cases in the YIL<sup>11</sup>, with 30 of the 37 base poles (health centers) at high risk for the disease<sup>12</sup>.

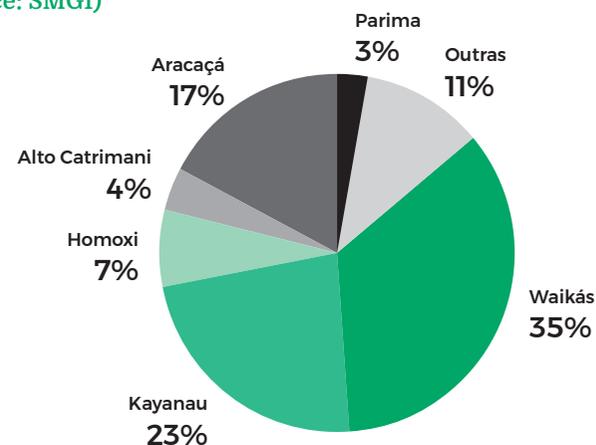
**Along with malaria and other infectious diseases, COVID-19 has also reached communities. The pandemic virus was transmitted directly by workers in the mining fields, who continued to circulate freely through the YIL. As of October 2020, 949 cases of the disease were registered inside the YIL, with high incidence in Waikás (26.9 percent of the population) and Kayanau (9.5 percent)<sup>13</sup>. In these areas, the disease was spread after the self-isolation of indigenous families was broken by forced coexistence with *garimpeiros*.**

The verified growth of the area degraded by gold mining was not observed in a uniform way in all regions of the YIL. While some sites have remained relatively stable, with cases of reduced visible degraded area, others have had significant increases. Among these, stand out, in absolute terms, Aracaçá, Kayanau and Homoxi. Also noteworthy are the increases in the Upper Catrimani, Parima and Surucucus, as well as the appearance of the first scars in Uraricoera. However, the little variation in scars over time should not necessarily be interpreted as absence of gold mining. In several regions, the activity of floating dredgers (*balsas*) has greater relevance; however, their tracks are not measurable with the remote sensing methodology used by SMGI. In the middle course of the Catrimani River, for example, there are reports of floating dredgers operating near the mouth of the Igarapé (small river) Xeriana, and their signs are not yet visible by satellite. In the Novo River, reports suggest the occurrence of underground mines, which would explain the little variation in scars despite the great movement of prospectors on the river reported by the communities on the Apiaú River.

**Table 2** presents the mapped figures, detailed by region and by period. One other way of observing the data is through the participation of each region in the total degraded area, indicating which regions suffer the greatest accumulated impact. As **Figure 10** indicates, Waikás leads the ranking of the regions with about 35 percent, followed by Kayanau, with 23 percent, and Aracaçá, with 17 percent. Homoxi, Upper Catrimani and Parima correspond to 7 percent, 4 percent and 3 percent respectively. The sum of the remaining areas reaches 11 percent. Compared with previous years, these figures suggest a tendency towards a dispersion of gold mining activity in the territory, previously concentrated in Waikás, Kayanau and Homoxi.

Next, we shall complement the analysis with information about the mining dynamics in the main macro-regions of the Yanomami Indigenous Land. River channels will serve as a territorial cut rather than administrative regions, in order to perceive gold mining action on a broader scale and to understand the details of the logistics that makes the activity possible in such remote areas.

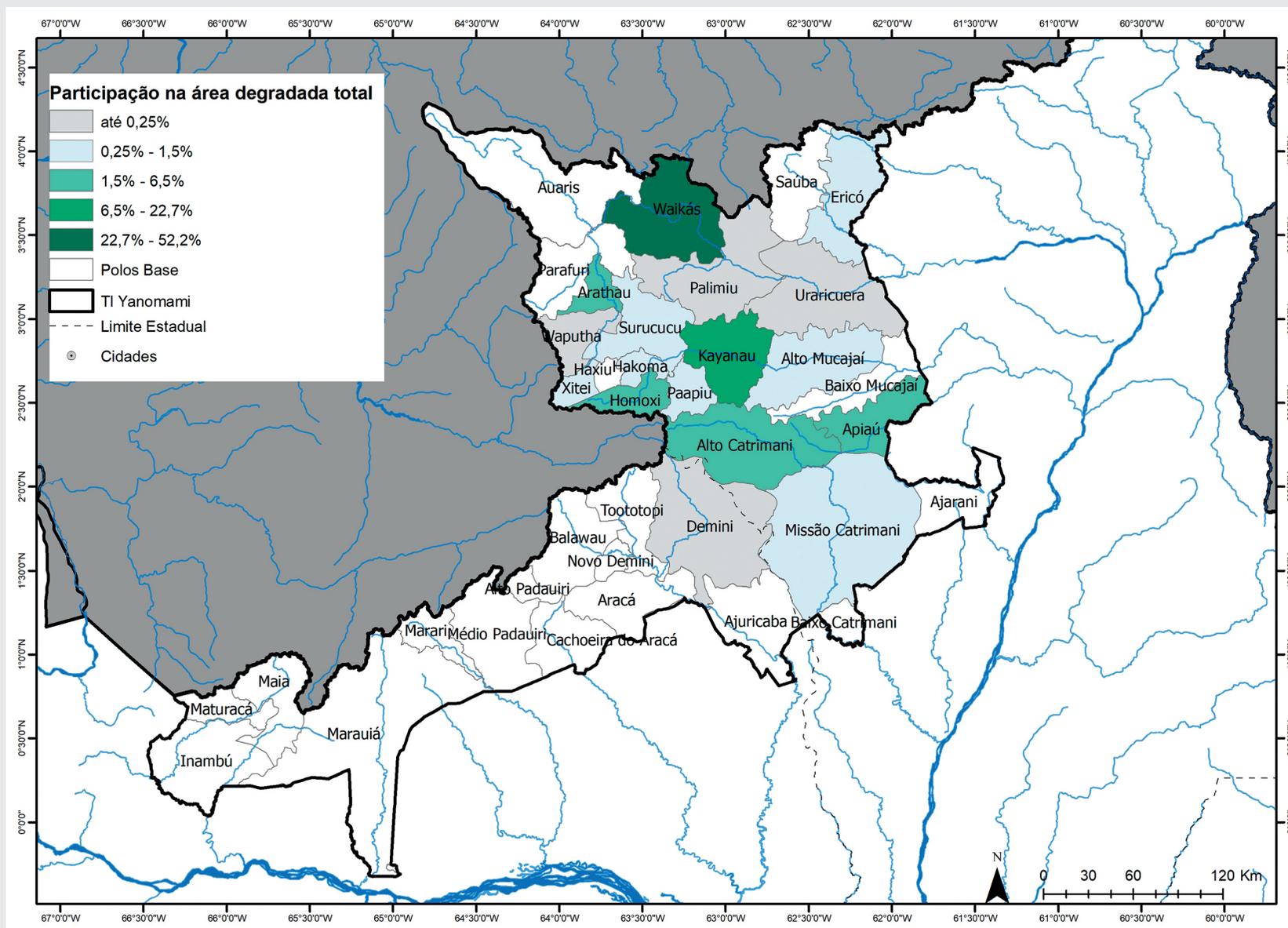
**Figure 10. Participation of regions in total degraded area (Source: SMGI)**



**11. RUBENS VALENTE.** Malária explode na terra Yanomami; casos quadruplicaram em 5 anos. Aug 2, 2020, Available at: < <https://noticias.uol.com.br/colunas/rubens-valente/2020/08/02/covid-garimpo-malaria-yanomami.htm> >. Access Feb 26, 2021.

**12. MACHADO, Ana Maria et al (org.).** Xawara: Rastros da Covid-19 na Terra Indígena Yanomami e a Omissão do Estado. São Paulo, Instituto Socioambiental, 2020. p. 86.

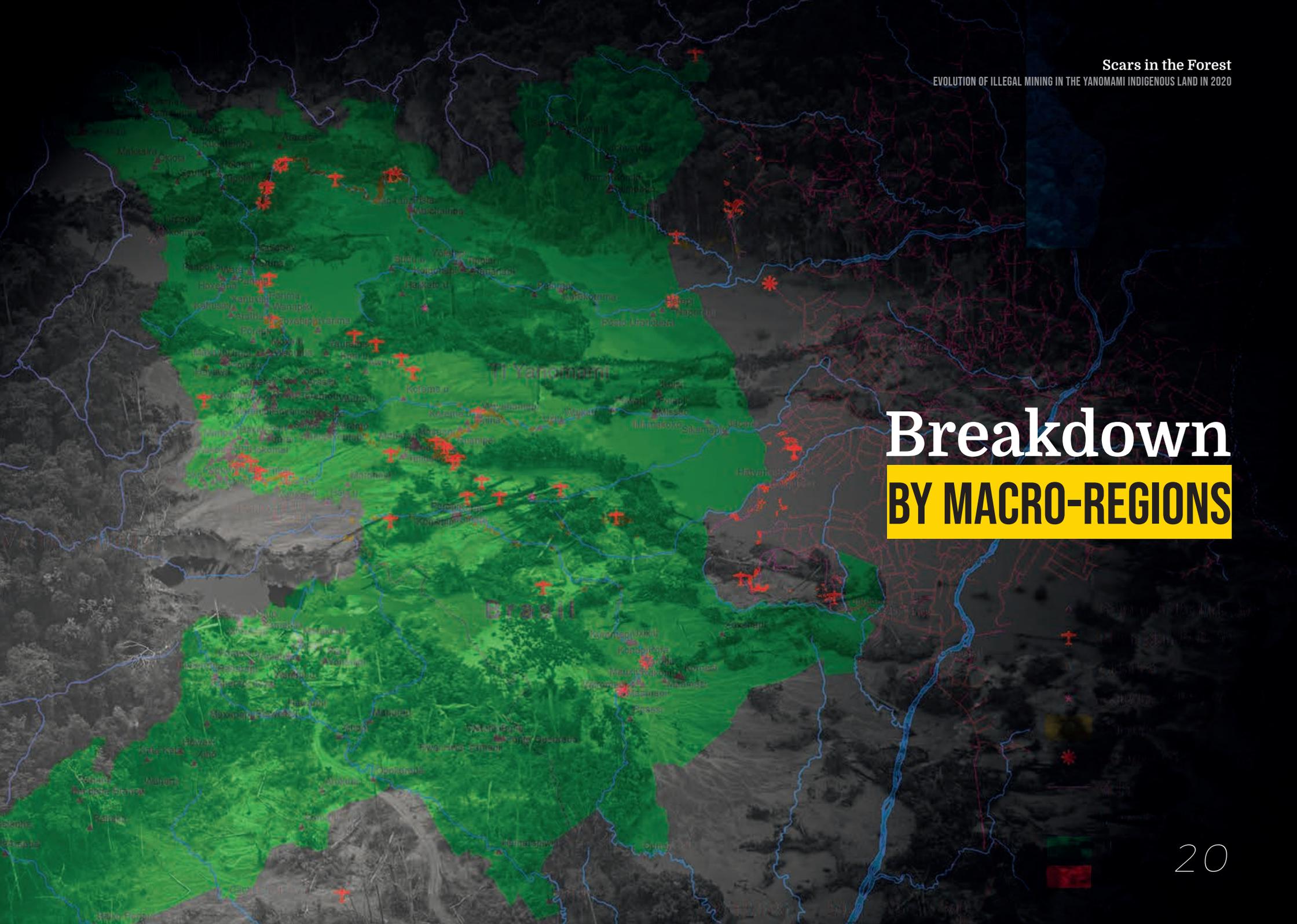
**13. Ibid.,** P. 16



**Figure 11.**  
Distribution  
of gold mining  
by regions of  
the Yanomami  
Indigenous  
Land (Source:  
SMGI)

**Table 2.** Area degraded by mining in the Yanomami Indigenous Land by region in 2020 (Source: SMGI)

Region	Accumulated degraded area, in hectares				Total increase - in hectares	Participation in the total of degraded area in the Yanomami IL
	January	April	August	December		
Alto Catrimani	57,1	71,77	81,94	98,05	40,95	4%
Alto Mucajaí	20,05	20,05	23,12	15,75	-4,3	1%
Aracaçá	189,83	205,2	272,81	382,57	192,74	17%
Demini-mapulau	2,46	2,46	2,46	2,32	-0,14	0%
Hakoma	25,13	25,13	25,13	24,98	-0,15	1%
Homoxi	69,09	68,92	72,23	145,98	76,89	7%
Kataroa (Waputha)	5,34	5,34	5,34	5,34	0	0%
Kayanau	391,75	441,21	487,32	510,17	118,42	23%
Médio Catrimani	22,36	24,74	24,74	12,8	-9,56	1%
Oriak (Ericó)	16,42	16,18	16,86	19,04	2,62	1%
Palimiu	1,63	0,88	5,39	4,76	3,13	0%
Papiu	7,52	12,66	12,66	17,44	9,92	1%
Parima (Arathau)	41,33	65,54	76	77,76	36,43	3%
Rio Novo (Apiau)	71,05	81,08	81,08	76,79	5,74	3%
Serra da Estrututura	32,7	32,7	32,7	6,31	-26,39	0%
Waikás	737,39	748,67	765,88	787,36	49,97	35%
Surucucus	12,33	11,14	27,35	35,18	22,85	2%
Uraricoera	0	5,48	5,48	5,4	5,4	0%
Xitei	4,35	4,38	5,02	11,34	6,99	1%
<b>TOTAL</b>	<b>1707,83</b>	<b>1843,53</b>	<b>2062,18</b>	<b>2239,34</b>	<b>531,51</b>	<b>100%</b>



# Breakdown BY MACRO-REGIONS



**Figure 12.**  
Tatuzão do  
Mutum mining  
field, YIL,  
December 2020

## Uraricoera River (Waikás, Aracaçá, Palimiu & Uraricoera Regions)

**M**ore than half (52 percent) of the entire area degraded by mining identified by remote sensing is found at the Uraricoera River. Until recently, the exploitation of gold in this macro-region was concentrated in the *garimpo* Tatução do Curum, located just above the Ye'kwana community of Waichannha (or Waikás). Other *garimpos* have appeared, such as the mine near the community of Aracaçá; the Tatução Brabinho, downriver from Mutum; the prospecting area next to the Korekorema community; and the Tatução Cabaré, downriver from Waichannha.

In 2017, Tatução do Mutum was called by the then commander of the Operation Curare VIII, to repress illegal gold mining, as a “*cidade do garimpo*”<sup>14</sup> (gold mining city), due to the fact that more than 1,000 people circulated in the gold mining camps and the presence of an infrastructure previously unheard of in the State of Roraima’s Indigenous Lands (houses, grocery store, whorehouse, internet access points, hairdresser). The operation, carried out at this location in July 2017, seized almost 9,000 liters of fuel, weapons, ammunition, dredgers, engines, generators, batteries, television sets, computers, quadricycles, motorcycles and satellite phones. About 58 grams of gold were also found. Since this episode, Tatução do Mutum has been the main target of the operations to combat gold mining in YIL. Still, these were not enough to contain its expansion<sup>15</sup>.

As of 2019, our analysis suggests a process of decentralization of activities in that area. There are not enough elements to explain this movement accurately, but it is possible to suggest that the formation of new decentralized settlements is associated with three factors: a) a probable fall in productivity at Mutum; b) the

discovery of new deposits along the river; c) the concentration of operations to combat activity in that location.

In March of 2020, the Hutukara Associação Yanomami received a complaint that a group of approximately 50 people had set up a camp less than 2 kilometers from a community. The complaint was forwarded to Funai (Fundação Nacional do Índio, National Indian Foundation), which, together with the Army, removed the miners from the area. Because there are no permanent inspections, the camp was rebuilt, and a few months later, by September, 1 hectare of forest had already been degraded.

**Figure 13. Uraricoera Macro-Region (Source: SMGI)**



**14.** G1. “Cidade’ de garimpo ilegal na Floresta Amazônica movimentava R\$ 32 milhões ao mês, diz Exército”. Jul 13, 2017.

**15.** In 2018 the Curaretinga operation, which took place on the Mucajai and Uraricoera rivers, seized 13 vessels, 2,500 liters of gasoline, 2,500 liters of diesel, 20 generators 8 motor pumps, 25 dredge hoses, 2 dredgers, 30 gas cylinders, 12.8 grams of gold, 24 diving suits, 7 compressors, 3 outboard motors and 20 engines, among other items. More information available at: G1. Operação apreende ouro, embarcações e até garimpo na Terra Indígena Yanomami. May 2, 2018. Available at: < <https://g1.globo.com/rr/roraima/noticia/operacao-apreende-ouro-embarcacoes-e-ate-mercurio-em-garimpos-na-terra-indigena-yanomami-em-rr.ghtml> >. Access Feb 25, 2021.

One of the driving forces behind the expansion of the mining areas at the Yanomami Indigenous Land is prospecting expeditions<sup>16</sup>. They can be carried out by groups that seek autonomy from the “owners” of existing settlements, or be financed by the very entrepreneurs who control the active mines in the region.

**What the two scenarios have in common is the idea of continued illegal exploitation for an indefinite period, based on the expectation that the risks of losing the investment are lower than the chances of gains in the medium and long terms.**

This logic reflects the expectation of legalization and/or dismantling of public policies for the repression of environmental crimes.

Another factor that contributes to the development of gold mining on the Uraricoera River area is the logistical infrastructure that has been set up in recent years. In addition to helicopters and airplanes (it was possible to identify the coordinates of five clandestine airstrips in this area), much of the equipment, food and workers is transported by boats and quadricycles, available on the trails that border non-navigable stretches of the river. It is estimated that a boat can carry up to 6 tons of food or 120 tons of fuel. To access the river, *garimpeiros* use a side road that connects the BR-205 highway, between Boa Vista and Alto Alegre, to a port near Igarapé Arame.

In 2018, according to local indigenous people, about 50 motorized canoes operated on the Uraricoera River, transporting food and personnel. The pilot is a service provider to the owner of the boat. He receives an average of 30 or 40 grams<sup>17</sup> of gold per trip when the river is low, and manages to make two trips per month. When the river is full, the trip is faster and the pilot gets around 25 grams.

*Garimpeiros* who intend to access the mines on the Uraricoera River are charged by the *garimpo* owner 10 grams of gold, which can be paid after the digger is already working in the camp. Normally, the remuneration agreement is that 40 percent of the gold found is for the workers to share among themselves and 60 percent for the owner of the machinery.

For example, on floating dredgers work usually 14 people – 12 operators taking turns in two shifts, plus a cook and a manager –, or 7 people per shift. In the so-called “*garimpo de barranco*” (on dry land), the number of workers depends on the power of the equipment. Up to 4 people work on small engines per shift; and 6 on large engines

**A report prepared by indigenous individuals during the first months of the COVID-19 pandemic illustrates in detail how mining in the YIL has not only been affecting the physical environment, but also directly had an impact on the routine of communities living on the banks of the Uraricoera River.**

**16.** According to information obtained in the field, prospectors sell information about portions of land with a lot of gold, or the “lots”, which are areas of 50x50 meters or 100x100 meters.

**17.** Considering each gram of gold costs R\$130,00 in Boa Vista, each trip pays the equivalent for R\$ 3.900,00 or R\$ 5.200,00.

From the description in the report, we highlight:

1. the intense movement of vessels on the river to supply the *garimpos*;
2. the constant circulation of helicopters and aircraft using official and/or clandestine airstrips, also serving for the logistics of supply to the *garimpeiro* settlements;
3. the collection of tolls by *garimpeiros* who control a certain part of the river to the detriment of indigenous and non-indigenous people;
4. the contamination of the waters, rendered unfit for the consumption of the communities that live and transit there;
5. the accumulation of garbage along the river; the operation of floating dredgers and the consequent silting up of rivers; the movement of quadricycles in the Indigenous Land, opening mud roads on pre-existing trails used by indigenous people inside the forest, deteriorating sacred places and impacting the fauna and flora; and the existence of 'perennial' camps of non-indigenous people within the Indigenous Territory, among others.

In December of 2020, the Brazilian Army carried out another operation, called Verde Brasil 2<sup>18</sup>, at the Mutum mining area. According to the report, at the time the Army deactivated the *garimpo* and seized drugs and ammunition. Weeks later, however, the camp was spotted by an overflight; it hardly appeared to have been dismantled a short time before.

**18.** G1. Exército desativa garimpo na Terra Yanomami e apreende munições e cocaína em RR. 12/12/2020. Disponível em: < <https://g1.globo.com/rr/roraima/noticia/2020/12/12/exercito-desativa-garimpo-na-terra-yanomami-e-apreende-municoes-ouro-e-cocaina-em-rr.ghtml> >. Access Feb 25, 2021.



**Figure 14.**  
Camp on the  
Tatuzão do Mutum,  
YIL, in December  
2020, after the  
Verde Brasil 2  
operation

## Parima River

Gold mining on the Parima River not only showed substantial growth in 2020, attested by the evolution of the degraded area, but also hosted two remarkable events.

**The first was the murder of two Yanomami in a conflict with *garimpeiros* near a clandestine airstrip<sup>19</sup>.**

The accounts of the incident at the time showed how gold mining in the region was intensifying, with an increase in hostilities against indigenous people. The murders, thus, refreshes the history of conflicting relations between gold diggers and indigenous people, drawing attention to the social, political and economic dimensions of the impact of gold mining on indigenous communities<sup>20</sup>.

**The second was a show by singer Wanderley Andrade, self-titled “the terrorist of love”<sup>21</sup>, a demonstration of both the consolidation of the gold digging camps and the certainty of impunity. The “terrorist of love” not only put on a show in an invaded area of the Indigenous Land, but he did so during the COVID-19 pandemic, exemplifying the degree of exposure to which indigenous people are subject, even if isolated in their communities.**

Field reports suggest the existence of a flow of resources between the *garimpos* of the Parima and the Uraricoera areas, which would have a multiplying effect for the former, given the logistical structure already described. In fact, one of the settlements with most significant growth in 2020 is located on the Uraricoera River just below the confluence of the Parima River. The multi-temporal mosaic of radar images shows this movement already in the first semester – it appears in **Figure 17** in red.

**Figure 15. Parima Macro-Region (Source: SMGI)**



**19.** G1. Jovens indígenas são mortos por garimpeiros em conflito na Terra Yanomami em Roraima. Jun 6, 2020. Available at: < <https://g1.globo.com/rr/roraima/noticia/2020/06/26/jovens-indigenas-sao-mortos-por-garimpeiros-em-conflito-na-terra-yanomami-em-roraima.ghtml> >. Access Feb 25, 2021.

**20.** CARDONA, C. et al. *Minería: Impactos sociales en la Amazonia*. Bogotá: Instituto Amazónico de Investigaciones Científicas Sinchi. 2019.

**21.** G1. Cantor Wanderley Andrade faz show em garimpo ilegal dentro da Terra Yanomami em RR: ‘quantas vezes me chamarem eu vou’. Dec 28, 2020. Available at: < <https://g1.globo.com/rr/roraima/noticia/2020/12/28/cantor-wanderley-andrade-faz-show-em-garimpo-ilegal-dentro-da-terra-yanomami-em-rr-quantas-vezes-me-chamarem-eu-vou.ghtml> > Access Feb 25, 2021.



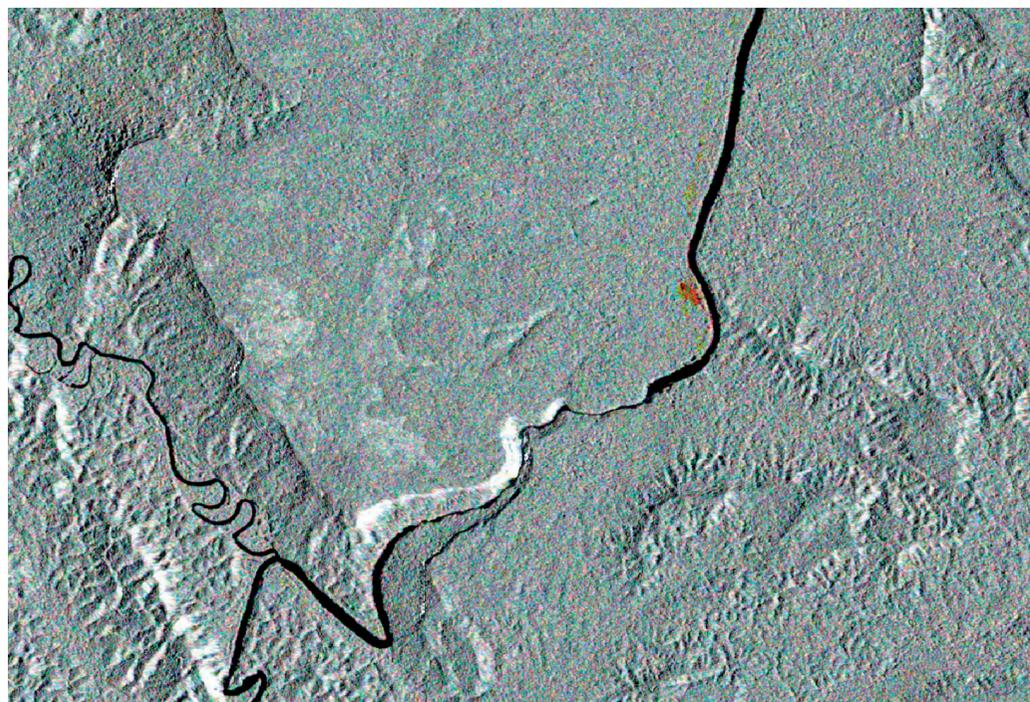
**Figure 16.**  
Clandestine  
landing strip on  
the Parima River,  
YIL, December  
2020

In this region, overflights revealed the co-existence of floating dredgers and dry land mining exactly in this stretch of confluence of the rivers.

The presence of floating dredgers, as we have already noted, makes it difficult to quantify the real impact of gold mining in the region, and therefore affects the estimates on the volume of people involved in it.

**This, plus the pictures of the camps, with dozens of tents parallel to the river, reinforce the idea that the exploration structure in the Parima River has gained scale and has become more complex. Since the peak of the YIL gold rush, in the 1980s and 1990s, there has been no such intense movement in this river.**

**Figure 17. New mining field on the Uraricoera River (in orange), just below the confluence of the Auaris and Parima rivers**





**Figure 18.**  
Floating dredger  
on the Parima  
River, YIL,  
December 2020



**Figure 19.**  
Gold mining  
camp along the  
Parima River,  
YIL, December  
2020



**Figure 20.**  
Gold mining  
camp along the  
Parima River,  
YIL, December  
2020



**Figure 21.**  
Gold mining camp on the  
Parima River,  
YIL, December  
2020



**Figure 22.**  
Gold mining  
camp on the  
Parima River,  
YIL, December  
2020



**Figure 23.**  
Impact of  
mining on the  
Parima River,  
YIL, highlighting  
the dumping of  
solid materials,  
December 2020

## Mucajaí & Couto Magalhães Rivers (Kayanau, Papiu & Homoxi Regions)

The Mucajaí River and its tributary Couto Magalhães, since the 1980s, have been one of the preferred targets for *garimpos* in the Yanomami Indigenous Land. In the decade of 2010, gold mining in this region was dispersed along the riverbed, being carried out essentially by floating dredgers. After successive operations by Funai, the National Indian Foundation, and the installation, in the access to the YIL, of an Ethno-Environmental Protection Base (BAPE Demarcation), river logistics were strangled and the occurrence of floating dredgers in the mid-section of the river decreased dramatically.

**In the region of the mouth of the Couto Magalhães River, however, gold mining persisted, gaining greater scale with the gradual decrease of the State presence. Today, Kayanau and Papiu represent almost 25 percent of the total degraded area observed in satellite images.**

While the BAPE Demarcation was inactive, gold mining reorganized based on land-fluvial logistics, through ports located outside the YIL, with access through local roads connected to the BR 205 highway.

In October, 2019, with the support of security forces, Funai carried out an operation in the region and reactivated the Protection Base, now called Walopali. Thus, gold mining logistics became, once again, dependent on airplanes and helicopters.

However, this was not an impediment to its development: in 2020, the movement on the Couto Magalhães River was expressive and constant. In the radar image (Figure 27), the reddish stretches indicate the removal of the forest in the first half of 2020 and the yellow stretches indicate alteration during the second half of the year.

**Figure 24. Mucajaí River Macro-Region (Source: SMGI)**





**Figure 25.**  
Mining scar  
on the Couto  
Magalhães River,  
Papiu Region,  
YIL, December  
2020

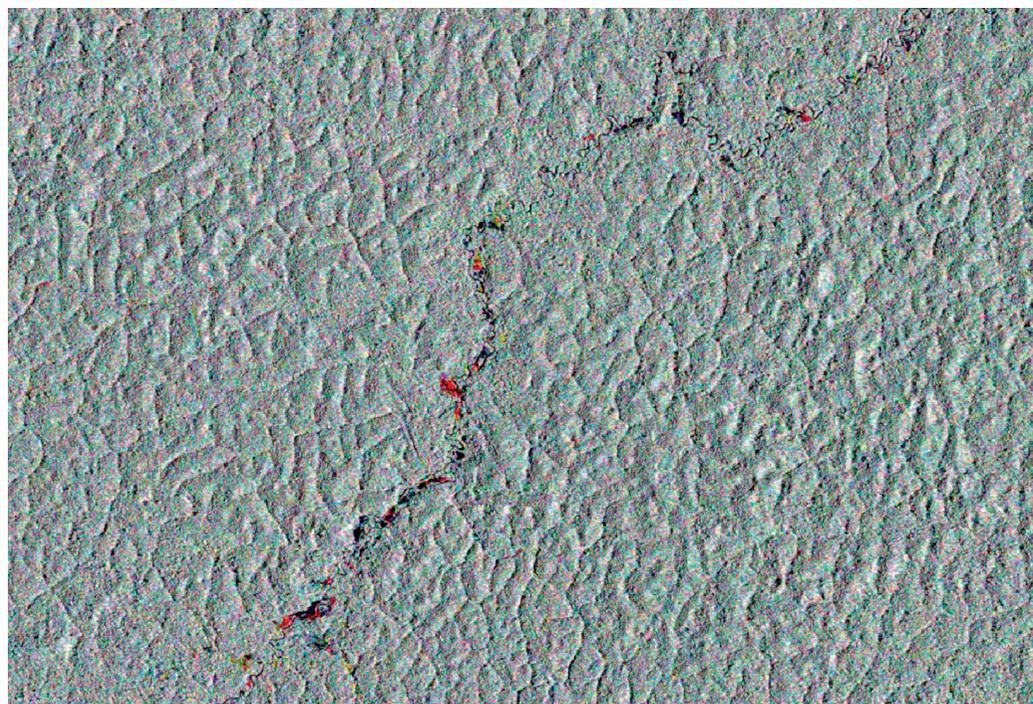


**Figure 26.**  
Impact of semi-  
mechanized  
mining on the  
banks of the  
Couto Magalhães  
River, Kayanau  
Region, YIL,  
December 2020

Complaints from Kayanau residents received by the Hutukara Associação Yanomami (HAY) in March of 2020 describe how the community's airstrip and the health post in the region are being used daily to support mining logistics without any constraint.

In the photographs of an overflight over the region, it is possible to see the scandalous proximity of the mining camp to the health post and, consequently, to the communities.

**Figure 27. Multi-temporal mosaic of radar images of the Couto Magalhães River**  
(Source: Sentinel 1)



**Figure 28**, which captures the families' houses around the Kayanau runway, illustrate the situation of some Yanomami families impacted by the invasion. We see in the images single-family homes covered in canvas, with no apparent clearing area nearby. One of the known effects of gold mining in Indigenous Lands is precisely the social and economic disruption of communities, through dependence on industrialized foods<sup>22</sup>.

Another impact of great repercussions for the lives of the communities observed there is the sexual exploitation of indigenous women.

**In July of 2020, Hutukara formalized a complaint based on an audio sent by a young Yanomami woman in which she comments on the relationship between indigenous people and garimpeiros, the enticement of young people, the distribution of alcoholic beverages and prostitution.**

This proximity of mining and communities, seen in Kayanau, is repeated in the Homoxi, a region located on the upper Mucajai River, which has a history of invasions and impacts associated with gold mining<sup>23</sup>. The image of the head of the airstrip in the region (**Figure 29**) is particularly striking. In it, it is possible to identify the tip of the runway in the upper right corner and craters of gigantic proportions a few meters from the runway.

*"So this is how the garimpeiros do it: Back at my house, they come in carrying alcoholic drinks, very strong alcoholic drinks! They take alcoholic drinks. They want to make friends, they call the women. They say, "hey! My wife!" They sleep [with them], this is how they do it! And because they started doing it, we got the disease. We eat, we also go, and since we always go to their homes, so we also get malaria. Somebody is sick, so when he gets bitten by a mosquito, others of us get this strong disease. So we go back with it to our homes and at night, when it bites us at night, we all get sick. Then another gold digger who is already sick, when he is sleeping too, so when it takes his blood, other people get malaria. This is how it is in my house. They always call the women, they date them. Others have already married, that's how they do it."*  
(HAY Letter 31/2020)

**22.** CARDONA, C. et al. *Minería: Impactos sociales en la Amazonia*. Bogotá: Instituto Amazónico de Investigaciones Científicas sinchi. 2019.

**23.** TOURNEAU, F.-M. LE, ALBERT, B., "Homoxi (1989-2004): o impacto ambiental das atividades garimpeiras na Terra Indígena Yanomami (roraima)". Roraima: Homem, Ambiente e Ecologia, Boa Vista, FEMACT, 2010. p. 155–170.



**Figure 28.**  
Family houses  
near the  
health center,  
December 2020



**Figure 29.**  
Kayanau landing  
strip and health  
center, YIL,  
December 2020



**Figure 30.**  
Mining field  
near the Homoxi  
landing strip,  
YIL, December  
2020



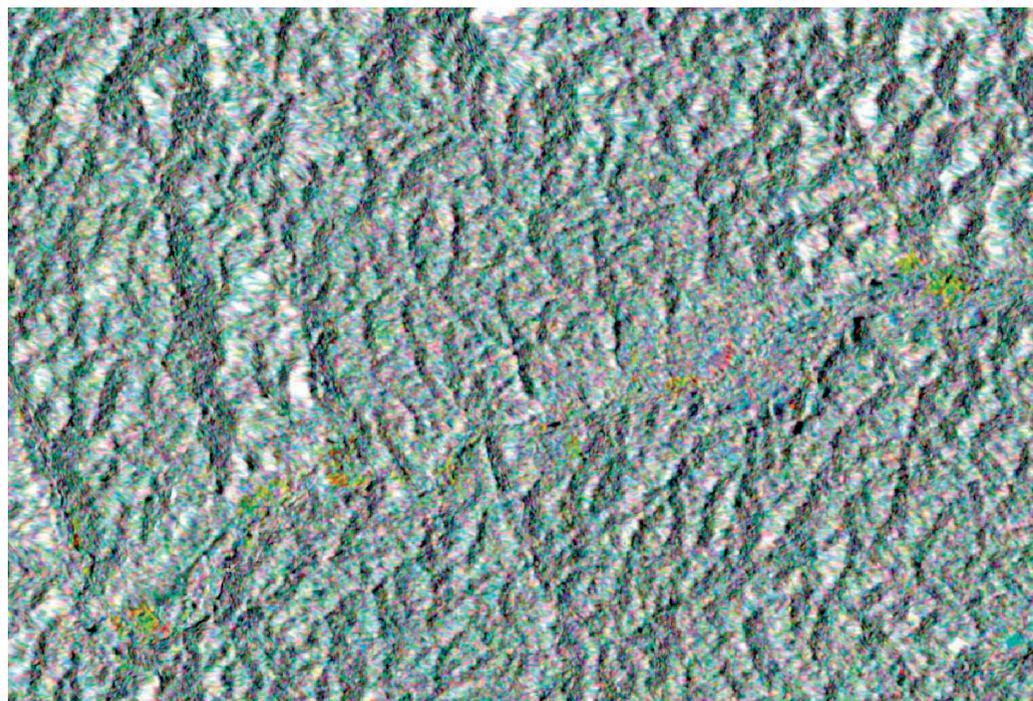
**Figure 31.**  
Impact of semi-  
mechanized  
mining in the  
Homoxi Region,  
YIL, December  
2020

In Homoxi, satellite images indicated a certain stability in the scars up to the first semester. As of the second half of the year, however, the growth of the degraded area has intensified.

This growth can be seen in a radar image of the region (Figure 32), in which the yellowish color represents a change in soil cover as of June of 2020.

Corroborating this diagnosis, in November of 2020 leaders of the region sent a statement denouncing the invasion of gold mining of Homoxi and Xitei, where the invaders had appropriated the airstrips and the structure of the local health posts. The complaint also pointed to the increase of the infrastructure in the gold mining settlements, which have machinery, internet, cafeterias, logistics for the supply of food and fuel, and many firearms.

**Figure 32.** Radar multi-temporal mosaic of the Upper Mucajaí River, in the Homoxi Region, in 2020 (Source: Sentinel 1)



## Catrimani River

The Catrimani is another important river in Roraima impacted by gold prospecting at the Yanomami Indigenous Land. Like the others, its exploration dates back to the 1980s and 1990s, when hundreds of floating dredgers invaded it during the first gold rush<sup>24</sup>. After the demarcation of the YIL, gold mining was drastically reduced, with the exception of some points in the river's upper course. Recently, gold mining has expanded beyond the upper Catrimani.

Reports received in July of 2020 indicate the presence of floating dredgers operating above the Puraquê Waterfall and below the Igarapé Xeriana.

**The denunciations described the boldness of the *garimpeiros* in indigenous communities, where they circulate freely with weapons, demand the use of the community's radio equipment to request food, and harass indigenous people so that they would not complain to the Federal Police.**

In early 2020, there were reports of attacks by *garimpeiros* with the intention of connecting the mines of the Catrimani River to the Novo River through a trail that would cross the hills on the headwaters of the Apiaú River. The trail would start near the limit of the Yanomami Indigenous Land and cross the Roraima National Forest, and would be traveled with quadricycles under the canopy of the trees, making satellite detection difficult.

If completed, the trail would result in an enormous logistical gain for the invaders, since it would reduce the dependence on air transport for fuel, people and food.

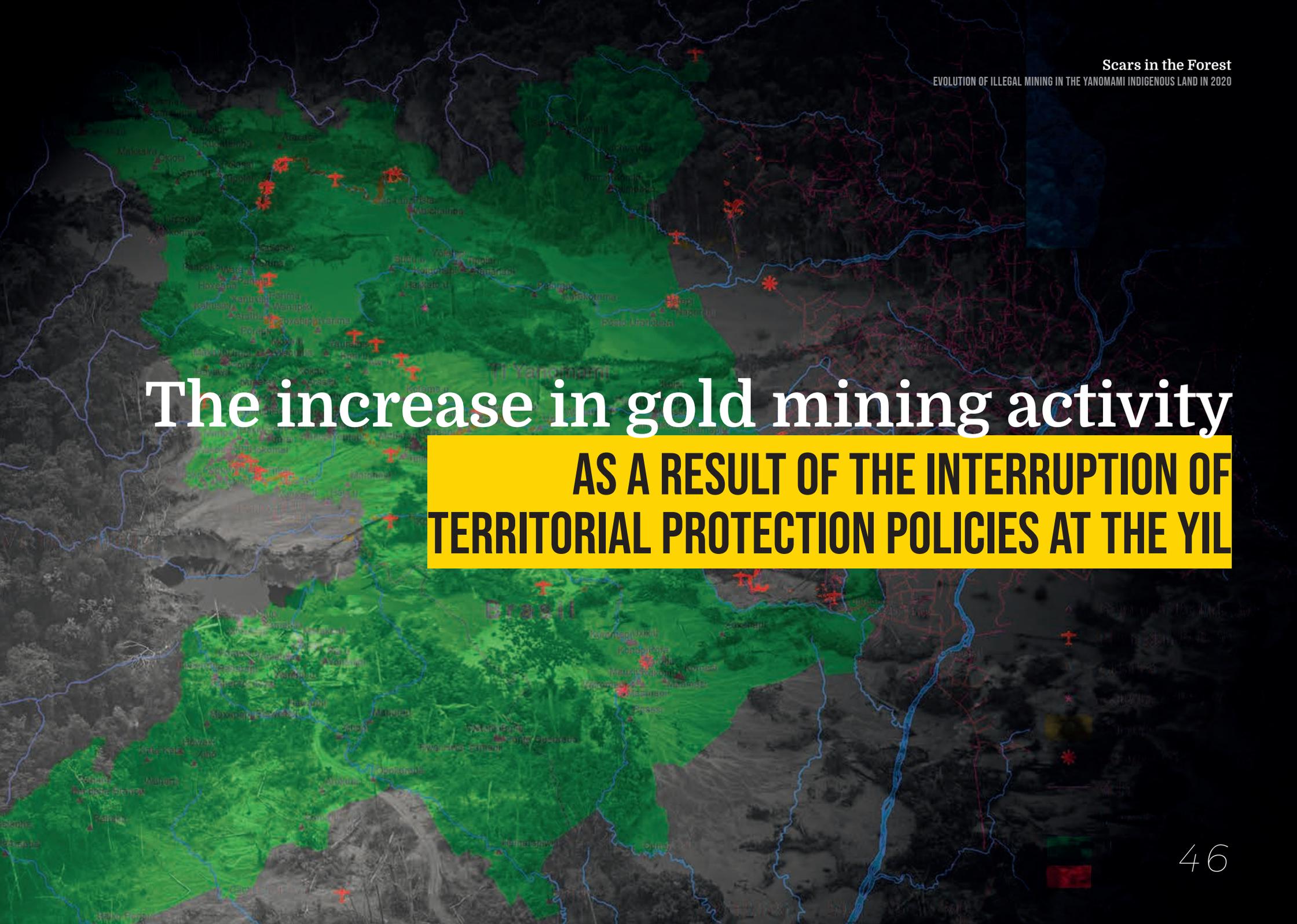
**In addition to environmental impacts that such an undertaking could generate for the region, there is a risk that this movement may induce contact with the group in voluntary isolation known as *Moxihatëtëma*<sup>25</sup>, located in Serra da Estrutura, with consequences of great tragic potential.**

**Figure 33. Catrimani Macro-Region (Source: SMGI)**



**24.** MACMILLIAN, G. At the end of the Rainbow?: Gold, Land and People in the Brazilian Amazon. London, Earthscan Publications Limited, 1995.

**25.** Senra, E. B., Albert, B. Moxihatëtëma: os Yanomami isolados da Serra da Estrutura” In: Ricardo, F. Gongora, M. F. (orgs.). Cercos e Resistências: povos indígenas isolados na Amazônia Brasileira. São Paulo, Instituto Socioambiental, p. 62-71, 2019.



**The increase in gold mining activity  
AS A RESULT OF THE INTERRUPTION OF  
TERRITORIAL PROTECTION POLICIES AT THE YIL**

The resumption of the growth of gold mining at the Yanomami Indigenous Land – and the consequent impacts described above – has been observed since 2010, and has gained momentum from 2018 on. Some external factors may have contributed more or less to this new impulse – for instance, greater demand for gold in the international financial market, with prices reaching record levels.<sup>26</sup>

However, it is important to underline the poorer performance of public agencies to combat illegal activities in the YIL as well.

The last major invasion of gold mining in the region occurred in the 1980s and 1990s. With the official demarcation of the Indigenous Land, in 1992, a major operation was carried out to remove the *garimpeiros* through their logistical strangulation (blocking of rivers and airspace), which was followed by routine operations to inspect and combat illegal mining. Altogether, the territorial protection structure set up had been successful in containing new illegal gold mining enterprises, although the problem persisted in a residual way.

If, between 1992 and 2010, operations to combat gold mining were not sufficient to neutralize it completely, they had a fundamental effect of preventing the infrastructure supporting illegal gold mining from expanding and becoming more complex. Likewise, the outbreak of operations on a frequent basis had a relevant symbolic result, in the sense of signaling to the prospectors and assuring the communities themselves that mining within Indigenous Lands is an illicit activity and that it would be contained.

**The progressive increase of denunciations of illegal gold mining activity in the YIL and the intensification of the degradation it causes, analyzed by SMGI, in turn, coincide with a structural change in territorial protection policies in the YIL that diminishes the capacity of public agencies to curb invasions.**

Particularly relevant was the deactivation of the official infrastructure for blocking invasions (that is, the Ethno-Environmental Protection Bases, BAPes) in the YIL and the decrease in the frequency of field actions by the command and control agencies.

The BAPes functioned both as permanent inspection posts and as logistical support points for operations to combat illicit activities within the YIL. From 2015 on, with its deactivation for alleged budgetary reasons, the logistical costs for the gold mining operation have reduced significantly, stimulating the expansion of the invasion.<sup>27</sup> The aforementioned effect of the reopening of the Walopali BAPE is illustrative of how it mitigated, albeit marginally, the intensity of active floating dredgers in the middle section of the Mucajá and Couto Magalhães rivers, demonstrating the relevance of maintaining this structure to contain invasions in the YIL.

As for the operations to suppress gold mining in the State of Roraima in 2020, we have already mentioned the Verde Brasil 2, which temporarily deactivated the Mutum *garimpo*. It is also worth mentioning Operation Lábaro<sup>28</sup>, on March 13 and 14, and Operation Yanomami<sup>29</sup>, between August 18 and 23, in which the Federal Highway Police seized respectively 1,550 and 24,100 liters of fuel, among other supplies and mining equipment. Opposed to the evidence of spreading and intensification of illegal mining in the YIL demonstrated above, it is clear that the results of these operations alone fall short of what is required for a concrete effect of preventing the flow that supplies illegal gold mining enterprises and discouraging their resumption.

**26.** Folha de S. Paulo. Exportação de ouro bate recorde no Brasil com temor de recessão global. 18/08/2019. Available at < <https://www1.folha.uol.com.br/mercado/2019/08/exportacao-de-ouro-bate-recorde-no-brasil-com-temor-de-recessao-global.shtml> >. Access Feb 25, 2021.

**27.** Sala de Imprensa MPF. MPF consegue reinstalação de bases de proteção etnoambiental na TI Yanomami. Nov 21, 2018. Available at: < [www.mpf.mp.br/rr/sala-de-imprensa-noticias-rr/MPF%20consegue%20reinstalacao%20de%20bases%20de%20protecao%20etnoambiental%20da%20TI%20Yanomami](http://www.mpf.mp.br/rr/sala-de-imprensa/noticias-rr/MPF%20consegue%20reinstalacao%20de%20bases%20de%20protecao%20etnoambiental%20da%20TI%20Yanomami) >. Access Feb 22, 2021.

**28.** G1. Operação apreende mais de 15 mil litros de combustível destinados a garimpo ilegal em RR. Mar 13, 2020. Available at: < <https://g1.globo.com/rr/roraima/noticia/2020/03/15/operacao-apreende-mais-de-15-mil-litros-de-combustiveis-destinados-a-garimpo-ilegal-em-rr.ghtml> >. Access Feb 25, 2021.

**At the same time, political pressures in favor of mining activities, even when in flagrant disobedience to the Constitution, have the effect of stimulating investment in mining activities within Indigenous Lands by generating the perception that they have the consent of the public authorities and may eventually be made legal<sup>30</sup>.**

Recently, the government has adopted an official stance that the State is not able to contain the activity, failing to act in a coordinated and structured way to guarantee the permanent possession of the area by indigenous communities and to prevent the continuation of environmental illicit activities within it. Political pressure for the legalization of mining activities in Indigenous Lands is also intensifying<sup>31</sup>.

In order to safeguard the fundamental rights of the Yanomami and Ye'kwana peoples and enforce the constitutional obligations and international responsibilities of the Brazilian State, the public authorities have been charged in court for the resumption of territorial protection policies for the Yanomami Indigenous Land. Also in 2018, through Public Civil Action number 1000551-12.2017.4.01.4200, filed by the Federal Prosecution Service, a judicial order was obtained for the BAPes to be reopened in the YIL. Two years after the decision, however, only the Walopali BAPE has been recovered, and until the conclusion of this report, the construction of the Serra da Estrutura and the Korekorema BAPes had not started.

In 2020, with the beginning of the COVID-19 pandemic and in view of the high probability of a serious health crisis in Yanomami and Ye'kwana communities, the 1st Regional Federal Court (TRF-1) determined, within the scope of Public Civil Action number 1001973-17.2020.4.01.4200, that the Union present a coordinated plan for the withdrawal of miners. In the Supreme Federal Court (STF),

within the Action of Noncompliance of a Fundamental Precept 709 (ADPF 709), the reporting justice, Luis Roberto Barroso, when determining the adoption of emergency measures to combat COVID-19 among indigenous peoples, reaffirmed the constitutional duty of the Brazilian State to promote the removal of non-indigenous individuals of the Indigenous Lands in the country.

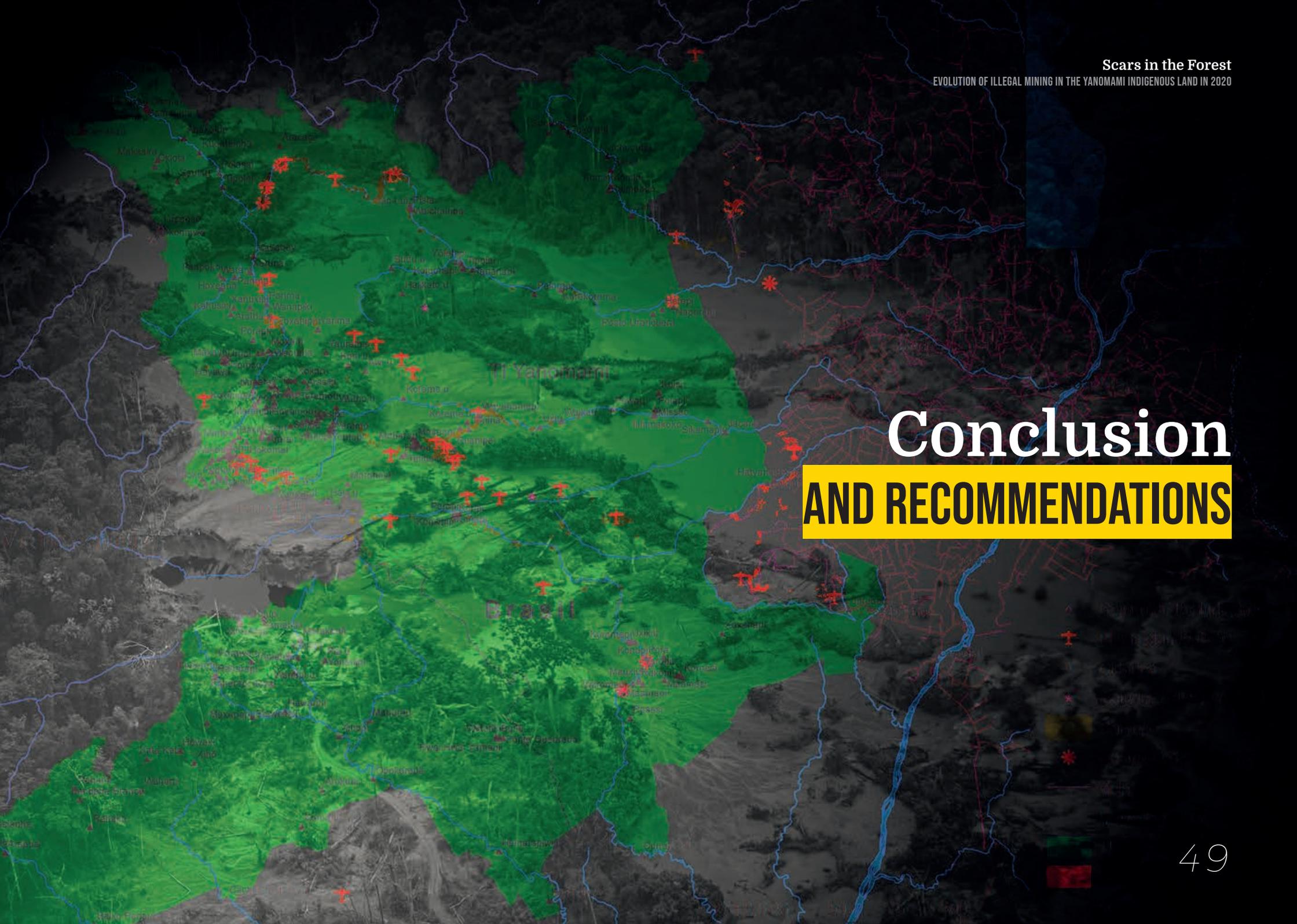
At the international level, in response to the request for precautionary measures jointly petitioned by the Hutukara Associação Yanomami and the National Human Rights Council (CNDH), the Inter-American Commission on Human Rights (IACHR) issued Resolution 35/2020, advising the Brazilian State to adopt urgent measures to protect the rights to health, life, and personal integrity of the Yanomami and Ye'kwana communities, including by preventing miner invasions.

Despite these favorable decisions at the national and international level, little progress has been made in implementing structured and coordinated actions for their effective compliance. Meanwhile, the Yanomami communities remain vulnerable to the uninterrupted invasion of miners in their traditional home, suffering the described social and environmental impacts of the mining activity.

**29.** Gazeta do Norte. PRF encerra Operação Yanomami com 30 detidos e causa prejuízo de quase 1 milhão ao garimpo ilegal. Aug 29, 2020. Available at: <<https://gazedonorte.com.br/2020/08/25/prf-encerra-operacao-yanomami-com-30-detidos-e-causa-prejuizo-de-quase-r-1-milhao-ao-garimpo-ilegal/>> Access Feb 25, 2021.

**30.** BEGOTTI, R.A., AND PERES, C.A. (2020). Rapidly escalating threats to the biodiversity and ethnocultural capital of Brazilian Indigenous Lands. *Land Use Policy* 96, 104694. FERRANTE, L., AND FEARNESIDE, P.M. (2019). Brazil's new president and "ruralists" threaten Amazonia's environment, traditional peoples and the global climate. *Environ. Conserv.* 46, 261–263.

**31.** Folha de S. Paulo. Mourão diz que é hora de discutir mineração em terra indígena. Sep 8, 2020. Available at: <<https://www1.folha.uol.com.br/mercado/2020/09/mourao-diz-que-e-hora-de-discutir-mineracao-em-terra-indigena.shtml>>. Access on Feb 25, 2021. A Publica. Enquanto força tarefa investiga ouro ilegal, lobby do garimpo tem apoio do governo. Jun 22, 2020. Available at: <<https://apublica.org/2020/06/enquanto-forca-tarefa-investiga-ouro-ilegal-lobby-do-garimpo-tem-apoio-do-governo/>> Access Feb 25, 2021. Roraima em Tempo. Onyx: Garimpo é 'importantíssimo' e indígenas podem desenvolver 'sem perder características'. Nov 24, 2020. Available at: <<https://www.roraimaemtempo.com/ultimas-noticias/onyx-garimpo-e-importantissimo-e-indigenas-podem-desenvolver-sem-perder-caracteristicas-380414.jhtml>>. Access Feb 25, 2021.



# Conclusion AND RECOMMENDATIONS

The analysis of the information collected for this report has confirmed the consolidation of a tendency of acceleration of forest degradation caused by illegal gold mining in the interior of the Yanomami Indigenous Land. Indicative of this trend was the increase in 500 hectares of the degraded area throughout 2020, a 30 percent growth. In the same direction, the growth and proliferation of gold mining settlements – with emphasis on the Uraricoera River area, which concentrates 52 percent of the scars that have been identified –, the increase in circulation between the settlements, and the opening of new logistical routes. The most affected areas are Waikás (35 percent of the scars), Kayanau (23 percent), and Aracaçá (17 percent) stand out, followed by Homoxi (7 percent), Upper Catrimani (4 percent) and Parima (3 percent).

Particularly concerning were the evidences of closer proximity of gold mining camps and indigenous communities. This indicates the confidence of miners that they will not be reprimanded for their illegal activity while they take advantage of the community's resources and the official structures of the communities' health posts. As a result, there is worsening potential of open conflict between *garimpeiros*. Examples of this scenario was the murder of two Yanomami in Parima, the kidnapping of a young Yanomami for sexual purposes, the denunciations of the circulation of alcohol and the harassment of women, as well as the use by prospectors of medicines destined to indigenous communities in Kayanau, and the threats to communities in the Catrimani River area.

Another serious effect felt directly by indigenous communities was the worsening of their health conditions, with malaria cases skyrocketing (a 473 percent increase between 2014 and 2019) and *garimpeiros* serving as gateway to COVID-19. It is worth remembering that the greater intensity of the mining impacts is also directly related to the high rates of mercury contamination observed

in individuals who live in communities close to these areas, with irreversible damage to human health<sup>32</sup>.

Finally, the data indicate increased pressure on indigenous group in voluntary isolation known as *Moxihatëtêma*. They are currently harassed by the increasing circulation of *garimpeiros* in the Serra da Estrutura region, a few kilometers from their collective house. An eventual forced contact, at this stage, risks triggering a tragic episode of genocide.

**The picture corroborates the analysis that illegal mining has been increasing in intensity and complexity in the Yanomami Indigenous Land, moving further and further away from the notion of residual, spontaneous, individual and artisanal activity, and consolidating itself as a business activity, albeit illegal, with high potential for social and environmental impact.**

Contributes to this the intensive adoption of expensive and heavy industrial techniques and machinery, the rapid installation of infrastructure in the camps, and the permanent functioning of articulated aerial, river and land logistics for its supply.

This scenario develops within the window of opportunity created by the discontinuation of public policies for the territorial protection of Indigenous Lands, in spite of the legal frameworks in force in the country. Despite a series of judicial determinations, until now there has not been a full resumption of these policies. At the same time, due to the new scale reached by mining in the YIL, the mere resumption of the infrastructure previously installed will hardly be sufficient for its effective control – a set of coordinated structural actions between public agencies is necessary to effect the removal of non-indigenous individuals from the area and dismantle the existing gold mining structure.

<sup>32</sup>. VASCONCELLOS et al. Carga de Retardo Mental Leve atribuída à exposição pré-natal ao metilmercúrio na Amazônia: estimativas local e regional. *Ciência & Saúde Coletiva*, 2018, p. 3535.

The solution to the problem of illegal gold mining in the Yanomami Indigenous Land, therefore, necessarily passes through the resumption of State policies to guarantee the permanent possession by indigenous people over the lands they traditionally occupy. In particular, it is recommended:

■ **To fully resume policies for the territorial protection of the Yanomami Indigenous Land, including:**

- i. The presentation of an integrated plan for the total extinction of mining in the Yanomami Indigenous Land, providing for coordinated action between the Federal Police, the Army, Ibama (Brazilian Institute of the Environment and Renewable Natural Resources), Funai, and other relevant public bodies;
- ii. The completion of the construction and reopening of the Serra da Estrutura and Korekorema BAPes, serving alongside the Walopali BAPE as territorial checkpoints for logistical support bases for coordinated operations between the Federal Police, the Federal Prosecution Service, the Army, Funai, Ibama, and other relevant bodies for combating environmental offenses at the YIL;
- iii. The resumption of periodic operations at the YIL for the destruction of the existing clandestine infrastructure and equipment to support mining and extrusion of gold miners installed in the camps;
- iv. The permanent blocking of the supply logistics to gold mines by river, air or land, through the control of the rivers that give access to the YIL; greater rigor in the control

of the airspace, especially aircraft overflights at the YIL; destruction of clandestine airstrips, and deployment of agents to prevent the opening of new ones; intensification of road enforcement to apprehend illegal transportation of fuels and mercury;

v. Other actions deemed relevant.

- **To advance investigations into the illicit activities related to gold mining in the Yanomami Indigenous Land and in the Brazilian Amazon, identifying and holding the main players responsible throughout the illegal chain that finances it and benefits from it directly or indirectly, including with regard to the obligation to carry out the environmental recovery of degraded areas;**
- **To promote strict inspection of the import, commercialization, transport, and use of mercury, in accordance with the terms of the Minamata Convention on Mercury, promulgated in Brazil by Decree 9.470/2018;**
- **To guarantee the effective participation of indigenous peoples throughout the process of making legislative or administrative decisions that affect them, respecting their own deliberation mechanisms, in compliance with Convention 169 of the International Labor Organization;**
- **To promote the updating of normative regulations on the inspection of licensed gold mines in the Amazon and of the gold trade, in order to give greater rigor and efficiency to the control of frauds for the marketing of gold illegally extracted from illegal mines.**

