

YANOMAMI UNDER ATTACK

ILLEGAL MINING
ON YANOMAMI
INDIGENOUS LAND
AND PROPOSALS
TO COMBAT IT

ILLEGAL MINING
MONITORING
SYSTEM OF
THE YANOMAMI
INDIGENOUS
TERRITORY
(2021 DATA)

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APRIL 2022

I want all of you non-indigenous people to turn your eyes to this land! And do you know why we want it? So that all the non-indigenous leaders will quickly come and support us! I am speaking my mind! You non-Indians, you who live in distant lands, do not watch over us without interest! I don't want you to stand at us for nothing! Be urgent! Since you have so much strength, see that we Yanomami are really suffering! All of this is very clear! That's why I urgently ask you to build a barrier on this river [to stop the invaders from entering] and I want you to quickly close off access to the miners! Why are they allowed in? I don't accept that!

We soon want to see a ban on trespassers! We want to live in peace! For a long time we have been suffering from our dirty water! Why are rivers dirty? The rivers where we drink water are dirty! And so are the ones where we fish! There are always bodies of dead miners floating in the river! I can't stand seeing these things anymore! When fish eat these dead people's flesh, we end up eating these fatty fish of human flesh, and I don't accept that! So I want you non-indigenous leaders to all come and clean up our land! And why do I want it? Because this river over here is the source of our food, it's where we fish. This is where our fish come from, if I can't fish, what am I going to do? And yet we are tired of seeing miners' rotting bodies... Whose bodies are these? Whose bones were these faces?

That's what we claim. So I don't want that! Instead we want the whole world's leaders to look at us! Talk to each other, discuss what has been happening to us! We also want the support of the Yanomami associations! May all of you turn your eyes to us! We have been suffering along with the forest! The entire forest has! The forest has died! Now the forest is dead. It's been a long time since they killed this forest. They destroyed all the trees we used to eat fruit from! They cut down all the big trees! And who did that? The miners did! They killed them all! Our land is completely dead! So I ask you again all my leaders: come to our rescue! Right here where we live we are devastated! Just as the forest is devastated, so are we! Why are we damaged? We've been devastated by mining! We are all going through this all over our land, we want to open your eyes. They have wiped us all out! So let's close the river! So now, leaders of the world, pay close attention! Raise your eyes! I don't want to suffer anymore for no reason! That's what I'd like to say to you, great leaders!

Statement from a Yanomami leader recorded by artist Richard Mosse in Palimiu in June 2021.

Kraiwa wamaki komirini, hei wama
thē urihi komiri wamaki mamoni
xatipuwi pei ya thē peximai! Witi pii
tēha wamaki pēximai? Kraiwa pata
kaho wamaki komirini, kami wamare
pairia rērēprapē! Ya pihī kuu yaro,
pei yā. Ipa kraiwa wamaki kakii,
praha thēri wamakini, komi mamō
xatipu puonomai! Kami wamaki
wamarē mamō xatipu ya peximaimi!
Ropē!! Wamaki a kohipē hwētiprarini
“aweī! Yanomami wamaki nē ohotai
mahi ono!” Hei pēka kakii, thē yai
pē karo mahi o no! Wamaki pihī a
kutarini, pata wamakini ropē hei u
wama hehuprari ya thē peximai!
Hehu a rērēki ya thē peximai! Witi
thē karo xiwāripropē? Thē karo
xiwāripro ya peximaimi!

Ya hahu tha rērēo pihio. Yamaki pihī
yanikipru pihio! Yutuha, kami yakami
hei ipa mau u ka kurenē, u xami!
Witi pii tēha u xami? U xami yamaki
koa pē hamī, kami yamaki pescamu
pēhamī, garimpeiro pē kakii, pē
waximi karorai xiwāripronī, yākimi
ya thai pihio maprarioma! Ipa yaraka
pēni, pē waximi wahreni! Yamapē
wite wai hikia yaro, ya yai peximaimi!
Inaha yaro, kraiwa pata wamaki
urihi wama thē komi auprari ya thē
peximai! Witi pii tēha ya thē peximai?
Hei u kakii, ya u yarakapē yaiwi, ya
pescamuwi. Ya yarakapē yaiwi tēhē
witi naha ya thai? Garimpeiro ya upē
maro thaprai xiwāripru yaro, witi pii
maro? Garimpeiro maro, pei kahiki
maro kuoma?

Inaha yamaki kuu. Hei ya thē
peximaimi! Ipa pata wamaki, komi
urihi kutarenaha wamaki mamō ka
xatire, wamaki komiri wa hwamayū,
kohiprario! Associação yanomami pē
ka hwētikiaki, pē komiri kohipēpru ya
thē peximai! Komiri, mamō xatiowi ya
thē pēximai! Kami yamaki urihi pēni
ohotawi thē kua! Komi yamaki urhipē
ni ōhotai! Urihi a nomarayoma!
Hei tēhē urihi a nomarayoma!
Yutuha urihi nomamaremahe. Kami
yamakini huu yama tihī moko waiwi,
tihī komiri wāriaremahe! Huu tihiki,
pata tihiki komi mapraremahe! Witi
pēni tha? Garimpeiro pēni tihiki
mapraremahe! Kami yamaki urhipē
komi nomarayoma! Inaha yaro, ipa
para wamaki komiri kohipēprario! Pei
ya kuu kaho wamakīha. Kami yakami
hamī yamaki maprarioma. Urihi
ha a ka praa kutarenaha, yamaki
wāria kutarenaha! Witi tēha wakami
wāriaremahe? thī garimpo ani yamaki
wāriaremahe! Kutarenaha yamaki
wariaremahe! Kua yaro, hei u kakii
yama u yai akikipramai kua. Inaha
yaro, ipa pata wamaki mamō xatio
kohipēprario! Yai tirērayu! Kami ya
nē ohotai puo nomai! Ipa pata wa,
ipa waha kakii, wamaki hai kupē!

Palimiu wāro
pata a, 2021.

EXECUTION

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1 INTRODUCTION

Mining on the
Novo river, TIY,
January 2022.

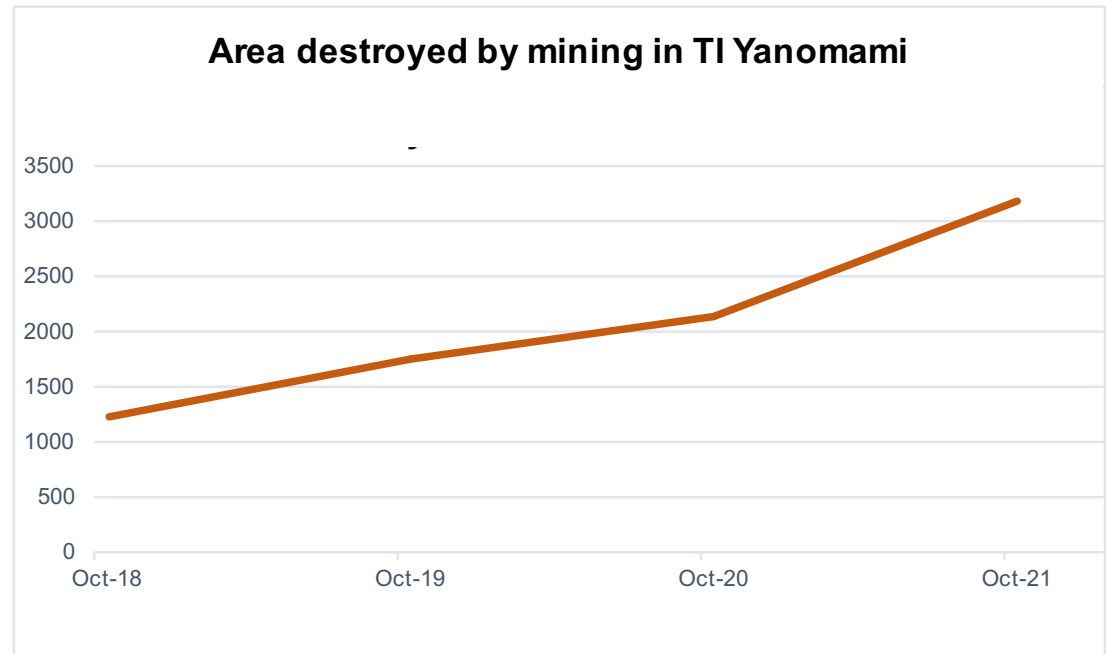


INTRODUCTION

This report aims to describe the evolution of illegal mining in the Yanomami Indigenous Territory (TIY) in 2021. This is the worst moment of invasion since the TIY was demarcated and ratified thirty years ago. It will describe how the presence of mining in the TIY is the cause of systematic human rights violations in the communities that live there. In addition to deforestation and the destruction of water bodies, the illegal extraction of gold (and cassiterite) in Yanomami territory has caused an explosion in cases of malaria and other infectious and contagious diseases, with serious consequences for the families' health and economy, and a frightening increase in violence against indigenous people.

The problem of illegal mining is not new to TIY¹. However, its scale and intensity have grown impressively in the last five years. Data from Mapbiomas indicate that from 2016 onwards the mining destruction curve assumed an upward trajectory and, since then, has accumulated increasing rates². According to the platform's calculations, from 2016 to 2020 mining in TIY grew by no less than 3350%³.

When our monitoring began in October 2018, the total area destroyed by mining in the TIY was just over 1,200 hectares, with most of it concentrated in the Uraricoera and Mucajáí river channels. Since then, the impacted area has more than doubled, reaching a total of 3,272 hectares by December 2021.



As it can be seen in the graph below, the growth was accentuated mainly from the second half of 2020, and in 2021 alone there was an increase of more than a thousand hectares.

This expansion has occurred for a number of combined reasons, among which we can mention: 1) The gold increasing price in the international market; 2) Lack of transparency in the

Graph 1:
Area destroyed
by mining in TIY
from October
2018 to October
2021, SMGI.

¹ https://pib.socioambiental.org/pt/Povo:Yanomami#A_corrida_do_ouro

² MapBiomas Project – Collection 6 of the Annual Series of Land Cover and Land Use Maps of Brazil, accessed on 10/01/2021 through the link: <https://plataforma.brasil.mapbiomas.org/>

³ The data from Mapbiomas are interesting for observing the behavior of garimpo over time, but unfortunately the current version of the platform greatly underestimates the phenomenon. This is because its mapping is done using Landsat images that have a spacial resolution of 30 meters. However, on TIY, the mining occurs in a fragmented way in areas with very unstable topography, making automatic classification difficult.

gold production chains and regulatory failures that allow fraud in the delcaration of origin of the illegally extracted metal; 3) Weakening of environmental policies and protection of indigenous peoples' rights and, consequently, of the regular and coordinated supervision of the illicit activity in Indigenous Lands; 4) Worsening of the economic crisis and unemployment in the country, producing a mass of cheap labor to be exploited in highly precarious and dangerous conditions; 5) Technical and organizational innovations that allow the illegal mining structures to communicate and move much more agilely; and 6) The current government's policy of insistent incentive and support for the activity despite its illegal character, thus producing the expectation of regularizing the practice⁴.

Note that, with the exception of the increase in the gold price, the factors that have leveraged mining in TIY (and in the Amazon in general) are related to political choices. In other words, they could have been avoided through public policies that fully respected the constitutional principles of guaranteeing and protecting fundamental rights. Therefore, it is understood that illegal mining is not an unsolved problem, but the logical result of decisions that favor the expropriation of natural resources, always to the detriment of the rights of the country's indigenous peoples. Thus, at the end of this document, we intend to point out some of the measures that could be taken to control the problem.

Today's mining is an activity financed by businessmen with high investment capacity who concentrate most of the wealth illegally extracted from the Yanomami forest. Federal Police investiga-

tions⁵ revealed that these businessmen are members of the local economic elite or figures from other states with operations in Roraima⁶. The illicit money they make is often laundered through legal businesses in the city of Boa Vista or elsewhere, such as supermarkets, gas stations, restaurants, and others.

In 2021, the Federal Public Ministry prosecuted a businessman from Boa Vista for involvement in illegal mining in TIY. Investigations indicated that the accused moved more than R\$ 425 million in two years, a resource incompatible with his declared financial capacity, according to the Financial Activities Control Council (COAF). Also according to the investigations, the group led by the businessman used an air cab company and another one of artesian wells to transport inputs and labor to the mining areas, services that were paid in gold⁷.

On theory, the gold extracted from mining sites should be sold only to purchasers authorized by the Central Bank, the Securities Distributors (DTVMs), through their subsidiaries located near the permitted mines. At these buying points (PCOs), the gold arrives in a raw state and is later sent to a smelter that standardizes the metal to be finally traded as a financial asset. However, the current legislation has established that when the raw material is sold at the PCOs, only the self-declaration of the bearer or transporter about its origin will be considered as a guarantee that the gold was extracted from a licensed mining site. In other words, the guarantee that the gold sold in a PCO was or was not legally mined depends only upon the trustworthiness and good faith of the buyer⁸. Thus, the gold produced in illegal mining can easily be "warmed up", that is, have its legality forged

⁴ <https://www.cartacapital.com.br/politica/garimpeiros-ilegais-circulam-livrementepelos-gabinetes-de-brasilia/>

⁵ <https://www.bbc.com/portuguese/brasil-59855502>

⁶ <https://www.terra.com.br/noticias/ciencia/sustentabilidade/pf-prende-empresario-milionario-ligado-a-garimpo-ilegal-por-ordenar-queima-de-helicopteros-do-ibama,465816d49093fbde2a5ee214c8e56490kh-6vrl9w.html>

⁷ <https://g1.globo.com/rr/roraima/noticia/2021/10/07/pf-faz-operacao-contra-grupo-de-apoio-logistico-aereo-ao-garimpo-na-terra-yanomami-e-justica-bloqueia-r-95-milhoes.ghtml>

⁸ Law 12.844/2013.

by borrowing mining authorizations issued for other areas that hold a Garimpeira Mining Permit - PLG⁹.

As an alternative, illegally mined metal can be directly traded as commodity gold in local jewelry stores¹⁰, since the degree of inspection in these establishments is also extremely low. In this way, gold from illegal mining is easily marketed in the country and abroad. As an illustration, in the first half of 2019, the state of Roraima, even without having any authorized mining, exported to India R\$ 48.7 million in gold¹¹.

Another point worth highlighting is the evidence of organized crime approaching areas affected by illegal mining. In one of the most terrifying incidents of 2021 - the series of attacks on the Palimiu communities, the involvement of agents of the First Capital Command (PCC) in illegal gold mining was made explicit for the first time in the Yanomami context¹². The approximation between drug trafficking and mining in the Amazon, however, is not restricted to Roraima. In several other regions, such as Pará and Mato Grosso, the standart behavior has been what some have called 'narcogarimpo'¹³.

Thus, in contemporary mining there is an increasingly unequal distribution of damages and benefits related to the activity. It is known that the people who work directly in the exploitation areas are not the same ones who enjoy the majority of the illegally exploited wealth. On the contrary, these people are subjected to high risks and, in some cases, to situations of flagrant labor ex-

ploitation, remaining trapped in a kind of "poverty trap". Likewise, the populations of the municipalities where the practice occurs suffer, even if they do not realize it, from several of its serious impacts.

Since mining started to advance on the Indigenous Lands of Roraima, the life quality in the state had considerable losses, which is reflected in the Amazon Social Progress Index¹⁴ and in the regional crime indicators¹⁵. In the area of public health, damages need to be better measured. The increase in malaria in urban areas, imported from the mining areas, and the impacts of mercury contamination on human health (congenital malformations, neoplasms, diseases in the nervous system, etc.) are already noticeable, but there are still no studies that explore in detail the epidemiological profile of the municipalities that suffer from those diseases.

Of all the actors involved, however, indigenous peoples are, undoubtedly, the ones who bear the greatest part of the damages and losses generated by mining, in a flagrant situation of environmental racism. This document is therefore intended to be a denunciation against this process, in the hope that, once again, the Yanomami can assert their territorial rights through their tireless struggle to live in peace. At the end of the 1980s, in the height of the first gold rush, with the strength of their leaders and their shamans, this people managed to survive the genocidal project that was imposed on them. Now, we are confident that it will be no different.

⁹ Manzolli et al. The legality of gold production in Brazil. Belo Horizonte: Editora IGC/UFMG, 2021.

¹⁰ <https://amazoniareal.com.br/dtvms>

¹¹ <https://www.bbc.com/portuguese/internacional-48534473>

¹² <https://oglobo.globo.com/brasil/seguranca-publica/nos-a-guerra-crime-organizado-avanca-sobre-os-garimpos-ilegais-da-amazonia-25260890>

¹³ <https://www.metropoles.com/distrito-federal/na-mira/narcos-gold-pf-prende-trafficantes-que-movimentaram-r-1-bilhao?amp>

<https://oglobo.globo.com/brasil/seguranca-publica/narcogarimpo-movimenta-dinheiro-na-amazonia-com-avioes-joias-cavalgadas-shows-de-famosos-25272438>

<https://agenciasportlight.com.br/index.php/2021/11/16/de-bracos-abertos-para-o-crime-narcotraficante-com-conexoes-no-pcc-ganhou-18-autorizacoes-para-garimpar-no-governo-bolsonaro/>

<https://sustentabilidade.estadao.com.br/noticias/geral,mourao-diz-que-acao-de-garimpeiros-no-rio-madeira-pode-incluir-apoio-do-narcotrafico,70003908390>

¹⁴ Santos, D. et. al. Social Progress Index in the Brazilian Amazon: IPS Amazônia 2021. Belém: Imazon, 2021.

¹⁵ Cerqueira, D. et al., Atlas of Violence 2021. São Paulo: FBSP, 2021.

REPORT ORGANIZATION

This document is divided into three parts:

- (i) presentation of general data on mining in TIY, with a map of the impacted areas, information on the area destroyed in each region, and the number of communities and waterways directly affected;
- ii) analysis by macro-regions, where we compile the main information about the impacts of mining in the different regions it affects - the data in this section is based on complaints received and organized by the Hutukara, newspaper articles and testimonies recorded by indigenous researchers who carry out autoethnographic work on the impacts of mining in the communities;
- iii) Conclusions and recommendations, in which we present a summary of our argument and offer a list of actions that can contribute to solving the problem.

NOTES ON MAPPING METHODOLOGY

Our monitoring is carried out monthly based on the visual interpretation of satellite images by geoprocessing specialists. Until October 2021, we mainly used images from the Planet constellation and the Sentinel 1 and 2 satellites. By using them, degradation polygons are drawn in a GIS environment, which include: 1) recent deforestation associated with mining; 2) active mines in which the soil appears bare; 3) recently abandoned areas, which show an incipient advance of vegetation, essentially composed of grasses covering gravel pits; and 4) tailings ponds. Every month, the impacted regions are revisited in order to refine the mapping and check for possible misinterpretations. It is important to say that the interpretation takes into account not only the geometry and spectral response (in the case of optical images) but also the context. Therefore, all mapping is carried out considering the location of the communities and their grazing areas, besides other information about the Yanomami Territory such as landing strips and health posts, which guarantees the differentiation between the removal of forest cover for traditional agricultural management and deforestation associated with mineral exploration. In November and December, due to access restrictions to the Planet mosaic, the mapping was done exclusively using Sentinel images, both radar and optical. In the case of processing the radar images, we used the methodology of the Deforestation Radar Indication System (SIRAD), which consists of a series of algorithms that process the information from the Sentinel-1 Satellite using the Google Earth Engine platform. In this environment we have a temporal mosaic that allows us to observe changes in the vegetation behavior in three time markers adjusted for the analysis. Every six months the mapped scars are validated with overflights. All images illustrating this document were produced between January 26, 27 and 28, 2022.

2 GENERAL MINING FIGURES FOR TIY

Mining on the
Uraricoera river,
TIY, January 2022.



GENERAL MINING FIGURES FOR TIY

In 2021 the destruction caused by mining in the TIY increased by 46% compared to 2020. There was an annual increase of 1,038 hectares, reaching a cumulative total of 3,272 hectares. This is the highest growth observed since we began our monitoring in 2018, and possibly the highest annual rate since the TIY was demarcated in 1992.

As we can see in the chart and map below, mining has not only increased in area, but has also spread to new regions of Yanomami Territory. In this document we use the limits of the base-areas of the Health District as a regional cut-out, since it allows us to correlate the data of the impacted area with the epidemiological profile of each region. Of the 37 existing poles, 18 have records of some deforestation related to mining. If we were to include in this list the base-points that have no record of deforestation observable on satellite, but have information about the activities of rafts or small groups of miners, this set would expand to 24 base-points (including Maturacá, Lower Catrimani, Inambú, and Ajarani).

Note that the mining identifiable by remote sensing is basically located in the Roraima portion of the TIY. Almost half of the degraded area is concentrated in Waikás, a region located on the Uraricoera River. Kayanau, which is at the confluence of the Couto Magalhães and Mucajaí Rivers, is the second zone with the highest concentration of scars, with just over 20% of the total degraded area, followed by Homoxi, on the border with Venezuela, with 12%.

With the exception of the Surucucus, Catrimani Mission, and Uraricoera regions, all the others showed important growth from one year to the next. And, even in the regions that showed a negative variation, the reduction was more associated with the refinement of the mapping (when the overflying and better images available correct interpretation errors) than with a real recovery of the landscape.

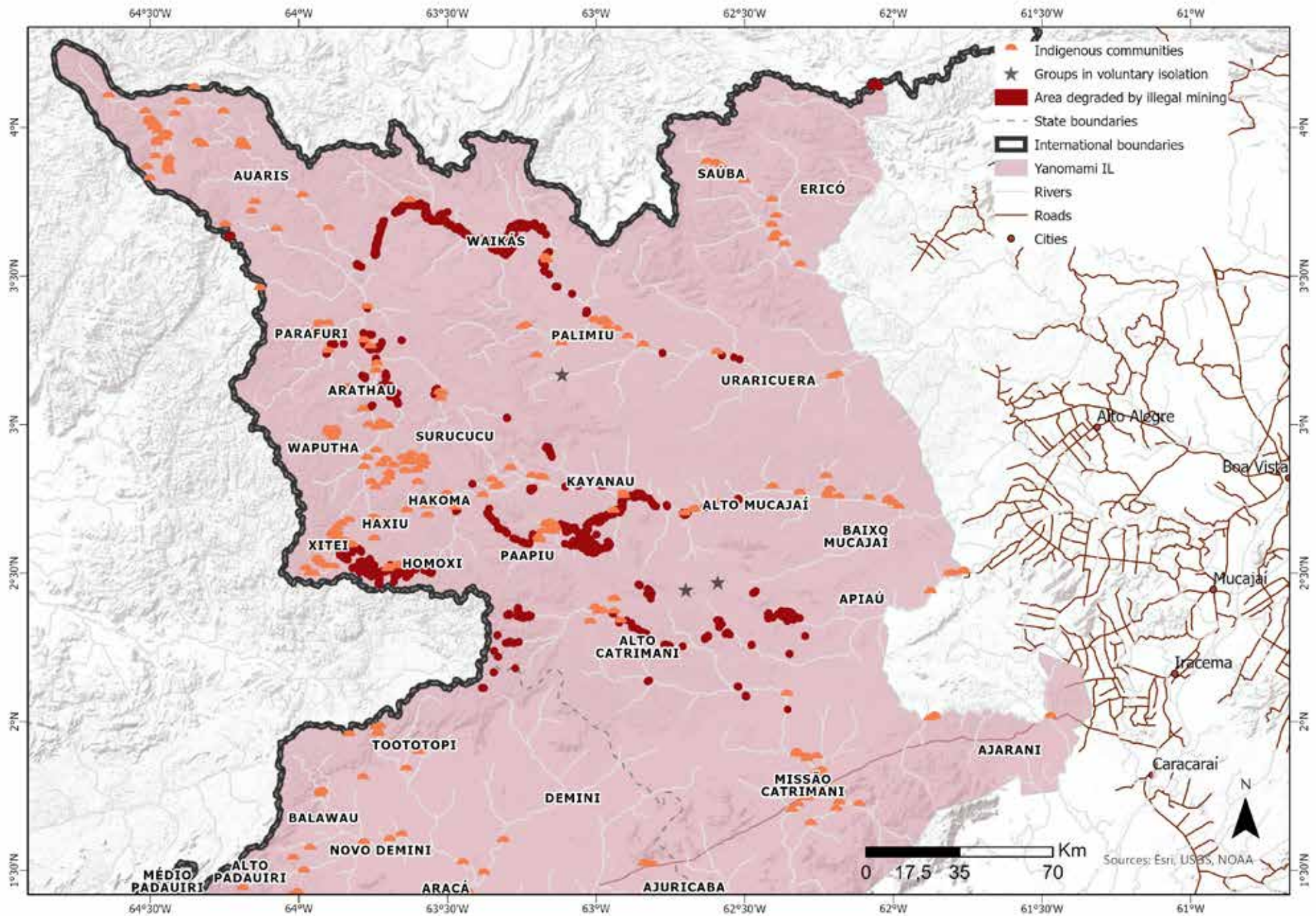
Among the regions that presented the biggest increase are, respectively: Waikás, Homoxi, Kayanau and Xitei. The latter showed a relative growth of more than 1000%.

In relation to the mining's direct impact on water resources, the main rivers and Igarapés currently affected are: Uraricoera River, Parima River, Igarapé Inajá, Igarapé Surucucus, Mucajaí River, Couto Magalhães River, Apiaú River, Novo River, Catrimani River and Lobo d'Almada River. As can be seen in table 2, adding up the different stretches and considering the relationship of the river with its tributaries, we verify that the Mucajaí river basin is currently the most affected watershed, concentrating in its course 180 km of destruction (in two stretches), plus 50 km of the Couto Magalhães river, and, why not, 30 km of the headwaters of the Apiaú river (which flows into the Mucajaí outside the TIY) and 10 km of the Novo river, which is a tributary of the Apiaú.

The Uraricoera river basin, on its turn, is not far behind the Mucajaí in terms of destruction. In addition to the 150 km of its middle course, the Parima (35 km), Igarapé Inajá (10 km) and Igarapé Surucucus (4 km) are also impacted.

REGION	DECEMBER 2020	DECEMBER 2021	ANNUAL INCREASE	ANNUAL VARIATION
Alto Catrimani	104.36	175.43	71.069	68%
Alto Mucajaí	15.75	17.11	1.36	9%
Apiaú	76.79	106.65	29.859	39%
Auaris	0	4.05	4.05	
Demini	2.32	1.86	-0.46	-20%
Ericó	19.04	23.36	4.324	23%
Hakoma	24.98	42.21	17.23	69%
Homoxi	145.98	399.29	253.31	174%
Kayanau	510.17	688.81	178.64	35%
Médio Catrimani	12.8	4.36	-8.44	-66%
Palimiu	4.76	15.59	10.83	228%
Papiu	17.44	38.77	21.33	122%
Parafuri	0	5.51	5.51	
Parima (Arathau)	77.76	112.32	34.56	44%
Surucucus	35.18	27.49	-7.69	-22%
Uraricoera	5.4	2.98	-2.42	-45%
Waputha	0	4.01	4.01	
Waikás	1169.93	1466.11	296.18	25%
Xitei	11.34	136.18	124.84	1101%
TOTAL	2234	3272.09	1038.092	46%

Table 1:
Mining degraded
area in 2021 by
region.



Map 1: Mining degraded area at TIY.

Finally, in order to verify the number of communities directly impacted by the activity, we highlighted the number of communities that are located up to 10 km away from the mapped scars. We chose the value of 10 km, in accordance with the scientific literature that usually identifies as an area of frequent use a buffer of 5 km from each village, in addition to a minimum refuge area for hunting populations that should be at least 0.93 times the size of the area of frequent use to ensure the reproduction of sensitive species¹⁶.

Following this methodology, we have identified that at least 110 communities in the TIY are directly affected by the impacts of mining on the biophysical environment (deforestation, habitat destruction, water and soil contamination, destruction of natural river courses, silting, etc.). These impacts, in turn, have

important repercussions for the health and economy of these families¹⁷. This subject will be discussed in more detail in the next section.

However, it should be noted that some of the mining impacts have a far greater reach than those observed in the forest and rivers. They include the spread of infectious diseases (especially malaria), contamination by the mining byproduct methylmercury, and the overload on the local health system. Under this perspective, instead of the distance of the scars, one can adopt the base-pole cut itself as the spatial criterion for the definition of the impacted zone. Thus, the number of communities directly affected would be 273, covering more than 16,000 people, or 56% of the TIY's population.

WATER COURSE	SECTION IMPACTED BY MINING
Rio Uraricoera	~150 km
Ig. Inajá	~10 Km
Rio Parima	~35 km
Ig. Surucucu	~4 Km
Rio Mucajaí (cabeceira)	~30 Km
Rio Mucajaí (Médio curso)	~150 Km
Rio Couto Magalhães	~50 Km
Rio Apiaú (Cabeceira)	~30 km
Rio Novo	~10 Km
Rio Catrimani	~65 km
Rio Lobo d'Almada	~5km

Table 2: Watercourses impacted by mining.

¹⁶ CONSTANTINO, P. de A. L., BENCHIMOL, M., ANTUNES, A. P. "Designing Indigenous Lands in Amazonia: Securing indigenous rights and wildlife conservation through hunting management", *Land Use Policy*, v. 77, n. June, p. 652–660, 2018.

¹⁷ https://apublica.org/2021/09/sob-bolsonaro-yanomami-tem-o-maior-indice-de-mortes-por-desnutricao-infantil-do-pais/?utm_source=telegram&utm_medium=transmissao&utm_campaign=desnutricao-yanomami

3 ANALYSIS BY MACRO-REGIONS

Mining on the
Uraricoera river,
TIY, January 2022.



ANALYSIS BY MACRO-REGIONS

URARICOERA (URARICOERA, PALIMIU AND WAIKÁS)



The Uraricoera river channel continues to be the macro-region most impacted by mining in the TIY. It concentrates more than 45% of the total mapped scars, and also presents the largest camps and the most complex support structures for mining, with various ridges, encampments and corridors.

Part of this vulnerability is explained by the fact that this river, unlike the others, can be accessed by navigation without any restrictions from the protection agencies, since the local BAPE is deactivated. In 2017, the Public Ministry filed a lawsuit requesting the reactivation of all the Ethnoenvironmental Protection Bases (BAPEs) of TIY, including Korekorema BAPE, which have the function of controlling access to this river. The judge's decision was favorable to the reopening, but so far the Union has not fully complied with the sentence. The delay in its compliance is a factor that greatly weakens the territorial protection of the TIY, as we will see below.

To transport supplies and labor in the Uraricoera, the logistics of the miners use ports located outside the Indigenous Land, in the vicinity of the Maracá Ecological Station. Among the best known ports are Porto do Arame (61.7824862°W 3.2647488°N), Porto Pacú (61.6491667°W 3.3325000°N) and Fazenda Canadá. Cargo freight to these locations costs between R\$ 1,500.00 and R\$ 2,500.00, and passenger transportation between R \$300.00 and R\$350.00. Access to the ports is via the Alto Alegre municipal highway 332, which is connected to the state highway RR-343 and the BR-174, respectively.



Photo 1:
A stretch of the
Vicinal that gives
access to the
mining ports on
the Uraricoera
River.



Photo 1:
A stretch of the
Vicinal that gives
access to the
mining ports on
the Uraricoera
River.

Once on board, the miners have to travel a long stretch of river to reach the mining sites. For this reason, they rely on a network of camps along the river, where they can also find shops, small services and houses of prostitution. The payment to the boatmen is significantly higher than the land freight, about 10 grams of gold per person, because of fuel consumption and the difficulty of navigation. Since the Uraricoera has stretches that are quite steep in waterfalls, the boatmen must deeply know the riverbed and still build trails in the middle of the forest using quad bikes to get around the most complicated natural obstacles (rapids)¹⁸.

In the rainy season, when the river is full, the indigenous people estimate a daily traffic of dozens of aluminum boats, with a transport capacity of up to six tons per boat. In the dry season, each boatman manages to make an average of two trips per month.

Air freight is by far the most expensive way to access the mines. Information from the area indicates that the value of a "leg" to the main clandestine tracks of TIY (Rangel, Cascalho, Jeremias, Espadim, Malária, Pau grosso etc.) costs something around R\$ 11,000.00, including 500kg of cargo and ground transportation to the take-off airfield.

In January 2022, despite being typically a low rainfall month in Roraima, the Uraricoera was still full, and boat traffic was intense. During the SMGI overflight it was possible to register several boats filled with containers of fuel, cooking gas, food, and equipment, traveling along the river in both directions.

The trip costs for those who intend to work in the mines are, in most cases, paid by the person concerned. That often leads to a situation of debt slavery¹⁹, especially in the context of sex work. Several groups

operate on social networks whose purpose is to spread the mining culture and to recruit people for the mining villages. Those groups have advertisements for "job opportunities", whether as machine operators, divers, maraqueiro, cooks or prostitutes²⁰. The expectation of earning about 3g of gold per program (which is equivalent to more than R\$ 900,00²¹) or even a salary of R\$ 5,000.00 per month as a cook attracts many women who do not know exactly what they will find in the forest. There are reports of cooks who are forced into prostitution and call girls who cannot even afford the return trip, due to the expenses in the 'corrutelas', such as medicine for infections, "rent" of the room, food and hygiene products. With the migratory crisis in the neighboring country, a significant number of Venezuelan women are enticed into this scheme, with many touching reports²².

¹⁸ The boatman receives on average 30 or 40g of gold per trip, he is usually a service provider to the owner of the boat.

¹⁹ <https://brasil.mongabay.com/2021/02/trabalho-escravo-em-garimpos-expoe-redes-criminosas-na-amazonia/>

²⁰ In such groups also circulate information about internet equipment sales; topographic reconnaissance ads for metal identification; canoe transportation; Uber transportation to support points; and airplane chartering.

²¹ Considering the gold price (R\$ 307.84 per 1 gram) on February 24, 2022.

²² https://www1.folha.uol.com.br/cotidiano/2021/10/traficantes-de-pessoas-mudam-tatica-e-atraem-mulheres-para-dividas-impagaveis.shtml?utm_source=newsletter&utm_medium=email&utm_campaign=newsfolha



Photo 3:
Flying boat
at the service
of the miners
navigating
a stretch of
waterfalls.



Photo 4:
Quad bikes
at the camp
carrying fuel to
the mining sites.



Photo 5:
Flying boat
transporting fuel
to the mines in
the Uraricoera.



Photo 6:
Structure
that supports
the mining
logistics in the
Uraricoera.



Photo 7:
'Corrutela' on
the banks of
the Uraricoera
River. Note that
it is rapidly
rebuilding even
after the Federal
Police operations
in the region in
2021.

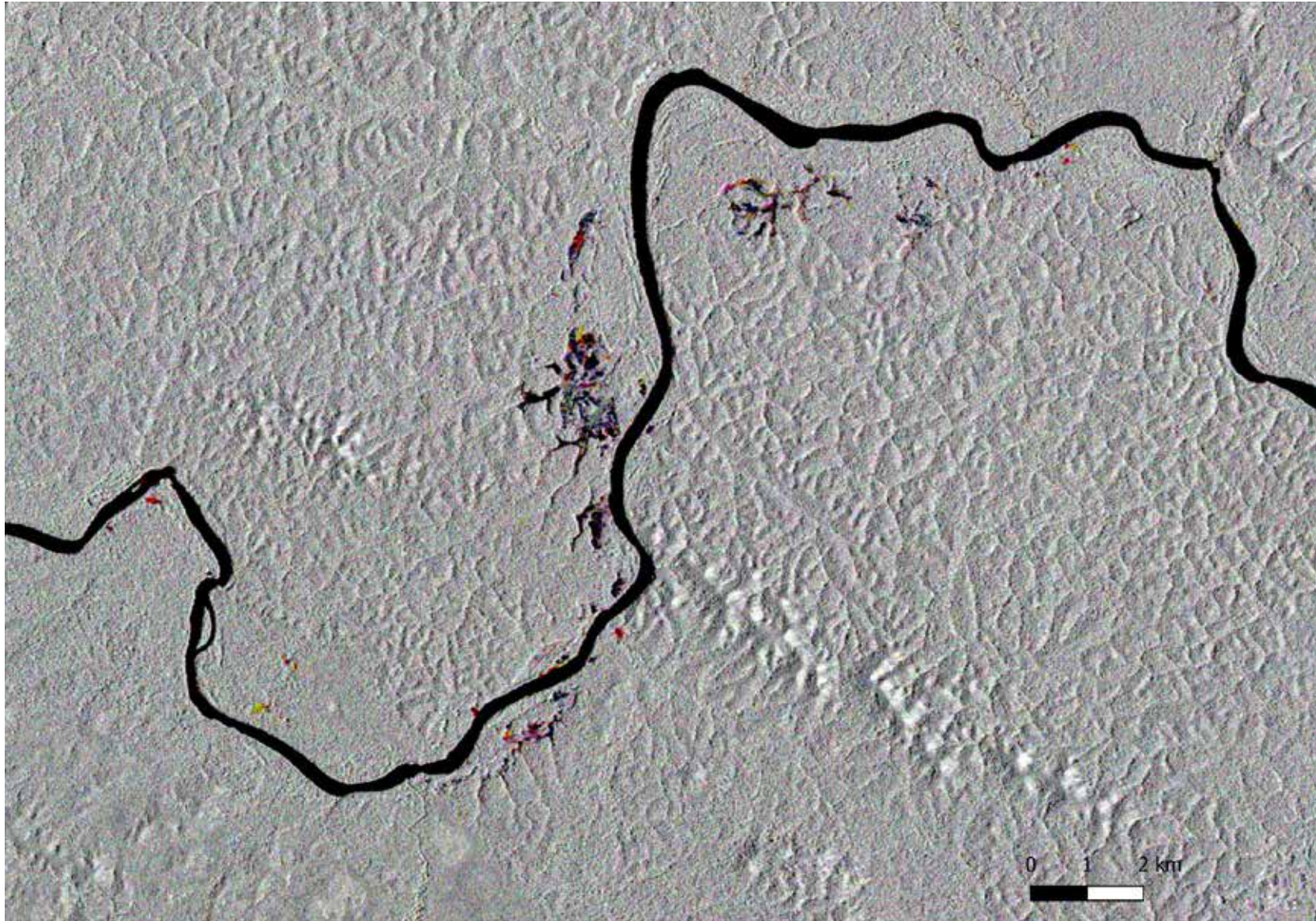


Image 1:
Radar image
mosaic of the
Uraricoera River
bend near the
Waikás region;
the largest
scar is where
the mining site
called tatuzão
do Mutum is
located.

On the Uraricoera River, the mining areas are "divided" by a few "owners", locally known by their nicknames. These "owners" control access to the sites, the use of commercial, logistical, and camping structures, and for this reason some rely on "private security" services, usually provided by organized crime groups²³.

"Dona Iris" is one of these "bosses". In 2021, his henchmen were responsible for some of the most remarkable events of the year in Yanomami Territory, when hooded men shot, on different occasions, at residents of the Palimiu communities, in retaliation for attempts by Yanomami youths to block mining logistics²⁴. In one of the attacks, two indigenous children drowned in the river in an attempt to escape the gunfire.

In early 2021, the Hutukara had alerted the authorities, through a letter, about escalating tension in the region. In February 2021, below Palimiu, in the village Helepe, armed miners had invaded the community looking for a villager with whom they had a disagreement. During the incursion, there was an exchange of

fire that resulted in a miner being killed and an indigenous person seriously wounded²⁵. The association notified the fact and requested the intervention of security forces in the region. The alert was ignored, however.

Weeks later, on April 27, a group of Yanomami youth from the Palimiu region intercepted a boat with 900 liters of fuel that was bound for the "Dona Iris gold mine". It was a reaction to the death of a child²⁶ who had drowned after a miners' boat had passed near the community's port where the family was bathing. The wave generated by the boat knocked over the child, who was then carried away by the current. The Yanomami took the fuel and forced the boatman to go back down the river. Other miners passing in the opposite direction fired shots and made threats. HAY, once again, asked public agencies to take steps to guarantee the community's safety, but again received no answers.

The Yanomami of Palimiu had already noticed an important change in the miners' behavior since 2019. If before only

the boatmen used to pass by hooded, now other men did so as well, almost always dressed in black clothes. The weapons had also changed. From hunting rifles, they began to circulate with pistols and rifles. And, the approach into the communities became more aggressive and violent. There are reports of drunken miners invading houses and harassing women, as well as threatening shouts during furtive gatherings in the river: "We are going to finish off the Yanomami", they said.

Thus, on May 10, 2021, at around 11 a.m., seven boats²⁷ with armed men dressed in vests and balaclavas approached the Yakepraopë community and opened fire on its residents, including women and children. In the escape, two children died²⁸.

WhatsApp audios circulating in groups of diggers, and later made public, gave news of the participation of members of criminal organizations in the attack: "a faction canoe was going down with more than 20 men armed with machine guns and rifles" to "catch the ones who stole

²³ Today it is known that the PCC besides "private security" also operates in the supply and transport of inputs for mining in the Uraricoera, in the control of brothels and canteens, as well as in mineral exploration on iron rafts: <https://tab.uol.com.br/edicao/pcc-no-garimpo/#cover>

²⁴ <https://g1.globo.com/rr/roraima/noticia/2021/08/10/video-mostra-garimpeiros-armados-e-prontos-para-fazer-guerra-antes-de-ataque-em-comunidade-na-terra-yanomami.ghtml>

²⁵ <https://folhavr.com.br/noticia/CIDADES/Capital/Garimpeiro-e-flechado-e-morre-em-conflito-com-indigenas/73562>

²⁶ Eliete's daughter.

²⁷ <https://g1.globo.com/rr/roraima/noticia/2021/05/10/conflito-armado-entre-garimpeiros-e-indigenas-deixa-feridos-na-terra-yanomami.ghtml>

²⁸ <https://amazoniareal.com.br/duas-criancas-yanomami-aparecem-mortas/>

fuel"²⁹. Other messages suggested the intention of the criminals to keep up the attacks and their desire for revenge on the men wounded in the bow and arrow retaliation that the Palimiutheri managed to carry out.

The news, which combined PCC and Massacre in the same sentence, gave the attacks wide media repercussion, so that finally the security forces were called in. Upon arriving in Yakepraopë, however, the policemen were met with bullets³⁰ fired by the men from the mines, in a clear sign that they did not intend to back down.

Even so, and supported by court decisions³¹, the police forces remained in the area only intermittently, visiting the community every two weeks and staying for a few days. Thus, after the attacks, the region spent most of the time under the sign of terror. After the first attack, several more were carried out during the months of May, April, June, and July (See Box on the Palimiu conflict).

²⁹ <https://amazoniareal.com.br/garimpeiros-ligados-ao-pcc-atacam-aldeia-yanomami/?fbclid=IwAR2NRN-04m8mA1EMlpHMy9cDlcQYMTKFFxMjiQdW5htjCGBXKw5sJGfuVQ>

³⁰ <https://g1.globo.com/rr/roraima/noticia/2021/05/11/policia-federal-e-garimpeiros-entram-em-confronto-na-regiao-de-conflito-na-terra-yanomami.ghtml>

³¹ <https://oglobo.globo.com/brasil/yanomami-justica-federal-manda-governo-manter-forcas-de-seguranca-permanente-em-aldeia-atacada-por-garimpeiros-25015916>

CHRONOLOGY OF ATTACKS IN PALIMIÚ

APRIL 30:

An official letter reports a conflict on April 27, when a group of Yanomami intercepted five miners heading upriver toward Korekorema, on the Uraricoera River, in a speedboat loaded with fuel for an airplane and helicopter. They seized 990 liters of fuel. Seven other miners who were going down the river in the direction of Boa Vista reacted by firing three shots at the Indians. No one was injured. The letter already called for urgent measures to guarantee the community's safety.

MAY 10:

Day of the first attack on Palimiú. A second letter is sent to Funai, MPF, PF and the Army, asking for urgency to stop the violence and guarantee security in Palimiú.

MAY 12:

The third letter, sent only to the Army, requests logistical support for local security and the installation of an emergency security post in the Palimiú community and on the Uraricoera River, due to yet another armed confrontation between miners, indigenous people, and Federal Police agents.

MAY 13:

Fourth letter denounces the arrival of 40 boats of miners in Palimiú and warns that the miners were getting organized to carry out new attacks.

MAY 15:

Public note denounces the death of two children at Palimiú after an attack by miners five days earlier.

MAY 17:

Fifth letter informs that 15 miners' boats approached the community. The Yanomami reported that, in addition to the gunfire, there was a lot of smoke and that their eyes were burning, indicating the use of tear gas bombs. "They were very distressed and cried out in concern over the phone. In the background you could hear the sound of gunfire," Hutukara told authorities.

JUNE 1:

Second public note highlights armed attack by miners on ICM-Bio in the Maracá Ecological Station, Roraima. The invaders use the stretch of river that crosses the Conservation Unit as a supply route for the illegal gold mining areas.

JUNE 7:

Sixth letter narrates a new attack, in the Maikohipi community, Palimiú region, hit with tear gas bombs.

JUNE 10:

Seventh Hutukara letter denounces that miners were threatening indigenous people in the Maikohipi community and killed a dog as a warning.

JUNE 14:

The eighth Hutukara letter denounces that a group of miners in three boats started shooting at the community. Faced with the new attack, the Yanomami hid in the bush, and then the miners continued their journey up the river toward the Tatuzão mining site.

JUNE 17:

The association's ninth official letter points out that a group of hooded miners fired shots at the houses of the Korekorema community in the Palimiu region, on the Uraricoera River, forcing the Yanomami to hide in the forest.

JUNE 18:

A tenth letter denounces the aggression of miners against indigenous youth and children in Palimiu, when they were fishing in the Uraricoera river, near the Tipolei community, and a boat with 05 armed miners approached. The miners sped towards the Yanomami and rammed the boat into their canoe, making them fall into the water and the canoe sink. The youth and children managed to escape across the river and through the forest to Yakepraopë (the first community attacked on May 10).

JULY 14:

After a few weeks of relative tranquility following the launch of Operation Omama, the Hutukara sends its eleventh letter reporting the resumption of armed attacks on the Yanomami in the Palimiu region. On July 8, a miners' boat fired four shots at women who were searching for a missing relative in the river near the Korekorema community. On July 13, at dawn, the Palimiu community was attacked by two miners' boats, which fired 10 shots at the indigenous people. After the attacks, the miners then returned to their camp.

AUGUST 3:

A letter from HAY notes the continued circulation of armed miners' boats up the Uraricoera River, as reported by Palimiu leaders. According to the report, a group of miners would be organizing themselves to retaliate against the Palimiu communities for their complaints. The information indicates that despite the recent operation, mining activity has not ceased in the region.



Photo 8:
Yakepraopë
Community,
Palimiu.

In an account given to the Federal Public Ministry at the time of the attacks, Palimiu leaders recorded several impacts caused by the mines on their productive system, in addition to the threats and violence they had been suffering. According to them, before the invasion "fishing was good, hunting was good," but not now, the river is contaminated (xami) and the game has become thinner (yaropë romihipë). They described areas degraded by the activity, both on the river bank and inside the forest, that used to be part of their daily use area and which today can no longer be accessed by the families. Thus, to hunt, fish, and gather fruit they must move to more distant locations, which has affected the time available for other tasks.

In an interview to journalists who visited the village after the attacks one of the leaders expressed his anger:

As a leader, I am very angry! You can see on my face that I'm very angry, don't keep sending your children digging on our land! I don't accept it! I don't accept it! I don't want these bad things! You are violent! Your children are violent. It turned out to be all this bad situation of aggression here! I don't want that! You've left everything terrible for us! I am the forest peoples! I don't want to see this! I don't want to see this! I want real health care, real projects! Real police! That's what I want to see! The miners destroyed our forest. We, the leaders, don't want your miners! Our game animals are finished! The children are already suffering from skin diseases and diarrhea! Our children are already sick! Bolsonaro, get your digger children and take them back!!

Other impacts reported by the leaders concern the introduction of drugs and alcoholic beverages and the intensification of internal conflicts in the communities. They gave the example of Aracaçá which, they described, is on the way to disappearance, such is the social disruption caused by the influence of the miners (Thëpë p r o yai hoximi!). According to the Palimiu Theli in Aracaçá, the Sanöma have stopped opening fields and now depend on the food offered by the miners in exchange for services, such as carrying fuel and conducting small canoe charters. There, again according to the Palimiu Theli, the miners introduced drinks and a "white powder" that left the Sanöma addicted, altered, and violent ("pihi yayoprarioma", "pihi xi warihip-rario", "pihi yaiprarioma"), resulting in many episodes of violence among those from Aracaçá.



Photo 9:
Mining site at the
Uraricoera.



Photo 10:
Mining area on
the Uraricoera
dry landra.



Photo 11:
Mining area in
the Uraricoera.



Photo 12:
Mining at the
mouth of the
Aracaçá River,
TIY, January
2022.

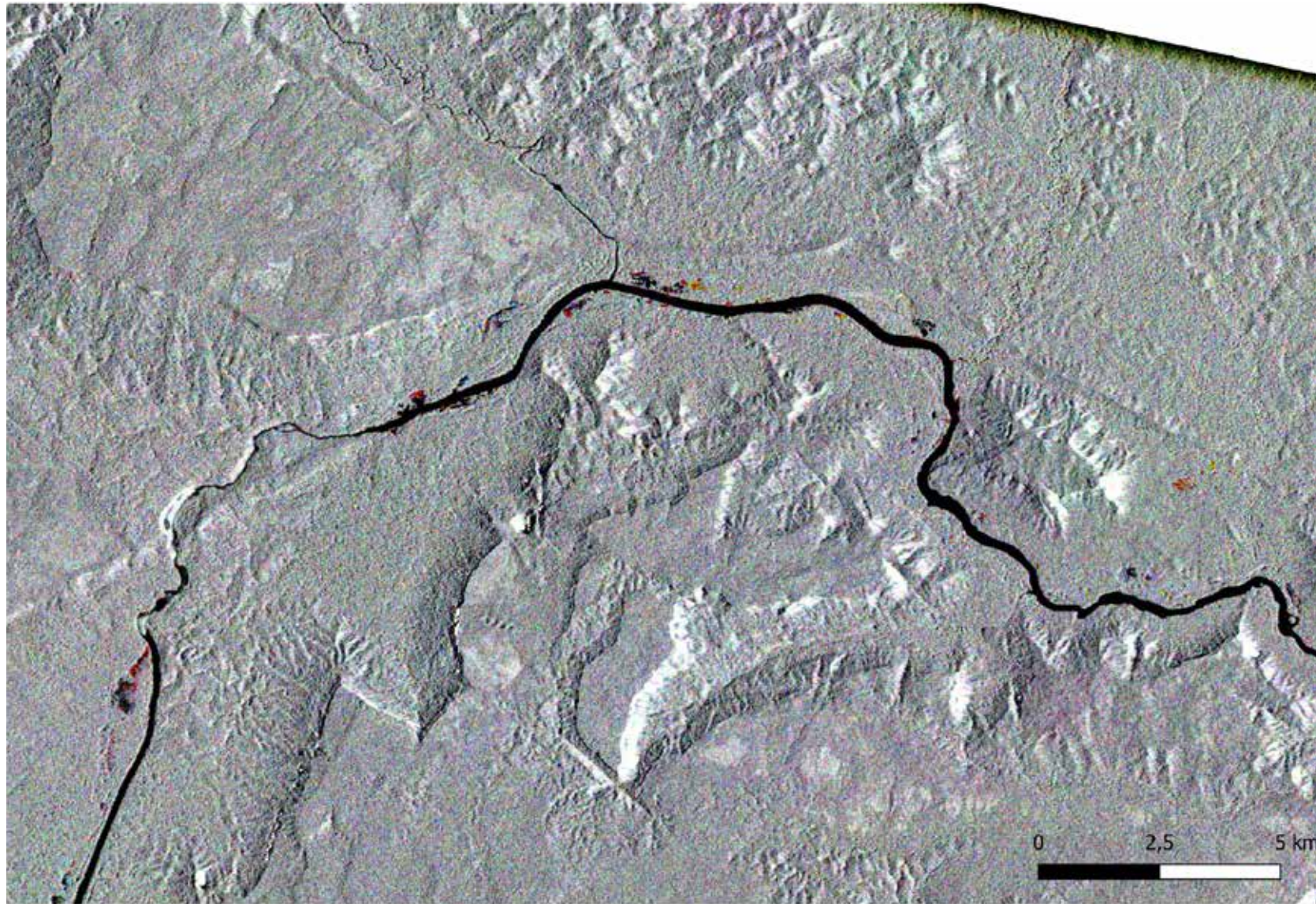
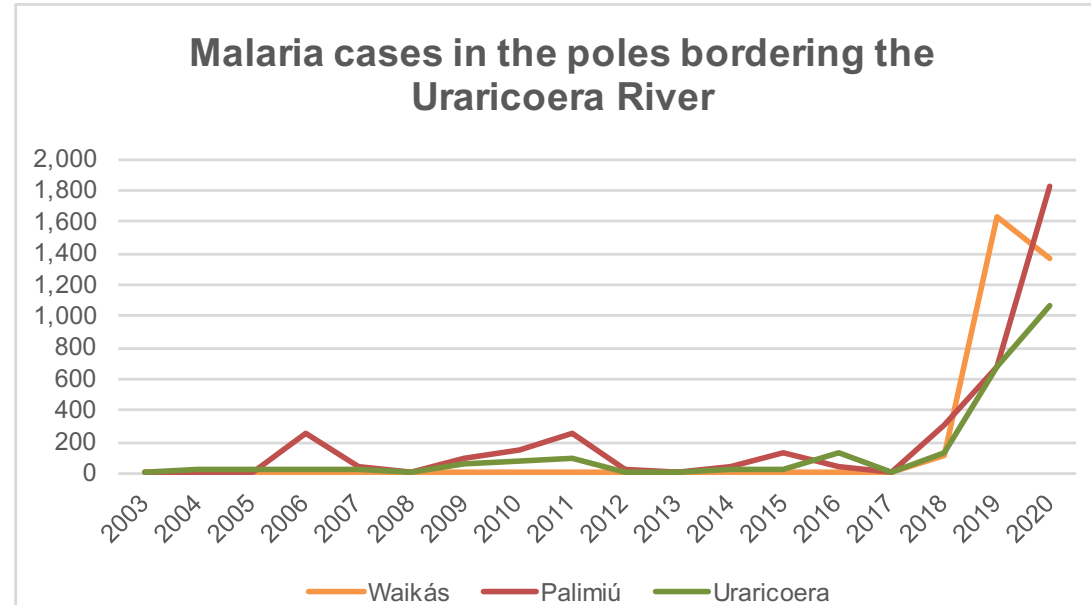


Image 2:
Multitemporal
mosaic of radar
images in 2021
of the confluence
of the Aracaça
and Uraricoera
rivers.

Another effect highlighted by the Yanomami of the Uraricoera is that the communities' health is weakened. This process can be confirmed, for example, in the malaria data in the base poles that compose the macro-region: Uraricoera, Palimiu and Waikás. As can be seen in the graph below (graph 2), after 2017 there was an explosion of cases in all poles, with emphasis on the Palimiu that in 2020 exceeded 1,800 cases. It is noteworthy that the total population of Palimiu in the same year was just over 900 people, that is, the Sivep data point to an average of almost two malaria cases per person!

Malaria, in its turn, compromises not only the individual health of the patient, but also the economy of communities that depend on family labor to produce their livelihoods. A man who stops opening a field during the dry season because he is debilitated by malaria will in the future have greater difficulties in supporting himself and his co-residents, thus creating a vicious cycle of malaria, economic crisis, and social weakening. It is, therefore, in this extremely vulnerable scenario that mining advances and seeks out allies among young indigenous people, accelerating the local tragedy even more.



Graph 2: Evolution of the cases of malaria in the poles of the Uraricoera macro-region.

Source: Sivep-Malaria

It is worth remembering that the first indigenous victim of COVID-19 in Brazil was a young Ninam from the Helepe community, located on the banks of the Uraricoera River. The youth, just 15 years old, was hospitalized in the capital of Roraima in March 2020 with respiratory symptoms. In his last months of life, he was malnourished, anemic, and had repeatedly contracted malaria. His body was buried in a Boa Vista cemetery with no family consultation, seriously disrespecting indigenous ritual funerary protocols.

It is inevitable to conjecture that the history of the Uraricoera inhabitants could have been different if the Brazilian government had respected the judicial recommendations to reopen the Protection Bases, or even implemented the measures to contain the invaders suggested by APIB in ADPF 709. The truth is that much little has been done considering the dimension of the problem.

In March 2021, the Federal Police, in partnership with other agencies, carried out an operation (Yanomami ADPF 709) at the mining site known as "Fofoca de Cavalo". The police estimated the presence of more than two thousand people at the area, which offered services such as bars, a lan house, a market and a dentist's office³². The operation reportedly seized several objects to support the investigations and destroyed 20 engines and a helicopter.

From May to June, another operation took place, called "Palimiu". In this one, the Federal Police claims to have destroyed 35 propulsion engines, 11 power generators, a watercraft, 4500 liters of diesel oil, and an electric welder, as well as having seized ammunition and 750g of mercury³³.

DDuring August 26th and September 7th another operation was carried out in the Uraricoera. The operation succeeded in destroying three ports and five clandestine helipads and seizing eleven aircraft³⁴.

Finally, in the second half of 2021, a fourth action was carried out on this river. According to indigenous people who live there, its focus was the "Adriana garimpo", an area that had expanded rapidly near the meeting of the Auaris and Parima Rivers in the Uraricoera formation. According to the indigenous people, about five days after the operation, the logistics of the mining were back in place. Aircraft and helicopters with daily flights quickly rebuilt the structure of the mine, transporting iron sheets that were welded together in the camp to forge new rafts. They counted at least 12 rafts in action soon after the operations. Movement in the rivers and ports also recovered quickly. The images that illustrate this report, all taken between January 26, 27 and 28, confirm the statements.

The outbreak of these operations are important steps towards controlling illegal activity. However, the persistence of gold mining and its expansion in 2021 attest to the fact that this kind of action, carried out in a sporadic and isolated manner, is insufficient to contain the activity's advance. As we indicated in the introduction, today's gold mining is a business activity that depends on high investments. Therefore, there is an essentially economic logic behind the activity, that is, as long as the returns are greater than the risks, there will always be those who want to invest. In this way, it is imperative to ensure that mining operation costs remain unviable for its maintenance in remote areas such as the TIY. To this end, the state needs to guarantee that the protection and enforcement structures in the TIY are permanently operating. At the same time, clandestine mining trails must be systematically made unusable and the airfields that support health care must be frequently inspected. In some cases, the permanent presence of security forces is recommended, to prevent the miners from controlling the community airstrips and preventing the medical teams from providing the necessary care.

³² <https://folhabv.com.br/noticia/POLICIA/Ocorrencias/PF-desarticula-area-de-garimpo-com-lan-house--dentista-e-mercado/74282>

³³ <https://folhabv.com.br/noticia/POLICIA/Ocorrencias/Policia-Federal-e-Exercito-finalizam-primeira-fase-de-operacao-em-Garimpo/76724>

³⁴ <https://folhabv.com.br/noticia/CIDADES/Capital/Ibama-embarga-59-pistas-de-pouso-clandestinas-na-Terra-Yanomami/79693>

An important detail of the territorial protection strategy is the dismantling of the internet networks that function in TIY's mines and that allow the miners to anticipate an operation.

Currently all the camps, not only in the Uraricoera, have internet antennas, either via radio or satellite. The service is freely offered in social networks, and is marketed by companies from Boa Vista that even offer their employees to carry out the installation in the camps.

A somewhat unusual effect of this facility is that the Indigenous Peoples themselves are unable to purchase reasonable internet packages to be installed in schools or health posts, because most of the high-speed packages available from companies offering the service in Boa Vista are already sold to the miners, even though it is notoriously illegal!

The easy access to the internet enables the circulation of information between the mining centers and the city and among themselves. An eventual operation news spreads quickly through WhatsApp. Daily in the miners' groups messages circulate with warnings about the movement of protection agencies, such as: "army helicopter circling the Uraricoera"; "IBAMA car passed by on highway 332". The recurrence of information leaks about operations against mining indicates the existence of connections with people within the inspection agencies who have access to confidential information about police action plans. As a result, the effectiveness of the operations is compromised and the mining organization exults resilience.



Photo 13:
Iron raft in
action at the
Uraricoera
River.



Photo 14:
Active mining at
the meeting of
the Auaris and
Parima Rivers,
TIY.

AUARIS



The inhabitants of the Uraricoera river channel have reported, since the end of 2020, an intense traffic of aircraft and helicopters towards the border with Venezuela. It is very common to see Robinson models³⁵ in the skies over the TIY. But in the Uraricoera, the indigenous people say that they often see larger models of helicopters at the service of mining, "just like the army's³⁶", they say.

Analyzing satellite images that cover the region, we identified two mining centers related to the Auaris base camp. One of them, still small, is located on the border, near the Sanöma Irotha community (Photo 15). And the other, whose scar expanded rapidly in 2021, is located in a tributary of the Metacuni River, in Venezuelan territory, near the Katanã community, on the Brazilian side.

Photo 16 illustrates the Irotha mining operation. Although it is still restricted to the valley of a local stream, there are signs that it may be growing towards the border. During the overflight we spotted recent deforestation in the hills that divide the countries, but it was not possible to identify whether this is a new area of cultivation or if the area will be converted into a future mining camp.

The Metacuni mining site (in the Simada Wiochö sector), on the other hand, could only be observed through satellite imagery because it is outside the country. Image 3, produced from a Sentinel 2 mosaic and referring to November 2021, depicts it. In the image, the scar appears in white and pink on the left side of the picture, following the course of a stream. The light green spot in the center refers to the Katanã Community and its adjacent farmlands.

Although this mining site is not located in Brazil, everything indicates that the logistics that feed it are based here. Recently, a report published by El País newspaper reinforced the information that the runway that gives access to the exploration sites in this sector receives mainly Brazilian aircraft³⁷. However, the infiltration of Venezuelan criminal groups in Roraima, such as Trem de Aragua, Sindicato, and Trem de Guayana, does not allow us to infer that the exploitation has the exclusive involvement of Brazilian businessmen³⁸.

³⁵ The value of which is more than 400 thousand Reais.

³⁶ Black Hawk.

³⁷ <https://elpais.com/internacional/2022-01-30/las-pistas-clandestinas-que-bullen-en-la-selva-venezolana.html>

³⁸ <https://tab.uol.com.br/edicao/pcc-no-garimpo/#cover>



Photo 15:
Sanöma Irotha
Community.



Photo 16:
mining near
Irotha.

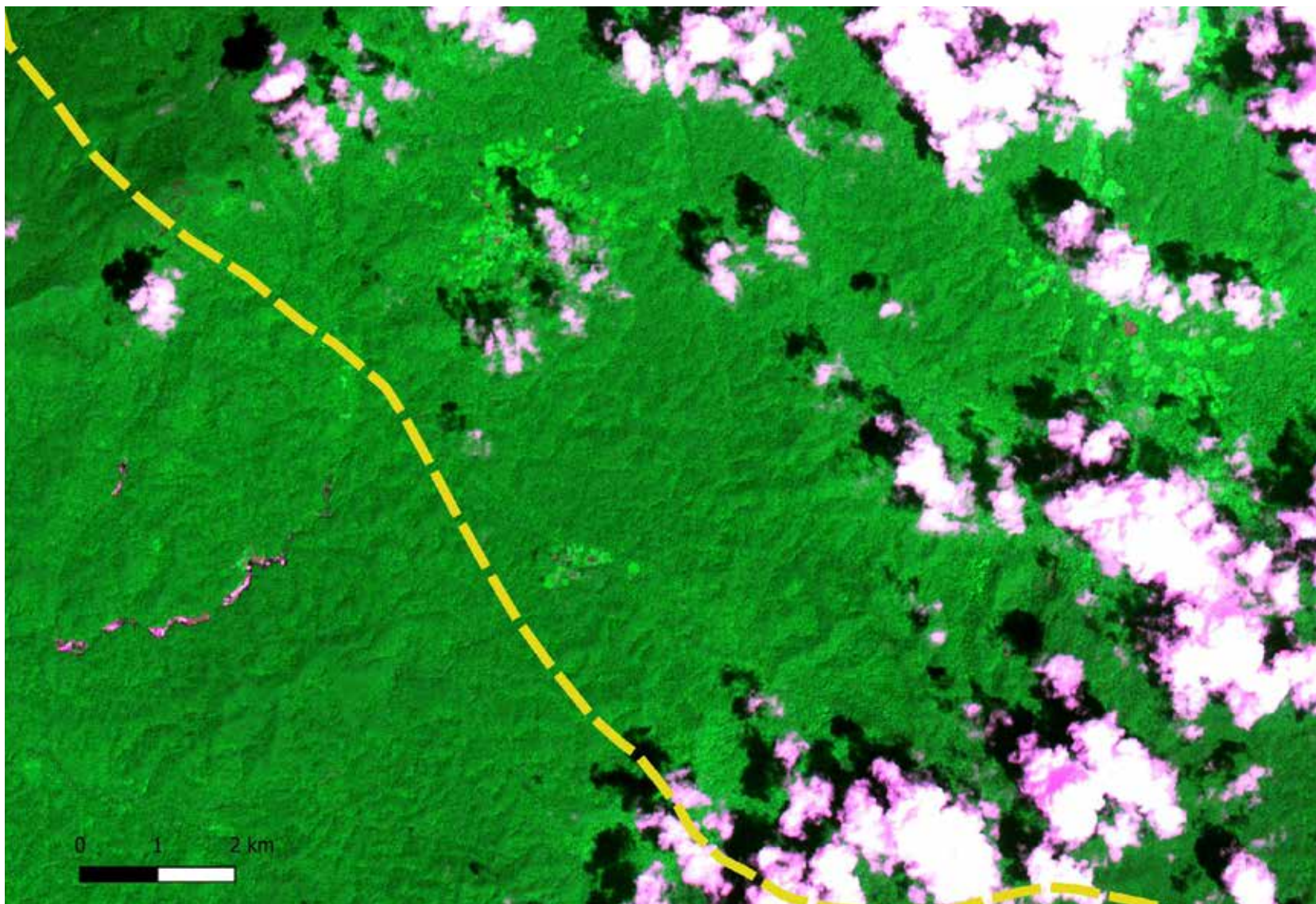


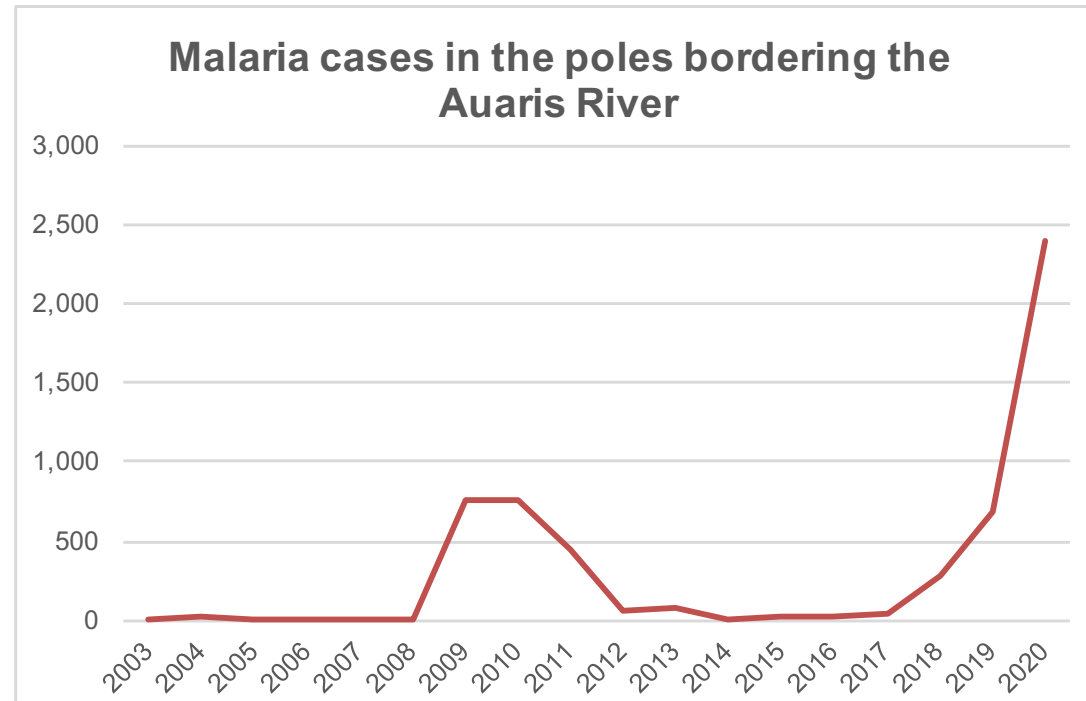
Image 3:
Sentinel 2
satellite mosaic
from November
2021.

The yellow
dashed line
refers to the
Brazil-Venezuela
border.

The effects of this mining proximity to the communities on the Brazilian side, especially Katanã, can already be seen having repercussions throughout the Auaris region. There are reports of indigenous people living in houses closer to the Auaris platoon being used as labor on the Simada Wiochö settlements. And of some families who travel to the site to exchange food such as bananas and beiju for industrialized objects.

The exchange network that has been forming from Simada Wiochö, according to area reports, involves not only indigenous Sanöma, but mainly Ye'kwana and non-indigenous people who work in the health system. In it, broadly speaking, the Sanöma exchange labor for gold, then exchange the gold at Ye'kwana canteens, which in turn resell it to the non-indigenous people circulating in the platoon.

Meanwhile, malaria cases in the region are exploding (from 2019 to 2020 malaria grew 247%) and the families involved in this system are swallowed by penury, a fact evidenced by worsening child malnutrition (63% of children under five in the region are nutritionally deficient).



Graph 3:
Evolution of
malaria cases in
the Auaris pole-
base.

Source:
Sivep-Malaria

PARIMA (ARATHAU, PARAFURI, WAPUTHA AND SURUCUCUS)



The Parima river channel covers a large part of the region commonly referred to as the "Serras". Here we will focus only on the base poles where deforestation associated with mining has been recorded: Arathau, Parafuri, Waputha and Surucucus³⁹. In this latter area, mining is mainly concentrated in the sub-regions of Yarima and Wathou, which are further away from the cluster of communities near the Fronteira Pelotão airstrip.

Of all these regions, the Arathau situation is the most disheartening. There are several settlements, four clandestine airstrips, and a dozen ferries operating there, along the entire middle course of the Parima River. There is also exploitation in tributary streams on both banks.

The mining boom in Parima began as early as 2020, with the outbreak of the COVID-19 epidemic, and since then an increment of more than 100 hectares of destruction has been observed, in addition to a collection of tragic events.

The first reports of violence and death arrived in 2020, when two Yanomami were killed in a conflict near a clandestine airstrip that serves the region's mining operations⁴⁰. Testimony obtained at the time described how the mining was intensifying and moving closer to the communities, at the same time as hostilities against the indigenous people were growing.

In 2021, the deaths also began to occur due to lack of health care, as the Arathau base-pole was gradually abandoned by the Special Sanitary District Yanomami and Ye'kuana (DSEI-YY). In 2020 while 11277 health care services were provided in this pole, in 2021, the number dropped to 2815⁴¹.

As a result, several patients who had treatable diseases ended up having their condition worsened, and some even died. Such was the case of a 50 year old shaman who died in the Macuxi Yano community in October because he could not get medical attention⁴². And also the situation of two children from the Xaruna house who died of malaria in October⁴³, as well as a third child from the same community who died of malaria and pneumonia in November⁴⁴.

³⁹ The Xitei, which is located in the headwaters of the Parima River, could also be explored in this section, but due to the astonishing expansion observed in that region in 2021, we have chosen to treat it separately.

⁴⁰ <https://g1.globo.com/rr/roraima/noticia/2020/06/26/jovens-indigenas-sao-mortos-por-garimpeiros-em-conflito-na-terra-yanomami-em-roraima.ghtml>

⁴¹ Until October 2021.

⁴² <https://roraimaemtempo.com.br/saude/conselho-yanomami-denuncia-falta-de-assistencia-medica-para-indigenas/>

⁴³ <https://g1.globo.com/rr/roraima/noticia/2021/09/10/criancas-yanomami-com-malaria-morrem-por-falta-de-socorro-em-comunidade-diz-conselho-de-saude.ghtml>

⁴⁴ <https://g1.globo.com/rr/roraima/noticia/2021/11/18/crianca-yanomami-de-3-anos-com-malaria-e-pneumonia-morre-sem-atendimento-em-comunidade-diz-conselho-de-saude.ghtml>



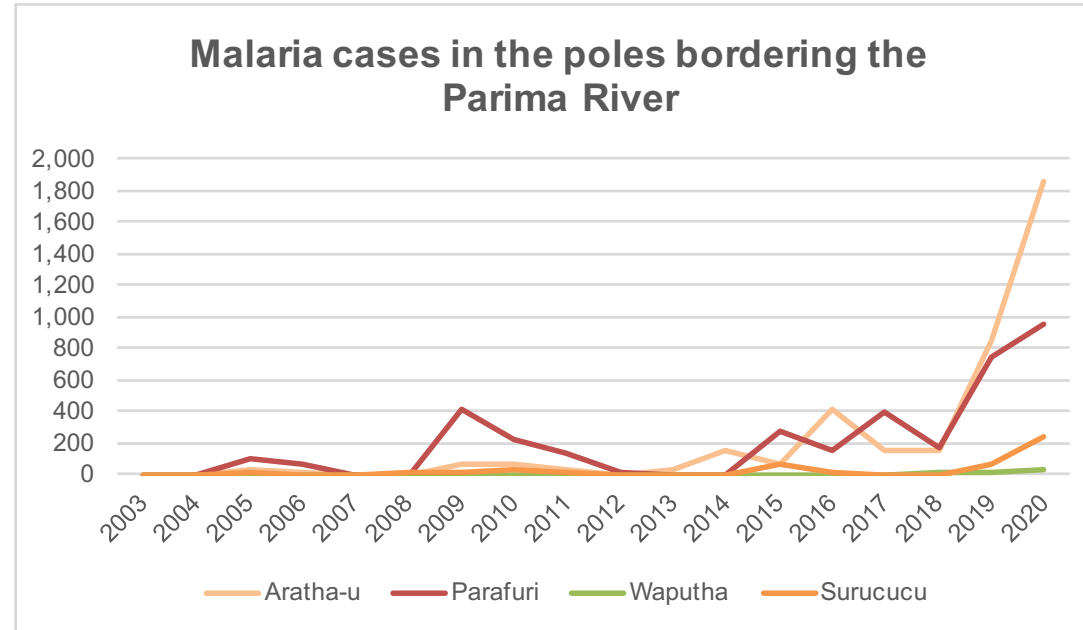
Photo 17:
Mining near
the Makabey
Community,
Arathau.



Photo 18:
Mining near
the Xaruna
community,
Parima, TIY.

In addition to Malaria which grew 1127% from 2018 to 2020, Arathau communities have the highest rates of child malnutrition in the entire Indigenous Land. Some 79.34% of children up to five years old in the region are underweight or very underweight⁴⁵.

Child malnutrition is a complex and multi-causal phenomenon, but in the Yanomami context, the influence of mining is unequivocal and decisive. As the Indigenous Peoples themselves indicate, the problem is not the absolute absence of food, but the relative scarcity resulting from the social and economic destructuring that the mining invasion brings about: diseases prevent people from working and caring for their children; young people stop contributing to productive activities in order to exchange their labor for leftover food and second-hand objects; weapons and alcoholic beverages introduced by the miners exacerbate internal conflicts and trigger intercommunity wars. In addition, of course, to the environmental destruction that reduces the availability of fertile land, fish and food for collection around the houses.



Graph 4: Evolution of malaria cases in the poles bordering the Parima River.

Source: Sivep-Malaria

As a Yanomami researcher⁴⁶ who investigates the effects of mining in TIY records, in some zones there is a kind of overlapping between mineral exploration area and the daily use area of the communities, a situation that is especially severe in the context of the Parima River, as the photos (17 and 18) attest.

The Yanomami struggle to cultivate their fields, but the gold seekers dev-

astate their fields. It is true. If there is gold where there is a field, they don't first ask the Yanomami, "Who planted that field?" They, after installing their dredges without asking, they devastate the fields with the food planted, so the Yanomami get distressed.

[The Yanomami] think, "They didn't warn me! The Yanomami, with their wives and children, are very wor-

⁴⁵ https://apublica.org/2021/09/sob-bolsonaro-yanomami-tem-o-maior-indice-de-mortes-por-desnutricao-infantil-do-pais/?utm_source=telegram&utm_medium=transmissao&utm_campaign=desnutricao-yanomami

⁴⁶ Names will be omitted to preserve the researchers' safety.

ried about the food in the fields. The miners are very unwise. They think, "Maybe the Yanomami won't be sad. [The Yanomami ask themselves,] "Where will I open a field again?", but although they look for another suitable land, they can't find it. They again open the fields where they once cultivated, but the food plants do not grow so well. In fact, the soil has already become contaminated.

Yanomae pë hutukanapë thamuha, thëpënë õhõtaai makii, ai maa maxi peximia pratima pënë hutupë wãriai he. Peheti thëã yai. Hutukana ka kureha, maa maxi pata kure hamë: "Witipiinë hutu e kana tha?", Yanomae thëpë noa thai parioimi he. Yami pënë wapakë mii xatiamaiha puohenë, hutukana hamë wamotima thëpë pihi kãe hixipraamai yarohe, yanomae pë xuhurumu.

"Kami ware noa thai ka mao!", thëpë pihii kuu. Hutukana hamë wamotima thëpë kuowii yanomae pata xuhurumu, kama thuë pë e thëpë xë, ihuru e pë pree xë. Poro pë yai mohoti. "Yanomae thëpë xuhurumoimi hathõõ", pë pihi kuu. "Witi hamë ai hutu ya thaa kõprare pë tha?", makii, ai

urihi pë totihi hëtëi kõõ makihii, thë tapru kõtaaimi. Kama yanomae pënë yutuha hutukanapë thapu pariowihii hamë, pë hutupë thamu yapaa kõõ makii, wamotima thëpë raroa totihi proimi. Thë urihi õõxi herõnasi pëa hikirarioma kutaenë.

Another fact that exposes this overlap was the death, in October 2021, of two children from the Macuxi Yano community. They drowned while playing on the beach in front of their houses, after being overturned and swallowed by the current generated by a mining dredge operating a few meters away from the community⁴⁷. The children's disappearance was witnessed by their families, who could do nothing to save them. One of the children was found the next day, and the second a few days later, after searches conducted by the Boa Vista Fire Department upon the request of the president of CONDISI-YY.

After the death of the shaman and the children, the Macuxi Yano families decided to abandon their collective home. In January 2022, when the monitoring overflight was conducted, it was still possible to see them encamped in canvas shacks on the bank of an almost dead

river (photo 19). When the security agencies were on site to investigate the fact, the rafts were no longer there, as the owners had already dismantled and hidden the equipment. No one was held responsible for the deaths.

47 <https://oglobo.globo.com/brasil/draga-de-garimpeiros-sugou-criancas-indigenas-que-brincavam-no-rio-diz-lideranca-yanomami-1-25236036>



Photo 19:
Camp of
Yanomami
families fleeing
from mining
downriver, TIY,
January 2022.



Photo 20:
Rio Parima
destroyed by
mining.

One of the tributaries of the Parima River is the Igarapé Inajá, a course that drains the Parafuri base region. There, mining has also been going on for a long time, but so far it was restricted to the action of rafts and smaller groups. Today one can observe mining sites operating close to the communities.

For almost a decade the Hutukara has been reporting intercommunal conflicts that are fueled by the influx of firearms from the Sierras mines.

For anthropologist Rogério Do Pateo, who studied the sierra region in the 2000s⁴⁸, firearms are at the root of the biggest problems afflicting the area, with repercussions that have lasted for decades. According to him, the rifles, being more lethal than the bow and arrow, produce a kind of intensification of the local revenge system. More deaths lead to more vendetta attacks, which, in turn, lead to more deaths, generating a vicious cycle that besides human losses produces a permanent scenario of insecurity. People are afraid to go out hunting, afraid to cultivate fields further away, afraid to move around on the river, which also deeply impacts the productive system of the families.

In Parafuri, violent deaths accounted for 35% of deaths in the last ten years, according to SIASI data, obtained via the Access to Information Law.

Alcohol is another important element that must be considered in order to understand the current situation of violence. As one indigenous researcher explains, "cachaça" is addictive and alters the behavior of young people, who, in addition to fighting among themselves, attack the elders, who are responsible for collective counseling and for the maintenance of social cohesion in the local groups:

People don't get into fights over the caxirí. They just complain by words. People do get into fights over cachaça, and the lethality of cachaça is very high. "In the old days, when you young people weren't here yet, we didn't beat ourselves up drinking cachaça. Now you who are here, you who have approached those who devastate our Urihi, after drinking cachaça, you beat us elders and we are finished. However, you also end up beating yourselves up, drunk on cachaça! Those ones who devastate our Urihi, they don't get sad!".

Yami arihi uku waiha thëpë xeyoimi. Thëpë noa xirõ hërëa thayu. Yaraka upënë waiha thëpë yai xëprayu. thi yaraka upë wai kohipë mahi kutaenë. "Yutuha kaho oxë wamaki mao tëhë, yaraka yama upëha koanë yamaki xëprayonimi. Hwei tëhë kaho wamaki kurariowinë, hwei yamaki urihi pëka wāriarahii, wama thëpëha nohiararinë, wamapë yaraka upë waiha koanë, kami pata wamarekiha xëpranë yamaki maamaitayu. Makii, kaho wamaki kãe pree xeyu yaraka upë waiha! Hwei yamaki urihi pëka wariarahi thëpë xuhurumoimi!".

In the Waputha pole and the Yarima and Wathou (Surucucus) sub-poles, although the mining activity is less intense than in the lower course of the Parima River, the impacts observed on communities' lives and health are similar. In Waputha, besides rafts, there is exploration in the stream located near the Pora community. And, in Surucucus, mining is near the Yarima sub-polo village, making use of the airstrip previously used for health care, and also near the Wathou, which is in the Mucajá river basin.

In those regions the rates of child malnutrition are also close to or above 70% and the number of violent deaths or deaths from lack of assistance are high. In Waputha, for example, CONDISI in January reported the death of children with symptoms of COVID who had not received help in time⁴⁹.

⁴⁸ PATEO, R. D. do. Niyau: Antagonism and Alliance among the Yanomami of the Serra das Surucucus (RR). PhD Thesis, Department of Anthropology, University of São Paulo, 2005.

⁴⁹ <https://g1.globo.com/rr/roraima/noticia/2021/01/28/conselho-de-saude-indigena-relata-em-oficio-mortes-de-criancas-yanomami-com-sintomas-de-covid-em-roraima.ghtml>



Photo 21:
Parafuri mining



Photo 22:
Raft at the
Inajá Igarapé,
Parafuri.



Photo 23:
Mining near
the Porapi
community,
Waputha.



Photo 24:
Mining in the
sub-region
of Wathou,
Surucucus.



Photo 25:
Mining site
near Yarima,
Surucucus.

XITEI



Despite being located in the headwaters of the Parima River, we highlight the Xitei from the other regions of this basin, because it was there that we observed the largest relative increase in 2021, a growth rate of over 1000%.

The first satellite observable scars began to appear only in the second half of 2020, still less than ten hectares in size. As soon as it became aware of the invaders' arrival in the region, the Hutukara denounced the situation to the authorities.

There was a huge concern, because the Xitei population lives in a high degree of isolation in the mountainous areas of TIY, with very little experience of relating to the surrounding society. They are therefore more vulnerable to pressure and false promises from the mining agents.

The miners' approach to the communities of Xitei throughout 2021 was based precisely on the enticement of young people with promises of goods and weapons, and the intimidation of opponents.

A denunciation received by HAY describes the process of recruiting young indigenous people in the cities of Boa Vista and Mucajaí. According to the document, the recruiters approach the indigenous people in places frequented by them to receive health care, perform banking services or to buy agricultural tools, clothing, hygiene materials and other objects. The young people, excited by the possibility of having access to a greater number of goods and ignoring the impacts of the activity, end up giving in to

the miners' harassment and facilitate the approach to the communities, without the agreement of the other Yanomami or even awareness of this arrangement.

Young people who do this intermediation are often presented with weapons and so begin to defend the interests of the invaders against the rest of the community that opposes the activity.

In a WhatsApp video shared by local residents, a miner, surrounded by armed Yanomami youths, sends his boss "Val" a message saying that he has already agreed with the "Indians" to divide the mining area between two different owners ("Negão" and "Madeira"). Two aspects of the video call our attention, the first is the territorial model of mining, as described in the Uraricoera, and the second is the presence of armed young men next to the miners.



Photo 26:
General view of
the Xitei mining
operation, heart
of the Yanomami
Territory.



Photo 27:
Mining beside
the collective
house in Xitei.



Photo 28:
Large mining
camp next to
another house
in Xitei.



Photo 29:
Detail of the
construction
site next to the
maloca in Xitei.

One of the largest tributaries of the right bank of the Parima River, which is home to eight communities, is completely destroyed by mining. Here the overlap between areas of daily use and mining sites is total. Xitei, due to its environmental characteristics, has historically been an area with low malaria rate⁵⁰. However, in terms of other diseases, such as respiratory illnesses, diarrhea of infectious origin, and malnutrition, vulnerability is high. Mainly because of the precarious structure that the District has in the region to attend to a population of almost two thousand people.

In Xitei there are communities that have not received regular care for many months. And, as if the abandonment was not enough, there are accusations of former professionals from the District who now help the mining company in mediation with the community, taking advantage of the trust built through years of health work.

According to the complaint of residents:

(...) Yesterday I met a miner here at CASAI. He called me to ask (authorization) to put machinery. He is an old health professional. You know him. XXX. His wife's name is XXX. Now he is a prospector. He asked me to put machinery in Keeta. He asked the counselor, XXX, to dig (ore) near the post. So he did. But he is afraid of me and the Tuxaua. He talked to me yesterday. He said: "Hey, XXX, I want to put my machinery. I know many of you. I used to work in health. I know all the communities, Wapuruta u, Mina u, Xako-xako, Simko, Putha theri, Watatase I knew a lot too, so I want to help you". He spoke to me this way, yesterday. But I don't want to allow him⁵¹.

⁵⁰ A scenario that has been changing with the progressive destruction of the local landscape.

⁵¹ Translated directly from a WhatsApp message. Names have been omitted to protect the informant's safety.



Photo 30:
Helicopter flies
over a mining
area while
indigenous
people squat in
the mud looking
for cassiterite to
trade for tools
and food scraps.



Photo 31:
Mining site in
Xitei. Yanomami
children and
women on the
left side of
the photo.

HOMOXI



It is very likely that mining in Xitei is an extension of exploitation in Homoxi, a region located in the headwaters of the Mucajaí River. In Homoxi, exploitation has been going on for many years, and it was one of the main affected areas in the 1980s and 1990s⁵², and also one of the main axes of the current invasion.

Since the second half of 2020, mining has exploded again in the region, reaching proportions similar to the first boom. Destruction in the headwaters of the Mucajaí is such that a video showing a riverbed detour made by local miners⁵³ shocked Roraimense society, which rarely expresses any indignation about environmental destruction in Yanomami territory.

In Homoxi, mining is articulated mainly around the Jeremias airstrip, an airfield that until recently served to support health care in the region. The old health center is still standing with its roof relatively preserved, but instead of receiving nurses and technicians, today it is under the control of the miners, as shown in photos 33 and 34.

According to Sesai's data, in 2020 the Homoxi health unit attended 5594 people, and in 2021 there were only 946⁵⁴.

Naturally, the abandonment of health care associated with the intensification of mining and its impacts has led to an upsurge in the region's health crisis. According to SIASI data, more than half of the children under five weighed by the health team in 2020 had nutritional deficits, and in May 2021, one of them died from malnutrition without medical attention⁵⁵.

As if the abandonment in this region was not enough, CONDISI also denounced the detour of vaccines against COVID-19, sold in exchange for gold by Sesai employees to miners in the region⁵⁶.

⁵² TOURNEAU, F.-M. LE, ALBERT, B., "Homoxi (1989-2004): the environmental impact of mining activities in the Yanomami Indigenous Land (Roraima)." Roraima: Man, Environment and Ecology, Boa Vista, FEMACT, 2010. p. 155-170.

⁵³ <https://folhabv.com.br/noticia/CIDADES/Interior/Video-mostra-desvio-no-rio-Mucajai-feito-por-garimpeiros/74594>

⁵⁴ Until October.

⁵⁵ https://www1.folha.uol.com.br/cotidiano/2021/05/bebe-yanomami-morre-com-quadro-de-desnutricao-em-roraima.shtml?utm_source=app&utm_medium=push&utm_campaign=pushmultiplo&utm_content=pushfolha+pushcotidiano&id=1621716924

⁵⁶ <https://noticias.uol.com.br/colunas/rubens-valente/2021/04/13/associacao-yanomami-covid-vacinacao.htm?cmpid=copiaecola>



Photo 32:
Garimpo in the
upper Mucajaí
river during the
invasion boom
in Yanomami
Territory in 1991.

Credit: Photo by
Charles Vincent/
ISA, 1991.



Photo 33:
Jeremiah's
airstrip in
January 2022,
Homoxi.

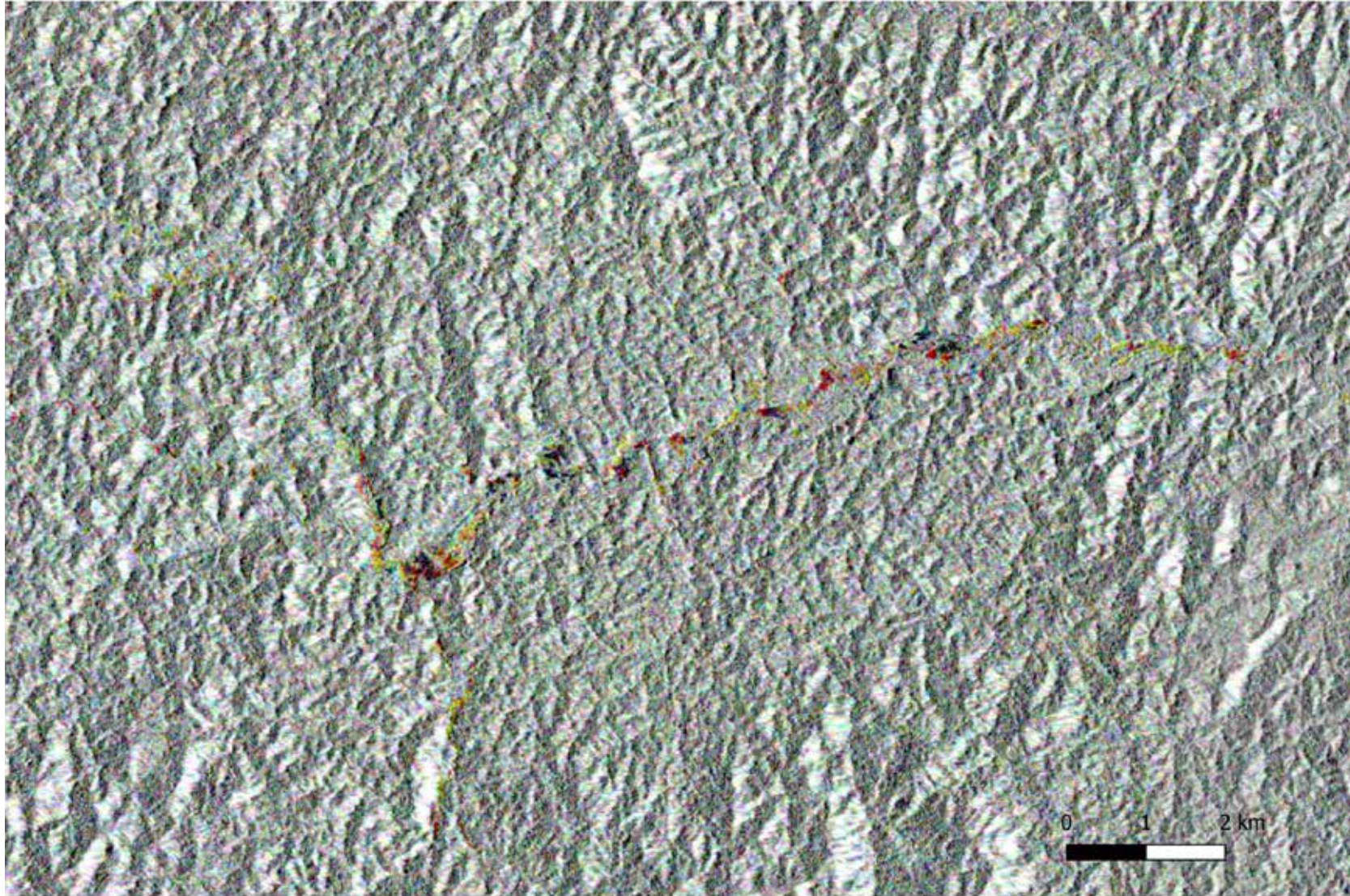


Image 4:
Change detected
in the Mucajaí
headwaters on
multitemporal
radar mosaic.



Photo 34:
Jeremias airstrip
occupied by the
mining logistics.
In the upper
corner of the
photo is the old
health unit of
the region.



Photo 35:
Mining site site
at Homoxi.

In the context of ADPF 709, the Articulation of the Indigenous Peoples of Brazil (APIB) recommended the installation of a health barrier in this location, with the presence of police forces on a permanent basis. However, the Union failed to comply with the recommendation and carried out only occasional operations (two are known).

In the action carried out by the Army in April, for example, despite the magnitude of the destruction verified in photos and satellites, the operation resulted in the seizure of only seven engines and the identification of thirty people⁵⁷.

In July, the Hutukara received news that a Yanomami from Homoxi had been killed by a mining company aircraft that was using the local airstrip⁵⁸. The response of local authorities was to question the veracity of the episode, ignoring the fact that the bodies of Yanomami who have died in the area are cremated, as traditional protocol dictates, and not sent to the Forensic Medical Institute in the city of Boa Vista. Traditional leaders of the region confirmed the episode to the Hutukara Yanomami Association.

On August 11, outraged by the situation and the lack of action by the government, the community members blocked the access to the airstrip for the miners. The leaders warned, however, about the possibility of retaliations and requested security support from the state. This demand was filed by the Hutukara.

As time went by, those who resisted, without receiving any help from the state, were coerced into giving up, seeking refuge in the mountains that make up the Brazil-Venezuela border.

⁵⁷ <https://folhaby.com.br/noticia/POLICIA/Ocorrencias/Operacao-desativa-sete-motores-utilizados-no-garimpo-em-Iracema/74929>

⁵⁸ <https://g1.globo.com/rr/roraima/noticia/2021/07/30/indigena-yanomami-morre-ao-ser-atropelado-por-aviao-de-garimpeiros-no-meio-da-floresta.ghtml>



Photo 36:
Homoxi
collective house
surrounded by
the destruction
of the mines.



Photo 37:
Another Homoxi
collective house
also surrounded
by destruction. In
the air a plane
that serves the
logistics
of mining.

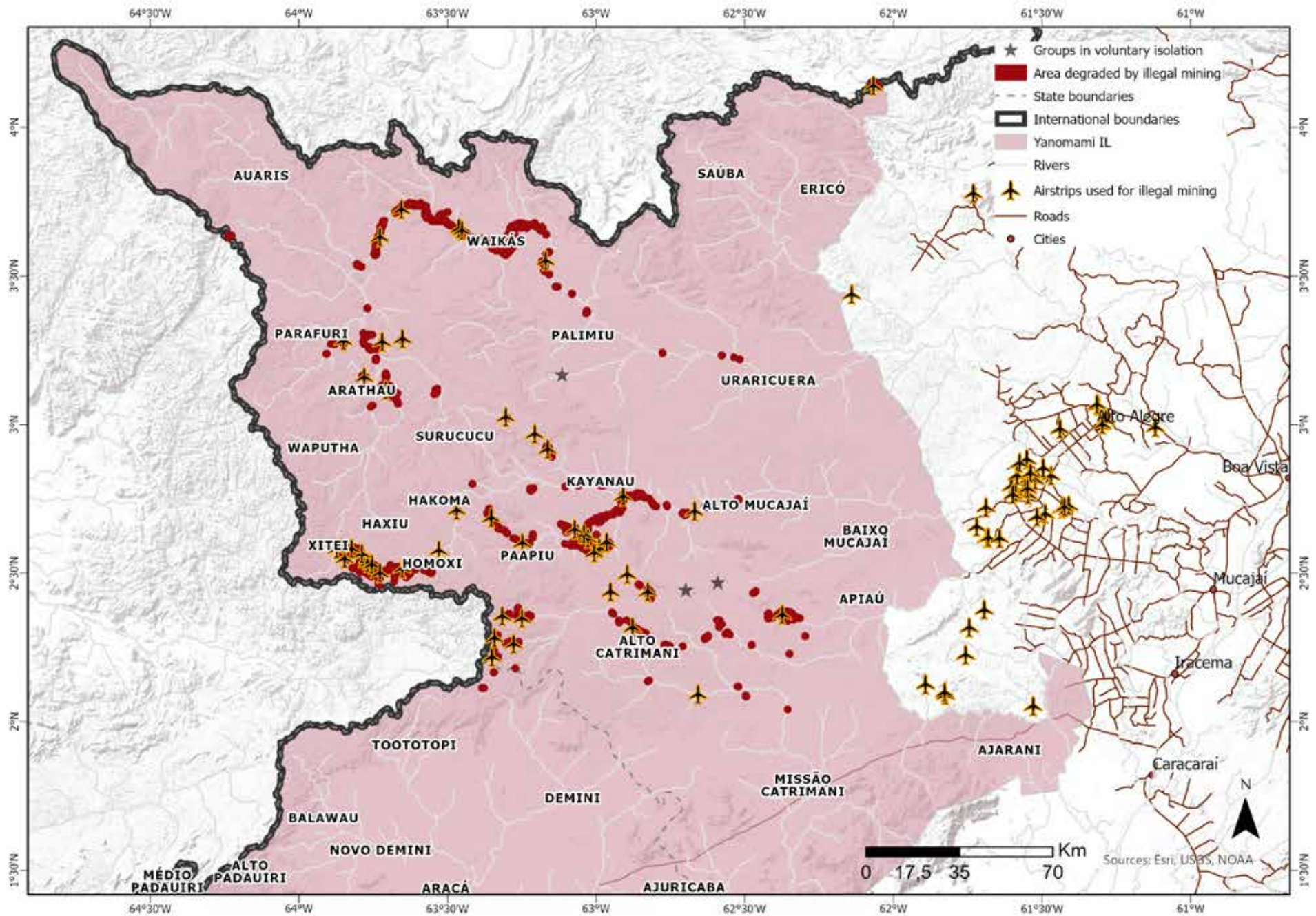
MUCAJAÍ AND COUTO
MAGALHÃES RIVERS
(KAYANAU, PAPIU,
ALTO MUCAJAÍ, HAKOMA)



The Mucajaí River has been the target of successive waves of mining invasion in recent decades, with peaks and valleys of intensity. In the early 2010s, with the financial crisis and the increase in the price of gold in the international market, it was one of the preferred destinations of miners in the TIY, precisely because it was an area that required less complex logistics. Some branches connected to the settlement projects neighboring the TIY allowed access to the river, which made it feasible to install and transport rafts at low cost.

Thus, after numerous operations, it soon became apparent that it would be important to install an Ethnoenvironmental Protection Base that could exercise control over the river. So, first Funai built the demarcated BAPE for this purpose, and years later changed its position, renaming it Walopali. Since then, even though the BAPE has experienced different moments of investment by the public power, which reflects on its efficiency, it is undeniable that it plays an important role in the protection of the TIY.

As the years went by, however, mining logistics in the region shifted toward air travel. New airstrips were opened inside and outside the Indigenous Land. And, with the reduction of surveillance actions in the territory, even airstrips that were once used exclusively by the Sanitary District were captured by the mining logistics, such as the Kayanau airstrip, at the confluence of the Couto de Magalhães and Mucajaí rivers.



Map 2: Airstrips Mining logistics

Today we have mapped twelve airstrips within the TIY that are used by miners in this macro-region, not including the ones at Homoxi and Apiaú. Outside, in the surrounding ranches, we identified another forty, but it is possible that this number is higher⁵⁹ (See appendix 1).

According to the investigations of the Federal Police, on the surrounding farms, in addition to the airstrips, one of the groups associated with the miners even kept a fuel storage tank on land bordering the Roraima National Forest⁶⁰. It is also known that in the same area, in Vila Samaúma, there are hotels dedicated to people who work in mining logistics (especially pilots) and gas stations specialized in providing fuel for the machinery used in the activity.

Such a scheme fueled the destruction of more than 200 hectares of forest by 2021, most of it concentrated in the Kayanau pole-base, where some of the most touching reports of the mining's impacts on Yanomami Territory are recorded.

There, the enormous pressure that mining puts on communities has left a terrible trail of hunger, death, and sexual exploitation of indigenous women.

According to the indigenous people of the region, with the deepening of relations with the miners, many families have stopped cultivating their fields and have become dependent on unequal exchanges with the miners. Some work as porters in exchange for payment in cash or gold to later buy food in the camp canteens, where 1 kilo of rice or a frozen chicken costs 1 gram of gold or 400 reais!

⁵⁹ <https://www.bbc.com/portuguese/brasil-59855502>

⁶⁰ <https://g1.globo.com/rr/roraima/noticia/2021/10/07/pf-faz-operacao-contra-grupo-de-apoio-logistico-aereo-ao-garimpo-na-terra-yanomami-e-justica-bloqueia-r-95-milhoes.ghtml>



Photo 38:
Private airfield
serving mining
logistics on
a farm in the
vicinity of TIY.

There are also situations in which miners offer food in exchange for sex with indigent teenagers, as described by one of the researchers:

After the Yanomami ask for food, the miners always fight back. When the [Yanomami] say, "Okay, since you are taking gold from our urihi, you must give us food without trading", [the miners respond] "You don't ask for our food for nothing! It is clear that you have not brought your daughter! Only after lying down with your daughter will I give you some food!". So the miners always respond when the Yanomami try to ask for food.

Others, however, do not listen to the Yanomami, only replying, "I have no food!". After speaking like this, they [the miners] ask the adult women for their daughters, and also ask the old men for their daughters. They speak like this to the Yanomami: "If you have a daughter and you give her to me, I will land a large amount of food that you will eat! You will feed yourself!".

They [miners] say: "This girl here. This daughter of yours who is here, she is very beautiful!". Then the Yanomami reply, "She is my daughter!". After saying this, the miners touch the girls. Only after groping them, they give them some food. "If I catch

your daughter, I really won't let you go hungry", the miners often say to the Yanomami.

Yanomae thëpënë wamotima thëpëha nakahenë, proro pë kuu mahi. "Awej, ipa urihiha maa wama maxi thai kutaenë, wamotima wama thëpë mii pihio puo". Thëpë kuu tëhë, "Kami yamaki wamotima thëpëha wa mii nakamu puonëmai! Aho thëëho wa nokamapu maonoa! Aho thëëhõ ya yakaa paririi tëhë, wamotima ya thëpë xirõ hipiai!". Inaha yanomae thëpë mii nakamu puo tëhë, proro pë kuu mahi.

Ai pënë yanomae thëpëã huaimi: "Ipa wamotima thëpë kuaimi!", pë xirõ kuu. Thëpëha kunë, thuë pata pëha, kama thëë e thëpë kãe pree wãriihë, wãrõ pata thëpëha thëë e thëpë wãrii hwëtiai: "Aho thëëhõ a kuo tëhë, kami riha wa pihio tëhë, wamotima ya thëpë wãrõhõ mahiha ithomanë, wa thëpë watipë! Wa iyatipë!". Inaha yanomae thëpë noa thaihe.

"Hwei thuë moko akakii. Aho thëëhõ anë ka kuopi a totihi mahi!", thëpë kuu. thi tëhë, yanomae thëpëã huo: "Ipa thëëyë a!". Thëpë kuu tëhë, proro pënë thuë pë hupaihe. Pë hupahenë, wamotima thëpë xirõ hipiaihe. "Kami yanë wamaki thëë pë tei tëhë

wamaki yai hõrimomaimi!", inaha yanomae thëpëha, thëpë yai kuu mahio pruu.

About the miners' approach to the women of the community, the researcher writes:

This is what the miners do when they want to have sex with the Yanomami women. First they give them a little food, to make them stop being afraid, so that they begin to delude themselves, thinking, "They gave me food for no reason! Maybe they are generous?". Then again, when the woman returns, they again deliver some food. The woman does not ask, "Why do you leave food for me, for no other reason?". When the woman has lost her fear, he calls her close. That is how the miners very often do with the Yanomami girls.

They also give the women perfumes to make them wear it. They say "You only go around after you have perfumed yourself with this one. So do the miners when they want to have sex [with Yanomami women]. They also say, "Next time you come, I will buy a skirt and give it to you. "I will also give you gold. With that gold, you can take whatever you like! If you want to drink cachaça, I will buy cachaça, if you drink cachaça". So, after having said all of this to the

Yanomami women, the miners have sex with them.

However, the women who have a conscience don't let the miners have sex with them. The miners only succeed with women who have drunk cachaça. They cannot have sex with women who have not drunk cachaça. Only the women who are not afraid of contracting the disease [of the skin], are not afraid, the others do not listen to the insistence [of the miners]. This is how the Yanomami women put it: "No... the Yanomami men are in need, so I really won't let them [the miners] have sex. Once I let the gold diggers who have the gold disease have sex, I will be changed!". All of that is true.

tnaha yanomae thuëpëna wai pihio he tëhë proo pë kuaaihe. Hapa wamotima thëpë hipii parioti he. Pë kirii maamaï heha, "Kami riha wamotima thëpëka mii hipia pëkihe! Xi ihete hatho?", pë pihi thamaï pariohe. Waiha, ai thë kōō tëhë, thuë a huu kōō tëhë, ai wamotima thëpë hipia kōkii. "Witi thëha kami riha wamotima wa thëpë mii hipii paai puo tha?", thuë pë kui-mi. A kiriiha maprarinë, thuë a nakaa ahetea xoari. tnaha yanomae moko pëha proro pë kuaai mahio pru.

Thuë përia riërimomamuwii thëpë pree hipiai he. "Ei thëpënë wa riaha riërimamonë, wa yai huu!", e pë kuu. Proro pë wamu pihio tëhë tnaha thë thai he. "Waiha wa huu kōimai tëhë aho saya yakiha tërinë, yaki hipiai!", e pë kuu hwëti. "Maa ya maxi kãe pree hipiai. thi maa maxiha, kaho wanë wa thëpë peximaiwi wa thëpë tëapë! Yaraka wa uku kōai pihio, ya uku pree tei, yaraka wa upë kōai tai tëhë". tnaha proro pënë yanomae thuë pë noaha thahenë pë wamu.

Makii, ai thuëpë möyämëwinë pë wamomaimihe. Yaraka upë kōaiwihii pëha, proro pë xirō wamu. Yaraka upë kōai tai maowihii pëha, proro pë wamoimi. Ai thuë pë warasi pëi nëhë hōrio maowi, pë xirō kiriimi, ai thuë pëã huoimi. "Ma... yanomae wãrō thëpë hōri yaro, ya thëpë wamomai paxioimi. Proro pë maa maxi pëowi, ya pëha wamomanë, ya poremu!". tnaha yanomae thuë pë kuu. Peheti thëã.

As evident in this excerpt and in the one below, the offering of alcoholic beverages is one of the main strategies of the miners to lure young men and abuse female adolescents.

The miners ask questions to the young men who take their sisters with them. So they ask the Yanomami, "That girl you took with you, is she your sister?"

Then the Yanomami answer, "She is my sister". Once the Yanomami say that, the miners are informed.

So they [keep asking:] "What do you think about your sister? If you make your sister lie with me, since you are her brother, I will pay you 5 grams [of gold]. Do as I say! If you want cachaça, I'll give you cachaça too. You will get drunk in your house." They talk like this to the Yanomami, so they have sex with the women. They induce the Yanomami to do such things.

Hiya thëpënë kama yau e thëpë kãeha huhenë, e pë wãrii he. Hapënahaha, yanomae thëpëha e thëpë kuu. "Hwei thuë waka nokamapora aho yauhu a tha?", e thëpë kuu. thi tëhë, yanomae thëpëã ha huonë: "Ipa os-ema a!". tnaha yanomae thëpëha kunë, proro pë pihi xaari pramaï he.

Kuë yaro epë: "Winaha aho thuërima eha, wa pihi kuu kura?". E pë: "Kami riha, aho thuërima wa yakamapii tëhë, kaho wãrōrima wa eha 5 grama aha, ya anë kōamaï kutaenë. Warea yai hurii! Yaraka wa uku pree peximai tëhë, ya uku hipiai. Aho yanoha wa poremo!". tnaha yanomae thëpë noa thaihe yaro, thuë thëpë na waihe. tnaha Yanomae thëpënë thë thamaï he.

In the view of most indigenous women, miners represent a terrible threat. They are lustful and violent, producing a permanent climate of terror and anguish in the villages. This is what an indigenous researcher recorded in an interview with another Yanomami woman:

The diggers always have a mad urge to have sex. When people said they were approaching, I got scared. So ever since I've heard about the miners, I've lived with anguish. My mother told me that they cut themselves, the children get bug-eyed with fear, as they don't realize that they are suffering. When the news [about the miners] came around... after I also thought that way [like my mother], I was enlightened. When my mother and my older sister talked about those people I got convinced: "That is how these people do it!".

Garimpeiro thëpë pata pexinë kiriai thare. Thëpë pata yai hwarayu tëhë, thëpë kuuha kuikinë, ya kirihuruma. Kuë yaro thëpëãha thaihe tëhë, yutu ya mia kãe pirio. Oxe thëpë mamukunë ohotaaiha, thëpë manihëha, inaha nae ã thamai kurahë, pë pihi kuimi në ohotaai yaro, thëpëã pata ahetehamë yaiariheha, ya pihi preeha kurunë, ya pihi xarirohuruma. Nae anë, ipa hepára pataowinë thëpëãha thanë, ya

pihi raturuma: "tnaha thëpë pata kanë kuaïwi!".

The transmission of Sexually Transmitted Diseases is another common theme in the reports about the situation of violence against women, as demonstrated by the report below which was collected by a researcher in another region of TIY:

In the past, the Yanomami women did not have the abdomen disease. In fact, the men were not sick either, so the people were healthy. Therefore, we Yanomami did not know about these "warasi" diseases that leave lesions on the skin, when the women were not bleeding. Now, after the gold diggers started to have sex with the women because of the poison of the cachaça, we learned the name of this disease.

In fact, people now think, "After the gold diggers spoiled women's vaginas, they made them sick. So now women are running out, because of the lethality of this disease. They are screwing women a lot. It's so much so that in 2020, three girls, who were only around 13 years old, came to death.

The miners had a lot of sex with these girls, drunk on cachaça. They were young, having just had their first

menstruation. After the miners had caused the girls' deaths, the Yanomami protested against them, and the miners moved away for a while. The leaders told them that being so close, they behaved very badly. For this reason, other Yanomami nickname them "malaria lethality".

They are really bad, they are carriers of epidemics from which we die. They insist on eating our vaginas, of this we are afraid and our elders do speak. I listen to the words of our leaders, so I am aware, I am not irresponsible, therefore I am distressed.

Yutuha yanomae thuëpë xithëmaki ninianimi. Wãrõ thëpë pree ninianimi yaro, totihi thëpë pirio. Kuë yaro yanomae yamakinë warasiaha tanimihe, thuë pë iyë hwaai mao tëhë. Hwei tëhë, maamaxi thatima pënë yaraka upë waiha, thuë pëna waapraiha kuikihenë, wara yama siãha hirirema.

"Maamaxi pë peximia pratima pënë, thuë pënaha hõximararihenë, xawara pë wai pou mahita", thëpë pihi kuu yaro. Kuë yaro hwei tëhë warasi a wainë thuë pë maai matayu. Thuë pë na wai mahi he. tnaha kuë yaro 2020 raxa kikiha, 3 thuë moko pë nomamaremahe, 13 anos pë pata he wëo xirõõwii.

Proro pënë, yaraka upë waiha, pëna wai mahioma yarohe. Pë yipimoa tuterayuwi thëpë kuoma. thî proro pënë moko thëpë nomamari henë, yanomae thëpënë proro pë noa rahuamai ha kuiki henë, pë wãisipë praharayoma. tnaha thëpë ahete kuotii tëhë, thëpënë mōhoti kuoti pë, pata yanomae thëpë noa thayuha kuikinë. tnaha kuë yaro ai yanomae thëpënë hura pëãha wai hiraihe.

Thëpë yai hoximi yaro, thëpënë xawarapë, yamaki nomarayuu. Yamaki na wããrihe, ei thëha yamakiha kirinë, pata yamakiã. Pata ya thëpëã yai hirii hwëtî yaro, kami ya pihi moyamë, pihi mohotiimi, kuë yaro, ya kirii.



Photo 39:
Mining at Couto
Magalhaes River,
TIY.

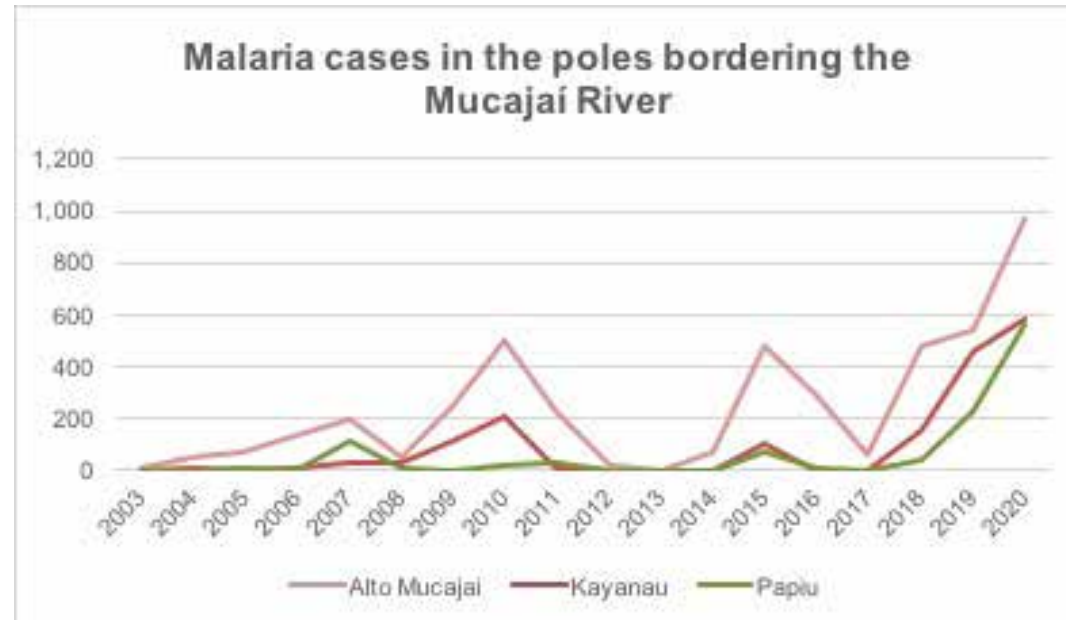


Photo 40:
Mining at Couto
Magalhaes River,
TIY.

Kayanau's health indicators are also dramatic, the pole was among the five worst in cases of child malnutrition considering the years 2019, 2020 and 2021, and is ranked seventh in Malaria. From 2019 so far, four children have died from malnutrition, one teenager from Malaria, and seven people have died from assault, three of them from gunfire⁶¹.

The destruction of the Kayanau has spread in all directions. Upstream the mining reaches the Papiu and Hakoma poles and downstream the communities of the Alto Mucajaí pole. In Papiu, there are two axes, one that is practically an extension of the exploitation in the Couto Magalhaes river, and another that tears through the mountain range that separates the Couto-Magalhães from the Mucajaí, reaching the Hakoma pole. In the latter, another death combining malaria and lack of medical care was denounced by CONDISI in 2021⁶².

In the upper Mucajaí, in addition to ravine mining, some rafts also occur. Exploration is concentrated, however, in the western portion of the pole, which is farthest from Bape Walopali, and is influenced by the mining at Kayanau.



Graph 5: Evolution of malaria cases in the poles of the Mucajaí River affected by mining.

Source: Sivep-Malaria.

A worrisome fact in Alto Mucajaí is the proximity of the scars in some communities. In the case of the Uxiu community, the quarry is on the other side of the river. There are reports that in this area there is great pressure on young people to cooperate with the logistics of mining, which would be a way to "circumvent" the Base's action in controlling the flow of inputs.

A resident of the region denounced, for example, that the rancher who controls the main access port to the river, entices

indigenous people by offering discounts at his canteen while intimidating those who take a public stand against mining. According to the complaint, the rancher used to work for years on the Uraricoera River, from where he was expelled because of disagreements with other miners. Since then, he has migrated to the Mucajaí river, where he now specializes in mining support services, such as transporting fuel and other inputs. He also makes a profit by charging for the use of the port, about 1g of gold or R\$400 per passage.

⁶¹ Data from Siasi, accessed via Access to Information Law.WWW

⁶² <https://g1.globo.com/rr/roraima/noticia/2021/11/04/adolescente-yanomami-em-estado-grave-de-malaria-morre-por-negligencia-afirma-conselho.ghtml>



Photo 41:
Thothomapi
Community,
Kayanau.



Photo 42:
Mining in front
of the Uxiu
community, in
the Alto Mucajaí
region. Even with
the maintenance
of the Walopali
BAPE, upstream
mining activity
remains intense.



Photo 43:
Port that gives
access to the
Mucajaí River.

APIAÚ RIVER



The mining operation circumscribed to the Apiaú Base Pole is located in the headwaters of the river of the same name and in the upper reaches of its tributary, the Novo River. The communities served by this pole are located downstream, on the border of the TIY. Despite being relatively distant from the quarries, they suffer with the impacts of the activity on the river (silting and contamination) and with the harassment of the miners who sometimes pass through the communities to access the exploration zone.

Residents of Apiaú reported to the Huktara, for example, scenes of sexual abuse of indigenous women very close to those described in Kayanau. According to the report, a miner who works in the region once offered drugs and drinks to the indigenous people and when they were all drunk and inert, raped one of the community's children.

The situation of social vulnerability to which the community has been subjected became apparent in a conflict between an indigenous person and a miner on October 10, which resulted in the miner's death. Since then, the leaders have been hearing questions from other miners about the whereabouts of the native involved in the conflict, saying that they will kill him. The leaders fear retaliation against the community. At least four other miners sleep in the community, armed with pistols and rifles, and do not want to leave "because they have got used to it".

Also according to the residents, the frequent supply of alcoholic beverages and drugs brought by the miners makes

the communities vulnerable to all sorts of abuses. There are several cases of rape and harassment of children and women. In one instance, a Yanomami teenage girl would have an arranged "marriage" with a miner for the promise of payment for goods, which was never fulfilled. The villagers also report that the miners walk around armed, so that the indigenous people no longer offer resistance to the harassment because they are afraid of being attacked.

The Apiaú headwaters are also the territory of the group in voluntary isolation known as the Moxihatëtëma.

Until recently the isolated people lived in a collective house with seventeen family sections, so their population was estimated to be around 80 people. In 2021, we identified in satellite images (CBERS 4) the existence of another house, of similar size. It is not known whether the second house indicates an increase in the community that now must inhabit the two residences, or whether the old house was abandoned.



Foto 44:
Mining at the
Apiaú River.



Image 5:
New home of the
Moxihatëtëma
recorded by
the CBERS-4
satellite,
RGB color
composition.

The second hypothesis is based on the fact that the mining company had been getting dangerously close to the monitored residence. There are airstrips and quarries less than 14 km from it. Likewise there are reports of conflicts between miners and Moxihatëtëma warriors, with deaths on both sides. The first conflict dates back to 2019. It was reported to the Hutukara by Yanomami teachers from the Upper Catrimani. According to the teachers, two moxihatëtëma hunters had been killed with rifle fire after having defended their fields with arrows from an attempted robbery by the miners. On that occasion, HAY informed the competent agencies, but did not receive any answers about a possible investigation.

The second recent conflict is from 2021⁶³. According to the indigenous people of Apiaú, in August, Moxihatëtëma warriors approached the minesite known as "Faixa Preta", located on the upper Apiaú river. The intention of the Moxihatëtëma was to expel the invaders from their territory, but during the approach, the groups clashed. The isolated groups shot three miners with arrows, and the miners killed three Moxihatëtëma with firearms. One of the arrows shot by the Moxihatëtë-

tëma warriors was picked up by a young indigenous man from the upper Mucajaí region who was frequenting the miners at the time and witnessed the episode.

Due to the high epidemiological vulnerability of the isolated peoples, the possibility of forced contact between this group and the miners is one of the most worrying issues in the context of the TIY invasion, and, for this reason, should be one of the priority areas for actions to combat mining. HAY has insistently informed the competent bodies about the great pressure in which the Moxihatëtëma find themselves with the advance of mining in the regions of Serra da Estrutura, Couto Magalhães, Apiaú, and upper Catrimani, with a high risk of violent confrontations that could result in the extermination of the group. However, the little that has been done has produced very little result, as the photos from the January overflight can prove.

There is a Funai Protection Base that is dedicated to monitoring the situation of groups in isolation. The so-called BAPE of Serra da Estrutura, which only recently became operational again by court order. Its presence, however, be-

comes almost irrelevant if it is not associated with regular enforcement actions in the exploitation hotspots surrounding the Moxihatëtëma. We have reports, for example, that even with the presence of officials on site, helicopters and mining aircraft are continually landing on the BAPE airstrip to refuel, without any enforcement action being taken.

⁶³ https://www.socioambiental.org/pt-br/noticias-socioambientais/associacao-yanomami-pede-investigacao-apos-denuncia-de-mortes-de-indigenas-isolados?utm_source=isa&utm_medium=manchetes&utm_campaign=



Photo 45:
Active mining
camp near the
territory of the
isolated groups.



Photo 46:
Mining site on
the Novo River,
Apiaú, TIY.

CATRIMANI RIVER (ALTO CATRIMANI AND MISSÃO CATRIMANI)



On the Catrimani river, at least four zones are under mining influence, they are:

- i) the headwaters of the Catrimani;
- iii) the upper course of the river near the Serra da Estrutura
- iii) the meeting point with the Lobo d'Almada River;
- iv) the Middle Catrimani.

The headland area is the one that concentrates the largest scars, associated with five clandestine airstrips, among which the largest is the Capixaba airstrip. In this area are also located the largest camps and support structures for mining in the region, such as bars, grocery stores, and brothels.

Operations around the Capixaba airstrip in the first and second half of the year have been reported by the press. Even so, one notices very little change in the size and pattern of the campsites, comparing the April 2020⁶⁴ overflight photos and the January 2020 photos.

As in the other regions, the repression actions were limited to punctual diligences, which had their effectiveness compromised by the absence of the surprise factor, among other reasons already mentioned above.

Following the Auaris example, where the logistical structure of mining in Brazil supports the exploitation in Venezuelan territory, in Alto Catrimani there are strong indications that part of the clandestine strips on the Brazilian side are working to support exploitation in the upper reaches of the Orinoco River.

The image below (from November 2021) illustrates the current stage of destruction on the upper Orinoco riverbed.

⁶⁴ <https://acervo.socioambiental.org/acervo/documentos/sistema-de-monitoramento-do-garimpo-ilegal-na-ti-yanomami-relatorio-do-primeiro>



Photo 47:
Mining at the
headwaters of
the Catrimani.



Photo 48:
'Corrutela' on
the Capixaba
landing strip.

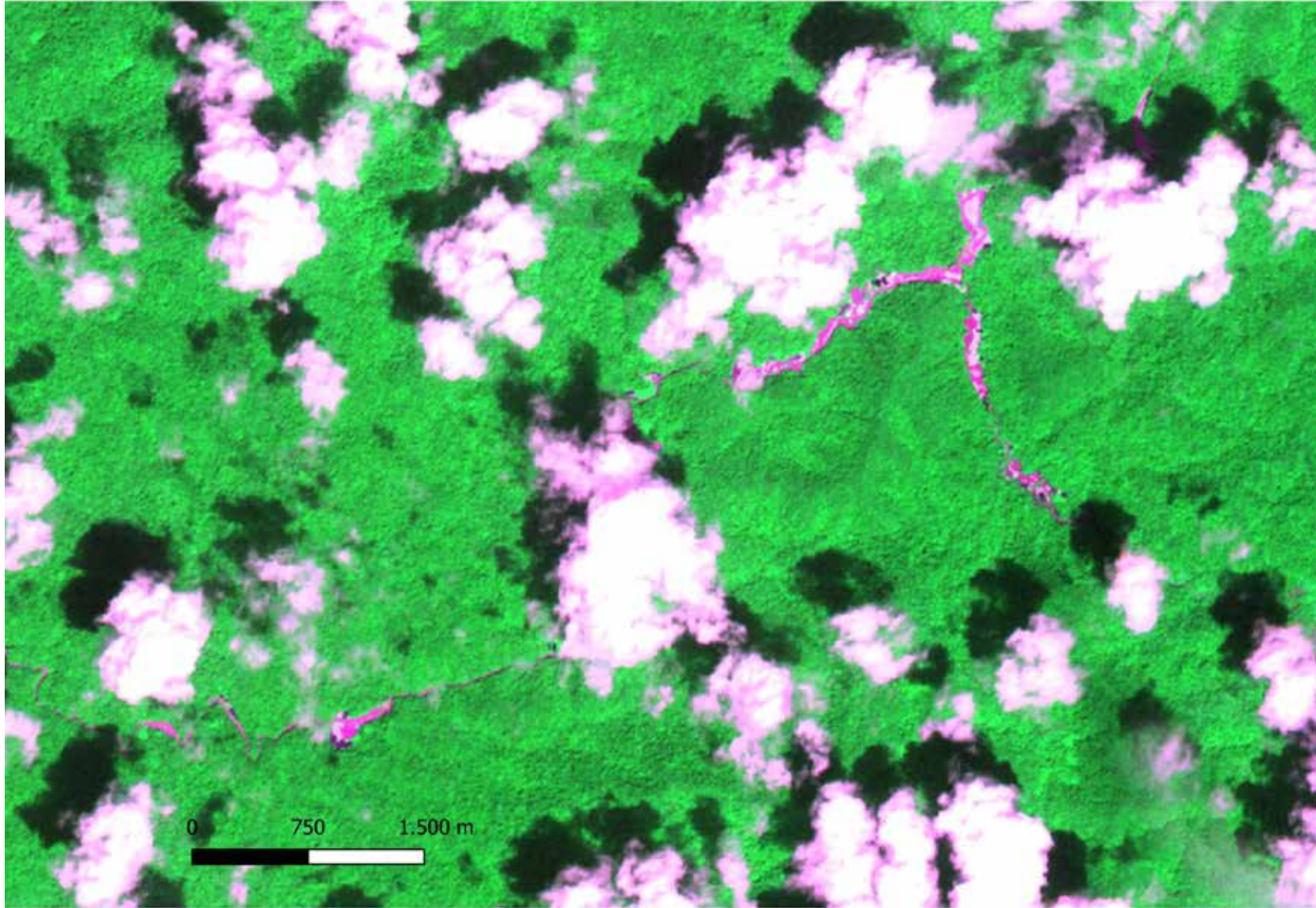


Image 6:
Mining on
the upper
Orinoco River
in Venezuelan
territory, at
Sentinel 2
Mosaic.

At the time of the Haximu massacre, the mining operation in the region followed the same format as it does today: Brazilian miners exploiting gold in the neighboring country through a logistical network based in Boa Vista. In recent years, Operation Xawara denounced Pedro Emiliano Garcia, one of those convicted of the Haximu genocide, for continuing to exploit the same area, decades after the massacre. In this vein, it is possible that the current operation has in charge the same people who were once convicted of genocide for murdering in cold blood old people, women and children in the village that names the episode. In 2021, Pedro Emiliano Garcia was arrested in flagrante by the Federal Police with 2kg of gold illegally taken from TIY⁶⁵.

Going down the Catrimani River, but still in its upper course, there is another important concentration of mine sites bordering the river. Although it is located closer to the set of communities in the upper Catrimani, there seems to be a tendency for the structure to expand there, with the opening of new tracks and recent deforestation.

In this zone, mining spreads in two directions, along the main river and on the slopes of the mountain range that divides the Couto Magalhaes and Catrimani basins, close to the Territory of the Isolated Moxihatëtëma.

⁶⁵ <https://g1.globo.com/rr/roraima/noticia/2020/07/03/condenado-por-genocidio-de-indios-dono-de-garimpo-illegal-na-terra-yanomami-e-presos-com-ouro-em-rr.ghtml>



Photo 49:
Mining along the
Catrimani River.

The third area, in the valley of the Lobo d'Almada River, appears to have less movement. The scars mapped there have not shown significant changes for months.

Finally, in the area of the Catrimani Mission pole, what we call the fourth zone, refers to deforestation near the Puraquê waterfall, and to rafts that move below the group of communities organized around the Mission. It is not possible to identify the presence of the dredges on the satellites, but the Yanomami of this region recurrently send complaints to the Hutukara about the movement of miners. The news of seizure of inputs from the miners in Caracaraí that were destined for the Catrimani⁶⁶, also reinforces the Yanomami's complaint.

In the Middle Catrimani the news about a new invasion arrived right at the beginning of the pandemic, but the resistance of the native leaders, especially the women, have so far managed to

halt the miners' advance. In conversations with those women, one of the indigenous researchers registered their concern and perception about the threat that surrounds them:

Of course, we are very worried, because they truly contaminate the Urihi. The forest becomes infested by the carapanans, reduced to a mire. I don't want us to die because of the miners who destroy our Urihi. We don't want to die because of the lethal diseases of the miners. Because of the contaminated river water, our ears get sick. We don't want the lethal aggression of malaria. So, we don't want to let the miners get close.

We don't want our husbands to be killed by miners after they have settled nearby. In other regions, there are [Yanomami] who are already suffering dramatically from hunger, but I don't want to suffer from hunger. I

don't want to starve to death. I simply want to die of old age, with no other causes. Not to get sick and suffer because of their penises. I just want to die like an old woman.

Awei, urihi pë pata peheti xam-iamaï yarohe, kami yamaki xuhuru-muu mahi. Thë urihi riopë, urihi thë ahi. Garimpeiro pënë yamaki urihipë pehe yapëkaï mahi yarohe, yamaki nomarayuwii ya thë peximaimi. Garimpeiro thë wainë yamaki nomapruwii yama thë peximaimi. Mau upë pata uxi-uxinë, yamaki yëmëkaki nenii. Hura yama a wai peximaimi. Kuë yaro garimpeiro yama pë xiro ahetaï pihioimi.

Garimpeiro yama pëha ahete-makinë, yamaki heãropë xëpramoyuwii thë mii yaro. Ai thë urihiamë thëpëã ohinë oho taaï mahia hikia yaro, ya ohimamuu pihioimi. Yaha ohumamorinë ya ohi nomamamuu pihioimi. Yami ya wara pata nomai xaario pihio yaro. Napë wamaki moxinë yaha nomamamorinë, yanë oho taamamuu pihioimi. Yami ya xaari thua pata nomai xaario pihio.

⁶⁶ <https://g1.globo.com/rr/roraima/noticia/2021/03/28/grupo-e-presos-com-combustivel-e-detector-de-metal-que-seria-levado-a-garimpo-no-rio-catrimani-em-rr.ghtml>

ERICÓ



The mining operation registered here as circumscribed to the Ericó pole-base is actually located far from the communities on a tributary of the upper Amajari River, very close to the Venezuelan border.

This is a clandestine airstrip surrounded by scars that have changed little in this year (see map 2). Most likely the site is used more as a logistical point to move ore and goods illegally across the border. On the other side of the border, in Venezuelan territory, for instance, giant scars can be seen along the Icabarú River, a tributary of the Caroni. One of the most intense mining areas in Bolívar state, it is also full of clandestine airstrips⁶⁷.

On the Uraricaá River, in turn, where the Xiriana (Yanomami) communities are located, although we did not register any deforestation associated with mining within the Indigenous Land, very close to the border there is the presence of a clandestine airstrip, known as the Robertinho airstrip, and various scars (not computed in our calculation). This stretch is located between the TIY and the Maracá Ecological Station, and it is a non-designated public land, despite its socio-ecological sensitivity. Since 1996, the area has been included in the Esec expansion proposal. But, due to regional political interference, this process has faced resistance and is paralyzed.

⁶⁷ <https://elpais.com/internacional/2022-01-30/las-pistas-clandestinas-que-bullen-en-la-selva-venezolana.html>

Mining on the
Uraricoera river,
TIY, January 2022.



FINAL CONSIDERATIONS

VIOLATIONS TO THE RIGHTS OF INDIGENOUS PEOPLES IN TIY

One of the most dramatic direct effects observed with the continuous advance of mining exploration in TIY is the increase in threats (in frequency and degree) to the safety of the different communities and leaders who publicly oppose the activity in the Indigenous Land.

As the nuclei of illegal miners proliferate and grow in the different regions of the TIY, the neighboring communities feel the loss of "control" over their living space. This is because the insecurity dissuades them from circulating in the area, whether due to the explicit threats of miners against their lives, or due to the simple hostile presence of non-indigenous people. There is a recurrent complaint from leaders about the intense circulation of heavily armed miners and the consequent intimidation of the indigenous people into complying with the conditions imposed by the invaders. In many reports, community members have said that they suffer from the restriction of their free transit on the Indigenous Land and that they no longer enjoy the areas before used for hunting, fishing and farming. In addition, they are no longer able to communicate by land and water with other communities in the same multicomunity complex.

Besides the serious threats to the lives and personal safety of the Indigenous Peoples, the proven intensification of illegal mining in the TIY represents an offense to the right of the Indigenous Peoples to permanent possession of their traditional land, to the exclusive usufruct thereof, and to the maintenance and reproduction of their traditional ways of life. That is, in as much as the affected communities, in reality, perceive that they have reduced areas to freely use for their daily activities.

In addition, there are other serious violations of the fundamental rights of the peoples in question. For example, the damage to the rights to an adequate environment and to access to potable water, resulting from the accumulation of the socio-environmental impacts found in this report. Also, serious restrictions on the exercise of the right to adequate food by indigenous communities, insofar as the aforementioned restriction on the use of their traditional territory prevents the full functioning of their productive system.

The damages caused by illegal mining to the indigenous people's right to health must be emphasized. As has been demonstrated, illegal mining activity is associated with a higher incidence of infectious and contagious diseases among indigenous communities, especially malaria. Furthermore, it is worth remembering that mining activity is directly associated with mercury contamination, with irreversible damage to the health of people in the affected communities. There are complaints of a higher incidence of neurological diseases among newborns in the Yanomami Communities, but they have not been diagnosed with mercury contamination, despite regulatory guidance to this end.

Besides this, the generalized situation of insecurity imposed by the increase in the circulation of armed miners in the different regions of the TIY has caused disturbances in the health care of the Indigenous Communities, with the total abandonment of health posts in some cases (for example in Palimiu) and even the occupation of community airstrips, which should be attending the health care, for operation and supply of mining (for example in Homoxi). It is also common to hear complaints about the detour of medicines reserved for the Indigenous Peoples to be used by miners. These factors amplify the damage resulting from the destructuring and mismanagement of indigenous health care carried out by the Yanomami Special Indigenous Health District. During the II Leadership Forum of the TIY, the President of the Yanomami Health District Council confirmed that Yanomami health care has collapsed.

THE (INSUFFICIENT) RESPONSES OF THE STATE

The Brazilian Federal Police launched a series of operations throughout 2021 in response to the growing wave of illegalities associated with mining in the state of Roraima. To a large extent, the viability of these operations was guaranteed by judicial decisions that characterized the constitutional duty of the State to act in order to protect indigenous lives and guarantee territorial protection to their lands, in the context of the COVID-19 pandemic. That is to say, without this judicial support the operations would have been rendered impractical with no budget, personnel, or material available, despite the clear urgency of actions to control mining in the TIY.

In this regard, relevant decisions were issued in the context of the Action for Breach of Fundamental Precept 709, and in the Public Civil Action 1001973-17.2020.4.01.4200. The granting of an incidental injunction request, in the former, and of an injunction anticipation and indication of an integrated action plan, in the latter, ensured the adoption of measures to control the expansion of mining centers, especially after the outbreak of armed conflicts against Palimiu's Indigenous Peoples and the confirmation that organized crime was already associated with mining. In both cases, the enforcement of the respective decisions remains under judicial secrecy, so there is little public information available to evaluate the adequacy of the measures adopted.

Although welcome and urgent, the observed data on mining deforestation in the TIY and reports from the communities indicate that the operations have not yet achieved the expected impact to effectively curb the illegal activity and ensure the territorial protection of the TIY against invaders. On the other hand, while important advances have been made in controlling the clandestine fuel trade, in the investigation of businessmen linked to illegal mining, and in the destruction and seizure of aircraft used in mining activities, these achievements can be compromised since the investigation results reach the Judiciary for shady purposes. For example, after the record seizure of aircraft belonging to businessmen from the state of Roraima, which were known to be used for logistical support to illegal miners in the Yanomami Indigenous Land, these businessmen have been successful in reversing the seizure through controversial decisions handed down by judges who are political allies of the miners⁶⁸.

⁶⁸ <https://reporterbrasil.org.br/2021/06/200-mil-reais-por-semana-como-funciona-o-mercado-de-aeronaves-que-apoia-o-garimpo-ilegal-na-ti-yanomami/> ; https://www1.folha.uol.com.br/ambiente/2022/01/juiza-aliada-do-cla-bolsonaro-libera-aeronaves-suspeitas-de-atuacao-em-garimpo.shtml?utm_source=whatsapp&utm_medium=social&utm_campaign=compwa ; <https://folhaby.com.br/noticia/CIDADES/Capital/Justica-Federal-libera-helicopteros-apreendidos-durante-acao-da-PF/80709> ;

RECOMMENDATIONS

Contrary to the claims of those who have an interest in promoting gold extraction in TIY, mining is not a problem without solution. Harassment of the territory and the Yanomami Peoples can be controlled through a set of actions to ensure their rights, but which require political will to ensure an efficient and coordinated action by the State and the articulation between the responsible bodies and agents.

The first point for controlling illegal mining in the TIY is obviously the development and resumption of a consistent Territorial Protection strategy, capable of triggering regular operations to dismantle the mining hotspots, and the maintenance of the Ethno-Environmental Protection Bases in strategic locations. Namely: 1) the full operation of the Walopali BAPE, which controls access to the Mucajá River; the Serra da Estrutura BAPE, which controls the "Botinha" airstrip and guarantees the autonomy of the group in voluntary isolation "Moxihatëtëma"; and the Ajarani BAPE, which controls access on the TIY through the Perimetral Norte; 2) the reactivation of the Korekorema BAPE, which controls the flow on the Uraricoera River; and 3) the creation of at least three new bases, one at the confluence of the Ingarana Igarapé with the Apiaú River, another in the region of the Lower Catrimani, and a third on the Uraricaá River, for the purpose of monitoring movement on these rivers.

The operation of the BAPes must have the support of the Yanomami living in the affected areas, who can and should be trained and paid to act in the surveillance and protection of their territory, as well as to assist in obtaining relevant information to the competent bodies for the supervision of the illicit activities associated with mining. It is important to emphasize that indigenous surveillance should be understood as complementary and not a substitute for the inspection actions under the responsibility of the State and its command and control agencies.

The installation of the listed bases depends, however, on operations to extrude and suppress illegal activity in the currently impacted areas. The operations must: (i) render useless the clandestine airstrips and seized aircraft, (ii) ensure the reoccupation of health posts and community airstrips that are currently under the control of gold miners, such as the cases of Homoxi, Arathau, Parafuri, and Kayanau; (iii) promote the total destruction of the machinery used in gold extraction in order to prevent the rapid resumption of exploration, (iv) act routinely, adapting the priority areas based on updated information about the activity's advance in the different regions of the TIY. Jointly, and without prejudice to auxiliary strategies, such actions should be able to impede the rapid rearticulation of the dismantled mining sites and thus decapitalize the businessmen who foment the crime in Yanomami Territory. At the same time, it is fundamental to advance in the permanent inspection of private airfields situated in the outskirts of the Yanomami Indigenous Territory which function as logistical distribution centers for illegal mining, and also the inspection of the gas stations which sell airplane fuel.

The complementary role of regulatory agencies is another important factor in guaranteeing the effectiveness of territorial protection actions and disarticulating illegal mining logistics. The Agência Nacional de Telecomunicações (ANATEL) plays a key role in identifying and holding accountable those involved in the installation and maintenance of radio and internet networks that support the miners, through enforcement actions on consumer relations, in particular the supply and contracting of services, in line with its 2017 Inspection Guidelines. It is therefore recommended to improve the regulation of the provision of internet installation and maintenance services in Indigenous Lands and other protected areas, establishing mechanisms to identify and impede their clandestine operation of communication networks to support the logistics of illegal mining and other illicit activities in these areas while, at the same time, rehabilitating the availability of access for interested indigenous communities to the bands that are currently under the miners' control. ANATEL's actions must precede the operations and be effective enough to ensure that the police actions maintain their 'surprise effect'.

The Agência Nacional de Aviação Civil (ANAC) must contribute with the inspection of irregular operations of aircraft and landing strips, preventing their clandestine operation to support the logistics of illegal mining.

Likewise, regarding the work of the National Petroleum Agency (ANP), as suggested by Technical Information No. 4/2021-NUFIS-MG/DITEC-MG/SUPES-MG of the Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis (IBAMA), the main tool for controlling the sale of jet fuel, the Mapa de Movimentação de Combustíveis de Aviação (MMCA), should be improved. According to IBAMA's document, the computerization and publicizing of the MMCA would be an important step to have a better monitoring control of the fuel custody chain, with a virtual balance system of liters of aviation fuel that could reflect the real stock in the whole production chain⁶⁹.

At the regulatory level, it is important to advance in the improvement of legal and non-legal norms that regulate the gold chain at the national level. The current legislation does not ensure sufficient transparency for the chain and, somehow, gives room for fraudulent operations and money laundering practices among other crimes. As suggested by a recent study published by the Instituto Escolhas⁷⁰, among the actions that would contribute to controlling illegality in the gold chain can be mentioned: i) the implementation of a traceability system of origin and environmental and social compliance of gold production and trade; ii) the extinction of the Mining Permit regime; and iii) the repeal of Law 12.844/2013, which deals, among other issues, with the transport and marketing of gold from the mines, and which facilitates "gold laundering".

⁶⁹ <https://oeco.org.br/analises/monitoramento-do-comercio-de-combustivel-de-aviacao-ajuda-no-combate-ao-crime-ambiental/>

⁷⁰ <https://www.escolhas.org/wp-content/uploads/Ouro-200-toneladas.pdf>

Finally, the importance of projects that offer an alternative income source for the Indigenous Communities neighboring the mining areas should also be emphasized. Such initiatives are relevant above all to neutralize the miners' harassment of young Yanomami, who are often seduced by the promises of goods and money that mining work can offer. Today there is a marginal involvement of some Yanomami in mining, who carry out small services such as transporting fuel and supplies to the camps, but in the absence of options, enticement is always more dangerous.

By the way, it is worth mentioning projects that are underway in the Uraricoera River channel, aimed at the handling of native cacao and the commercialization of chocolates, and also the ecotourism venture at Pico da Neblina. Many places severely impacted by mining, however, still do not have similar initiatives, and have also had their schools and health centers abandoned. The resumption of a positive agenda in these regions is key to ensuring that communities become able to recover after years of abuse, violence, as well as environmental and health destruction.

APPENDIX 1

X	Y
-62,14048775	3,438913242
-61,53019185	2,05324039
-61,68661232	2,619029366
-61,89189618	2,126464614
-61,73126692	3,778620858
-61,52345148	2,81416939
-61,54485949	2,818246596
-61,60276129	2,793422869
-61,58873199	2,773645424
-61,59878283	2,765479114
-61,54705692	2,765000842
-61,55145135	2,883507085
-63,87220909	2,582077199

X	Y
-61,58437535	2,829865307
-61,68890816	2,722256802
-61,55614148	2,786621521
-61,43332033	2,718055814
-61,41048119	2,727829916
-61,42492843	2,723420052
-61,53948969	2,836904674
-61,31002488	3,063784751
-61,31523784	3,068268431
-61,11879156	2,992045876
-61,28604328	3,01555312
-61,29714275	3,001372808
-61,46960617	2,828675931

X	Y
-61,6806073	2,620564427
-61,82521553	2,090756209
-61,75740413	2,225802577
-61,82791798	2,099519199
-61,69494897	2,37762736
-61,74482858	2,317380615
-61,57580985	2,87161208
-61,49615377	2,854066307
-61,4892945	2,69976584
-61,51738433	2,690417314
-61,54901443	2,785351874
-61,43980418	2,985963058
-61,72004544	2,657357966
-61,64297818	2,618139793

Table 3:
Location of the
surrounding
airstrips that
are suspected
of providing
logistical support
for mining at TIY.

APPENDIX 2

X	Y	REGION
-62,6572	2,092796	Alto Catrimani
-63,2495	2,348512	Alto Catrimani
-62,8262	2,437829	Alto Catrimani
-62,9514	2,437819	Alto Catrimani
-63,3159	2,356142	Alto Catrimani
-63,3504	2,218384	Alto Catrimani
-63,3419	2,282657	Alto Catrimani
-62,8775	2,317859	Alto catrimani
-63,2776	2,26273	Alto Catrimani
-62,374	2,361071	Apiaú
-62,0672	4,140318	Ericó
-63,3527	2,687331	Hakoma
-63,4689	2,712736	Hakoma

X	Y	REGION
-63,7687	2,535665	Homoxi
-63,6516	2,516967	Homoxi
-63,7544	2,529549	Homoxi
-63,5291	2,577302	Homoxi
-63,0278	2,61823	Kayanau
-63,0409	2,631895	Kayanau
-63,0721	2,648133	Kayanau
-62,9892	2,584638	Kayanau
-63,0064	2,569457	Kayanau
-62,9646	2,605066	Kayanau
-63,2481	2,602505	Papiu
-63,7076	3,116705	Parima
-63,7195	3,279213	Parima

Table 4: Location of clandestine airstrips in the TIY that support illegal mining.

APPENDIX 3

X	Y	REGION
-63,7796	3,159669	Parima
-63,651	3,289519	Parima
-63,1627	2,917705	Surucucus
-63,3036	3,025703	Surucucus
-63,2065	2,969379	Surucucus
-63,4614	3,660605	Waikás
-63,6548	3,724685	Waikás
-63,7272	3,631635	Waikás
-63,4515	3,653814	Waikás
-63,8458	2,550365	Xitei
-63,7877	2,565714	Xitei
-63,8224	2,583014	Xitei

Continuation of Table 4.

X	Y	REGION
-62,6689	2,709086	Alto Mucajaí
-63,7272	2,500983	Homoxi
-62,9087	2,759667	Kayanau
-63,8494	3,283342	Parafuri
-63,1695	3,552101	Waikás
-62,8951	2,49687	Alto Catrimani

Table 5: Location of the community airstrips that are under mining's control or eventually used by miners.