

The spatialization of Covid-19 in Special Indigenous Sanitary Districts in the Legal Amazon

A espacialização da Covid-19 nos Distritos Sanitários Especiais Indígenas da Amazônia Legal

La espacialización de la Covid-19 en los Distritos Sanitarios Especiales Indígenas en la Amazonía Legal

Atamis Antonio Foschiera
Universidade Federal do Tocantins
foschieraa@uft.edu.br

Jair Souza da Silva
Universidade Federal de Catalão
jair_edificacoes@hotmail.com

Abstract

Epidemics in indigenous peoples have been related since the arrival of the colonizers in America, causing an increased number of deaths among these populations. The Covid-19 pandemic has brought a great concern over the indigenous peoples. This article has the objective to present the spatialization of Covid-19 cases among the Brazilian natives in the Legal Amazon, having as reference the Special Indigenous Sanitary Districts (DSEIs). To accomplish this analysis, we used as a basis the published data in the epidemiological newsletters of Special Bureau of Indigenous Health (SESAI) during the period from April sixth 2020 to July sixth 2020, having as a reference date the newsletters published on Tuesdays. The spatialization of Covid-19 in the DSEIs of the Legal Amazon hasn't followed a specific pattern, being the Alto Rio Solimões DSEI the one which had the most confirmed cases during most of the analysis period, in a specific moment the DSEI of Manaus occupied this position and, in the end of the analyzed period, the DSEI of Maranhão state had more confirmed Covid-19 cases.

Keywords: Spatialization. Covid-19. Indigenous. DSEI.

Resumo

Epidemias em indígenas têm sido relatadas desde a chegada dos colonizadores na América, causando um elevado número de óbitos entre essas populações. A pandemia da Covid-19 tem trazido uma grande preocupação em relação aos indígenas. Este artigo tem como objetivo apresentar a espacialização dos casos da Covid-19 entre indígenas na Amazônia Legal, tendo como referência os Distritos Sanitários Especiais Indígenas (DSEIs). Para a realização da análise tomaram-se por base os dados publicados nos boletins epidemiológicos da Secretaria Especial de Saúde Indígena (SESAI), divulgados às

terças-feiras, no período de 6 de abril de 2020 até 6 de julho de 2020. A espacialização do Covid-19 nos DSEI da Amazônia Legal não seguiu um padrão específico. O DSEI Alto Rio Solimões foi o que mais teve casos confirmados durante a maior parte do período de análise, sendo que em momento específico o DSEI Manaus ocupou essa posição. No final do período analisado, o DSEI Maranhão passou a ter mais casos confirmados da Covid-19.

Palavras-Chave: Espacialização. Covid-19. Indígenas. DSEI.

Resumen

Desde la llegada de los colonizadores en América han sido reportadas epidemias en pueblos indígenas, que han provocado un gran número de muertes entre estas poblaciones. Se ha suscitado una gran preocupación con los pueblos indígenas en la pandemia de Covid-19. El objetivo de este artículo es presentar la espacialización de los casos de Covid-19 entre indígenas de la Amazonía Legal, teniendo como referencia los Distritos Sanitarios Especiales Indígenas (DSEIs). Para realizar este análisis fueron utilizados los datos publicados en los boletines epidemiológicos de la Secretaría Especial de Salud Indígena (SESAI) desde el 6 de abril de 2020 al 6 de julio de 2020. Estos datos están basados en los boletines publicados en todos los martes del período analizado. La espacialización de la Covid-19 en el DSEI de la Amazonía Legal no siguió un patrón específico, siendo el DSEI Alto Rio Solimões el que tuvo la mayor cantidad de casos confirmados durante la mayor parte del período de análisis. Por su vez, el DSEI Manaus ocupó esa posición en un momento específico. Al final del período analizado, el DSEI Maranhão comenzó a tener más casos confirmados de Covid-19.

Palavras clave: Espacialización. Covid-19. Indígenas. DSEI.

Introduction

The Covid-19 pandemic exposes not only indigenous peoples to a tragic situation lived among themselves since the colonization period, concerning how to deal with diseases to which they don't have immunity nor vaccine for their prevention, as well as having to live with the uncertainty of contamination and, just in case it occurs, which impacts can be caused on people and communities/societies.

To the indigenous people of America, the diseases brought in from abroad had more harmful effects than the direct confrontations themselves with non-indigenous people, being one of the weapons used by the invaders, consciously or not, to assure their domain on lands and territories and subdue the natives to their interests.

Currently, everybody under the same threat, Covid-19, which doesn't choose color, ethnicity, religion, gender, gender, nationality and social class to choose their prey, whether in a softer way or with fatal victims, we see that the democracy in it in attacking its prey isn't so democratic when concerning its effects and how to face it. More vulnerable social groups, social and economically, are more exposed to the grievance of the disease. Among those groups, the indigenous peoples, in this case more specifically on Indigenous Lands (ILs) of Legal Amazon, tend to suffer great evils of this Covid-19 pandemic.

The Legal Amazon was the designation which has prevailed over the coverage area of the Plano de Valorização Econômica da Amazônia (Plan of Economic Valorization of the Amazon), created by the Law No. 1,806, in 1953. This law, in its Article 1, points out that the Plan was composed by

[...] a system of measures, services, enterprises and construction works, destined to improving the development of the extractive and agricultural production, livestock, mineral, industrial productions and trading relationships, aiming better social condition patters and economic well-being of the populations of the region and the expansion of wealth of the country. (CONGRESSO NACIONAL, 1953, p. 1).

According to the referred law, the Legal Amazon was composed by the states of Pará and Amazonas; by the federal territories of Acre, Amapá, Guaporé and Rio Branco; by part of the state of Mato Grosso, to the north of the 16° parallel, and part of the state of Goiás, to the north of the 13° parallel, and part of Maranhão state, to the north of the 44° meridian. Currently, according to the Complementary Law No. 124, of 2007, the Legal Amazon comprehends the following federation units: the states of Acre, Amapá, Amazonas, Mato Grosso, Rondônia, Roraima, Tocantins, Pará and Maranhão – at its west portion of the 44° Meridian (SUDAM, 2020).

The objective of this article is to present the spatialization of the Covid-19 cases among indigenous people in Legal Amazon, having as a reference the Distritos Sanitário Especial Indígena¹ (DSEI). There are 34 DSEIs altogether in Brazilian territory, in Legal Amazon there are 25 of them (Image 01).

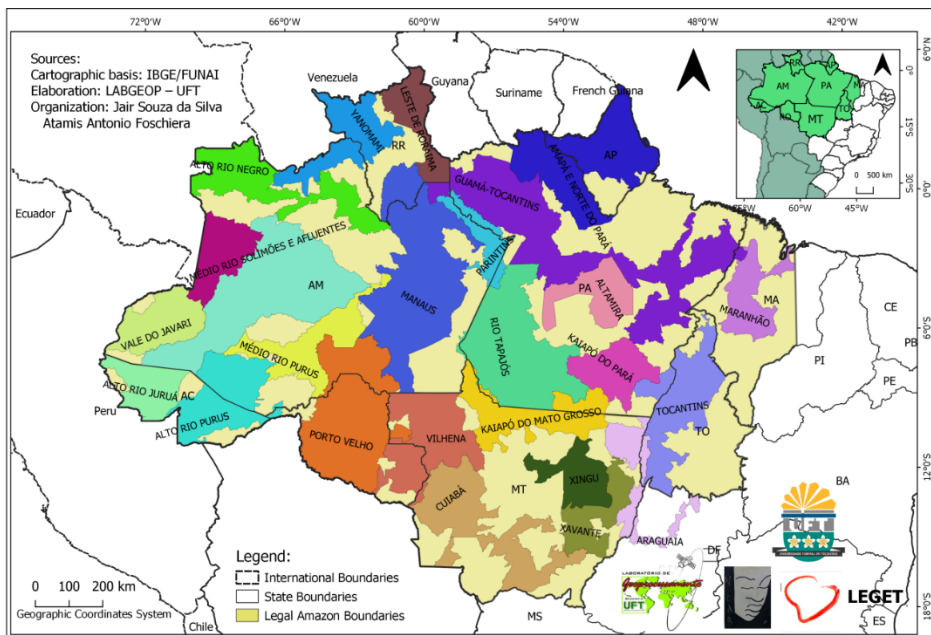


Image 01: Location map of the Distritos Sanitários Epeciais Indigenas (DSEI) in Legal Amazon

¹ Indigenous Special Sanitary District.

According to the Ministry of Health (2020):

The Distrito Sanitário Especial Indígena (DSEI) is a decentralized management unit of the Subsistema de Atenção à Saúde Indígena² (SasiSUS). It's a model of organization of services – guided to a dynamic ethno cultural space, geographical, populational and administrative one well delimited – which contemplates a set of technical activities, aiming rationalized and qualified measures of health care. It promotes the reordering of the health network and sanitary practices and it develops administrative-management activities necessary to provide assistance, with the Social Controlling.

In the theoretical framework are presented different experiences of epidemics through which indigenous people were affected by across history, with emphasis to the ones occurred in Legal Amazon's surrounding area.

To create the maps, the software Quantum-GIS (Q-GIS) 3.10 was used – The Coruña. The vectors were imported from the Maps Portal of Instituto Brasileiro de Geografia e Estatística (IBGE)³ and the Maps of the Portal Fundação Nacional do Índio (FUNAI)⁴. The information used to create the maps were based on Epidemiologic Newsletters of the Secretaria Especial de Saúde Indígena (SESAI)⁵ published on Tuesdays, during the period of analysis, which occurred from April 6th 2020 to July 6th of the same year, embracing the period in which occurred the first Covid-19 case in a DSEI until the date in which all the DSEIs presented at least one case.

The maps were organized for A4 paper size and, besides the legend data, information over the number of confirmed Covid-19 cases were inserted along the data of deaths of each DSEI in the interior of each map.

Indigenous Epidemics in Brazil

The arrival of the Europeans in America represented an important milestone in the history of mankind. Beliefs and myths were told by visitors and religious people, including the wonders of this land, with peoples of great health, with no illnesses, emphasizing their longevity, no physical disabilities, in a perspective of a good savage, the existence of an island of warrior women, in analogy to the Greek mythology of the Amazons. Also, in another perspective, they emphasized the ferocity of the natives, possessed by evil spirits, adept to cannibalism and other bestialities, which created suspicious if they were really human beings. In the end of the XVI century, descriptions of Brazil pointed out a “hot and sick land as a volcano”, considered improper to a health and calm life (GURGEL, 2009, p. 133).

² Subsystem of Attention to Indigenous Health.

³ Brazilian Institute of Geography and Statistics.

⁴ Indigenous National Foundation.

⁵ Special Department of Indigenous Health.

The right thing is that the people who lived here passed through different periods with the arrival of European colonizers, in the end of the XV century, changing the course of its history. Unknown diseases in the continent, the ones which social groups present here had no immune resistance to it, as well as armed confrontations between non indigenous and indigenous people, or between indigenous people themselves incentive by non-indigenous people, besides the alterations of the ecosystems by the non-indigenous people aiming the exploration of the land and the need to migrate and/or the escape of indigenous people to environments with few food offer, and the like, caused a drastic decrease of the natives in the American continent.

The estimates of native populational loss between 1492 and 1650 are varied: some authors mentioned 25%; other even stipulate 96% (GURGEL, 2009). The author emphasizes, also, that the prevision of populational quantitative of indigenous at the moment of the arrival of the colonizers varied from 8,400,000 to 112,550,000 people. Taking into account the lowest populational estimate, with a loss of 25%, there was a decrease of 2,100,000 people. Although in the estimative of 96% of populational loss, the one would represent a decrease of 8,064,000 people. Considering the greatest populational estimative, the 25% loss would represent a quantitative of 28,125,000 people. Regarding the 96% estimative, it would represent a populational loss of 108,000,000 people.

In relation to Brazil, the country had a population of about five million people, which was gradually decimated by punitive expeditions to its religious manifestations and its resistance movements, by the social destructuring, the economical one and the collective values, but, “mainly, due to the epidemics and infectious diseases, which impact was favored by the changes in their lifestyle imposed by the colonization and Christianization” (BRASIL, 2002, p. 7).

According to the estimates of IBGE (2000), it was expected that in the XVI century the country had a population of almost two million five hundred indigenous people. It's important to point out that in 1998 there was, living in indigenous lands, 302,888 natives. In this relationship between natives and exogenous population, the biggest responsible by the decrease of the formers, more than weapons, were the diseases, mainly epidemics, which caused the low immunity of the indigenous, a path to its decrease in population.

In relation to the low immunity of the indigenous people and the capacity of organic response to the infections, Gurgel (2009) points out two possible causes: one associated to the lack or absence of domestic animals among indigenous peoples, without the trade of microorganisms, which would take to a greater exposure to aggressor agents without the conditions to fight against them; another one would have a relation to the geographic isolation towards the other continents, which would lead to a low immunity of these groups.

There were diseases among the Brazilian indigenous people caused by several species of mites, tapeworms, parasites, etc., for which they've already gotten some immunity by exposition to those organisms, acquiring antibodies, which, adding up to their knowledge over medicinal plants and other health practices, associated to their rituals, made it able for them to fight against them. Also their seminomadism could be responsible for preventing diseases caused by parasites (GURGEL, 2009). The author justifies this theme while

emphasizing that the “natives berried their feces, but the continuous occupation of a site allowed the soil and water contamination by micro and macro organisms, potentially causers of infirmities” (GURGEL, 2009 p. 48).

The issue of the indigenous health has suffered meaningful changes with the arrival of the colonizers, who brought new diseases, originated in Europe and other continents where they circulated, and accelerated with the arrival of people coming from Africa. The terrible hygienic conditions of the ships, the lack of nutrition during the trip, the lousy conditions of food and water preservation, the fragile health of many of the crew members of the ships which were a focus of diseases, all of that already caused the loss of many crew members still on trips (GURGEL, 2009).

Gurgel (2009, p. 84) refers that, “besides scurvy, the most frequent causes of morbidity and death on board [of ships] were fever of diverse origins and digestive disorders”. Fungus, bacteria, virus, protozoan, all sorts of parasites, found on ships their own spreading means. The author points out as main existing infections on ships the smallpox, measles, diphtheria, scarlet fever, mumps, whooping cough, tetanus and tuberculosis.

When these diseases arrived in America they were transmitted to the local populations by missionaries, soldiers, mercenaries, settlers and other social groups that had started having contact with the natives. The more deadliest victims of this encounter were the indigenous peoples, that, controlled by the non-indigenous ones, by faith or strength, were converted to Christianity and “transformed themselves in work force for the government, settlers or the church itself” (GURGEL, 2009, p. 112).

Since the arrival of the Europeans until recent years the indigenous were stricken by a series of epidemics with drastic consequences to their population. Usually called as “plague”, the epidemics occurred in all the regions of Brazil across the centuries.

Gurgel (2009) makes a description of the epidemics that took place in Brazil in the XVI and XVII centuries, showing how much they impacted the indigenous population in the country. The “pioris” epidemic (pleuris, a kind of pneumonia), in 1553, had catastrophic results, according to José de Anchieta. The flu epidemic (possibly swine) in the Captaincy of São Vicente, in 1554, decimated entire families of Tupinambás. The “pioris” epidemic and the “blood chambers” (hemorrhagic diarrhea) overtook the Captaincy of Espírito Santo, between 1558 and 1559, killing over 600 indigenous.

The smallpox, which had arrived initially in Itaparica (BA), spread itself through a wide area of Brazil between 1563 and 1564, estimating the death of over 30 thousand indigenous. Regarding this epidemic in Espírito Santo, a priest at that time wrote that the “mortality was so big, that the same house could become a nursery for sick people and cemetery for the dead” (GURGEL, 2009, p. 125).

In the XVI century, according to Gurgel (2009), a series of smallpox epidemics were registered in different parts of Brazil, especially in the most dynamic economic poles of the time. The same author relates outbreaks that occurred in 1616, 1621, 1631, 1642, 1662-1663, 1665-1666, and 1680-1684. In 1695 there was the first outbreak of the referred disease

in Rio Grande do Sul, but the author doesn't discard the possibility of having other outbreaks before.

Gurgel (2009) describes that the smallpox had such a huge effect among the Potiguaras indigenous people, that after 25 years of military resistance to the Portuguese, the few who survived surrendered themselves and were recruited to fight against the Aimorés people, that posteriorly were also stricken by that and other diseases.

The understanding of the destructive power of the smallpox over the indigenous people made the settlers, trying to take over the lands, let contaminated clothing next to the villages which population they desired to extinguish. Gurgel (2009, p. 128) wrote that that's how "the first biological weapon was originated in the history of the Americas and these evil practices, far from being the exception, perpetuated in the following centuries".

The measles also made many indigenous victims. Calainho (2010, p. 71) registers a measles epidemic in 1563, without presenting the place, that "increased the indigenous demographic crisis, affecting the colonial economy, in those times where they depended of slaves' work force in the sugar mills and the production of native food". Gurgel (2009) informs that in 1615 the outbreak happened in the province of Grão-Pará and Maranhão, striking, especially, the "domesticated" indigenous. A new outbreak happened in 1688 in the province of São Vicente, and in Ceará there were several of them, being the first one in 1691.

In these first centuries it was rare to find doctors who worked in Brazil and, where it was possible to find them, they attended a selective social group. The medicinal practices were done, overall, by laymen, among them shamans (pajés), among the indigenous people, and the priests, mainly Jesuits. The Brazilian flora was the main element of recipes used for the diseases. The indigenous knowledge over this matter was fundamental, and the religious people were taking over it little by little. The missionaries had the advantage of a "hybrid medicine", gathering the indigenous knowledge and of people of other continents, since there was the circulation of information about the diseases and ways of treatments in several continents in which there were religious people operating (GURGEL, 2009).

Medicine, magic and religion walked together in this period, as for religious people as for the natives, however, with the disagreement in the belief of the origin of the disease: "[...] if for the Brazilian Indian they [the diseases] meant that the victim had their souls stolen by some evil entity – what allowed the installation of the illness –, for the missionary this soul was of a sinner who deserved punishment and redemption" (GURGEL, 2009, p. 170). The hybrid medicine of the religious people made them the "new shamans" of many indigenous, an image that had many criticisms. The destruction of the image of the shaman was important, because they were seen as knowledge holders in indigenous communities. With the discredit of the shamans, the missionaries opened a path to what they've said to be the true and only knowledge, the Christian God, who they've represented (CALAINHO, 2005).

Some reports of the epidemics in indigenous people in Legal Amazon

Talking about more specifically of the area which comprehends the Legal Amazon, there are places where the contact between non-indigenous and indigenous

people would happen still in the first centuries of colonization and others in the 1980's, as well as there are indigenous people who were not contacted. Although the time difference, the result in common was the death of a considerable number of indigenous by epidemics, armed confrontation, shortage due to forced migration, as well as the subordination of indigenous to the capital's commands that tried to take over their lands.

Porro (1992, p. 176) points out that "in the last years of the XVII century the meadow of the Amazon was practically deserted and infested by the epidemics brought by the non-indigenous people". The author says that in 1647 a smallpox epidemic, that lasted three months, decimated a third of the Omáguas' population.

Renard-Casevitz (1992) describes that, in High Amazon, in 1643, a first epidemic would have killed over two thousand people. The author also says that between 1665 and 1667 a series of epidemics took over the missionary posts, causing thousands of deaths. This fact united the Kampa, Piro and Pano indigenous groups, which started fighting against non-indigenous, missionaries and neophytes (new Christians), banning them from their lands. She emphasizes that the Arawak population, of about 150 thousand people, was reduced to 85 thousand and, with the rubber *boom*, there was no more than 50 thousand people.

In relation to the river basins of rivers Madeira and Tapajós, Menéndez (1992) points out that, in the second part of the XVII century, the presence of the non-indigenous who searched for drugs in the hinterlands and indigenous slaves, added to the missionaries, has taken into a destructuring of the indigenous organizations. As a consequence of this presence, due to the hostility and the epidemics that happened there, there was a decrease of the population of Tupinambás, Tapajós and Iruri. The use of mercenaries, mainly Mundurucu indigenous, was widely used by the settlers to expand their domain in the Madeira-Tapajós area.

Santilli (1992) mentions a smallpox epidemic in the 80's, in the XVIII century, that initiates in Rio Negro and was spread throughout Rio Branco by the indigenous who escaped from the quarantine of the barges. Erikson (1992) reports the depopulation of a third of the Ucayali due to epidemics (and alcoholism) in the XIX century, even that after the *boom* of rubber and mortality there'd be a considerable increase. According to OPAN/CIMI-MT (1987), the Western Bororos, also known as Coroados or Porrudos, were extinct in the end of the XIX century due to epidemics or crossbreed with non-indigenous people.

In its dossier, the OPAN/CIMI-MT (1987, p. 21) also emphasizes the deliberated introduction of smallpox, flue, tuberculosis and measles by speculators and landowners, with "an uncountable number of indigenous died quickly". Quoting Davis, the publication emphasizes the disappearing of entire villages because of the epidemics of smallpox and yellow fever.

Turner (1992) registers that the Ira'a Mrayre indigenous group, also known as Pau d'Arco, which in 1909 was considered a big group, with about a thousand people, disappeared in the 1940's, due to a series of conflicts with the settlers, by diseases and

epidemics. The author also mentions the extinction of an indigenous group called Djores in the same period of time and by the same causes.

A wave of new epidemics among indigenous peoples would occur in the 1940's, with the presence of the members of Roncador-Xingu Expedition. Franchetto (1992) quotes a violent epidemic of measles, in 1954, that reached the villages of Alto Xingu. The Dossiê Índios in Mato Grosso points out the extinction of the Nararute indigenous nation and the populational decrease of other ones due to the flu and measles epidemics brought by the members of Roncador-Xingu expedition, in the 1940's (OPAN/CIMI-MT, 1987).

Ravagnani (1987-1989) quotes the formation of an indigenous village where currently is located the city of Pedro Afonso in Tocantins. He points out that, according to information by the responsible fray (Rafael Targgia), in 1857 there were about 3,800 Xavantes and Xerentes indigenous in villages. The author also emphasizes that, in the end of the century, there weren't more than hundreds of Xerentes and no Xavante. The fray described in his diary that many indigenous were decimated by the frequent epidemics and invasions from the pioneers ("bandeirantes").

The OPAN-CIMI-MT Dossier (1987) mentions the unprepared of the military considering how to deal with the indigenous, getting to the point of transmitting contagious diseases, overall in the measles epidemic, of 1954, which attacked all the villages of Alto Xingu, causing many deaths, revealing the negative effects of their presence.

In relation to the Xavantes indigenous people, Lopes da Silva (1992) mentions a flu epidemic in 1954-1955, when they were located by Kaluente river, located in the west of Mato Grosso. The OPAN-CIMI-MT Dossier (1987) also points out that the Xavantes suffered many losses, in the 1950's, by epidemics, due to the contact with non-indigenous people. This document also registers that the Rikbaktsa people, also known as Canoeiros, in the end of the 1950's and beginning of the 1960's, in the pacifying period and posterior moment, were impacted by epidemics such as flu, measles and smallpox, resulting on the loss, of about, 75% of their population.

The OPAN-CIMI-MT Dossier (1987), also points out that the Arara indigenous group, which lived in Mato Grosso, by Aripuanã river, was stricken by an epidemic in the 1960's, decimating almost all the old population and a part of adults and children. Ribeiro (1996) registers a measles epidemic, which stricken the indigenous people in Vale do Guaporé – Tupuri, Makurap, Arikapu, Jajuti and the like –, causing high mortality. As an example, there's the Tapuri case, who had about 200 members and were reduced to 65 people.

With the 1970's as a reference, the OPAN-CIMI-MT Dossier (1982) relates a series of epidemics in indigenous groups. A measles epidemic stricken the Nambikwaras people in 1972, killing all the children of the tribe. Also, in that same year, farmers were reported by using a defoliant called Tordon⁶, to improve the deforestation of indigenous

⁶ This product has in its composition the Orange Agent, used by the army of the United States at Vietnam war with the objective of decimating the agricultural crops and defoliate where the Vietcong armies were hidden.

lands. The several forced migrations of the Bakairi people caused a separation of this group, which was highly reduced by epidemics. The Suruí people were impacted by flu and measles epidemics, decreasing their population more than 50%, in interest areas of squatters, farmers and gold prospectors, in the 1970's. A flu epidemic stricken the Cinta-Larga people, also in the 1970's.

Another group that was highly impacted by epidemics and practically decimated was the Umutinas. According to the OPAN-CIMI-MT (1987), the Umutinas were stricken by flu, measles, bronchopneumonia and tuberculosis. This indigenous group, that was estimated, in 1826, as having 400 people, in 1920 had 150, in 1923 with 23 people, and 50 orphan children were under State care in the headquarters of Posto Fraternidade Indígena. In the end of the 1980's it was known the existence of only one person of this origin, "who has left the village at the age of 12, and would be the last representative of the independent Umutinas" (OPAN-CIMI-MT, 1997, p. 74-75).

Sá (2003) reports an outbreak of malaria in indigenous of the amazon region, in some cases evidenced by the contact with gold prospectors and people of colonization projects, as well as by the great traffic between the members of different villages. The author refers to the increase of more than 500% in malaria cases among the Yanomami between 1987 and 1989, being the greatest mortality cause in this group. In the 1990's this scenery was maintained.

The conflicts with non-indigenous people or provoked by them and the forced migrations to places that many times didn't have food in abundance highly contributed to the depopulation of indigenous people in Brazil, especially in Legal Amazon. However, besides all that, the great element that defalcated the indigenous in relation to the non-indigenous was their weak immunity against diseases from overseas. "Without an efficient immunity, the intended wars or in fact fought against the colonizers were already lost, before initiated" (GURGEL, 2009, P. 175).

For almost all the period of presence of non-indigenous people in Brazil, not much was done for the politics of indigenous health. Meanwhile, the expansion of diseases and epidemics was a means of expropriating their territories. After half of the XX century there was the beginning of a more structured politics turned to the indigenous health (BRASIL, 2002).

Structure of the indigenous health and Covid-19

According to the Demographic Census of 2010 (IBGE, 2010), in Brazil, there were 896,917 indigenous, which, of this total, 58% lived in Indigenous Lands and 42% out of those ones (Chart 01).

Chart 01: Indigenous people, by location of domicile in Brazil in 2010.

Location	Total	In IL	% in IL	Out of IL	% out of IL
Brazil	896,917	517,383	58%	379,534	42%

Source: IBGE (2010).

In 2010, of the total of indigenous who lived in Brazil, 48% were located in Legal Amazon and 52% out of this region. Considering that only the indigenous population who lived in Indigenous Lands, in Legal Amazon there were 63% of the total, while, in other areas, 37%. The indigenous population who lived out of Indigenous Lands, 29% were in Legal Amazon and 71% in other areas (Chart 2). It's demonstrated here that, although Legal Amazon houses less indigenous people than other areas of the country, considering only the ones who live inside Indigenous Lands this situation is altered, making this area the one to have the biggest population.

Chart 02: Indigenous people, by location of domicile, in and out of Legal Amazon– 2010

Location	Total	%	In Indigenous Lands		Out of Indigenous Lands	
			People	%	People	%
Brazil	896,917	100%	517,383	100%	379,534	100%
Legal Amazon	433,363	48%	324,037	63%	109,326	29%
Out of Legal Amazon	463,554	52%	193,346	37%	270,208	71%

Source: IBGE (2010).

The indigenous health, across time, has passed through different structures. Currently, it has as a reference the Secretaria Especial de Saúde Indígena (SESAI), which comprehends 34 Distritos Sanitários Especiais Indígenas (DSEIs), 360 Polos-Bases, 66 Casas de Saúde Indígena⁷ (CASAI) and 882 Unidades Básicas de Saúde Indígena⁸ (UBSIs) (MINISTÉRIO DA SAÚDE, 2017).

The SESAI was created by claim of the own indigenous people in the course of the accomplishment of National Conferences of Indigenous Health, because they were unhappy with the management health model to which they belonged to.

According to the Ministry of Health (2017, p. 10), SESAI's main mission is:

[...] the exercise of indigenous health management, aiming to protect, promote and recover the health of indigenous peoples, as well as to guide the development of the actions of full attention to the indigenous health and education in health according to its peculiarities, the epidemiologic profile and the sanitary condition of each Distrito Sanitário Especial Indígena (DSEI), in accord with the policies and programs of the Sistema Único de Saúde (SUS).

The DSEIs attend people who live in Indigenous Lands. For the ones who live in urban areas the primary attention is responsibility of the municipalities. Each DSEI organized a "Plano de Contingência Distrital para Infecção Humana pelo novo Coronavírus"⁹ (COVID-

⁷ Indigenous Health Hospital.

⁸ Basic Units of Indigenous Health.

⁹ District Contingence Plan for Human Infection by the new Coronavirus.

19)”.¹⁰ These plans had as a reference the Plano de Contingência Nacional para Infecção Humana pelo Coronavírus em Povos Indígenas¹¹, which sought quick answers for the prevention and control of health emergencies due to the pandemic of Covid-19.

The SESAI enables and updates the data regarding Covid-19 in the DSEIs *online* daily¹². The non-profitable organization Instituto Socioambiental¹³ (ISA) points out that the official information doesn't present the entire reality of the pandemic evolving the indigenous peoples. It also emphasizes that, as the DSEIs englobe several peoples and Indigenous Lands, it's not possible to dimension the most affected regions and people. The ISA (2020) emphasizes the parallel systematization of data by the Articulação dos Povos Indígenas do Brasil¹⁴ (APIB), with the objective of presenting greater detailing of information, however, in the dates which information was sought in the indicated website, the page presented error.

The ways of dissemination of Covid-19 among indigenous are clear, but there is some hypothesis that are being pointed out in the news, in different kinds of media, that were emphasized by Foschiera and Silva (printed).

One of these hypothesis is that the contact of indigenous and non-indigenous with Coronavirus in capitals of states such as Manaus, Belém and Macapá and further travels of those people by ship, even before it was accounted by the health system, can be responsible for the dissemination in several inland harbors in the Amazon in Indigenous Lands (MEDEIROS, 2020).

Another hypothesis is the possibility that militaries from the Air Force, in the name of the Ministério da Saúde, had introduced the virus in indigenous villages in the north of Pará, boundary with Suriname. Militaries were diagnosed with the virus, and indigenous who worked in a service provider company to the Air Force would have been contaminated as well.

One more hypothesis of the way of dissemination of Covid-19 can be the presence of illegal prospectors in Indigenous Lands, who had contact with their residents.

Another hypothesis is the presence of indigenous in bank queues in moments of great movement in the agencies due to the release of the emergency aid related to Covid-19. There wasn't a strategy that would take into account the indigenous specificities. And also that members of indigenous health teams who live in cities were contaminated, however they didn't have symptoms yet, and while going to work in Indigenous Lands they would have spread the virus.

The ISA (2020) reminds that the technical newsletter of SESAI, recommending the family isolation of those who had symptoms or had confirmed contamination by Covid-19 and did not need hospitalization, spread quickly the dissemination in shared houses, where in

¹⁰ Website Planos: <https://drive.google.com/drive/folders/1NypkAgVkBQU5ztQ4yWVgh1bgxdiBlBhh>

¹¹ National Plan of Contingence for Human Infection by Coronavirus in Indigenous Peoples.

¹² See website: <https://saudeindigena1.websiteseuro.com/coronavirus/boletimEp.php>

¹³ Socio-environmental Institute.

¹⁴ Articulation of Indigenous Peoples of Brazil.

some of them lived twenty to thirty people or more. The entity also points out the Casas de Apoio à Saúde Indígena focusing on the dissemination of the virus, infecting indigenous who were settled there in search of health assistance.

Further researches will be able to confirm or refute the presented hypothesis, as well as determine other ways of dissemination and spatialization of Covid-19 in Indigenous Lands in Legal Amazon.

Covid-19 Mapping in the dseis in Legal Amazon

The first Epidemiological Newsletter enabled by the Secretaria Especial de Saúde Indígena was released on March 24th 2020, presented suspicious cases of Covid-19 in Xavante, Maranhão and Cuiabá DSEIs.

The results of the tests of these suspicious cases were negative. The first positive case registered was on April 1st 2020, in Alto Rio Solimões DSEI.

On April 6th 2020 only Alto Rio Solimões DSEI presented confirmed cases of Covid-19, on a total of four, and no deaths (Image 02).

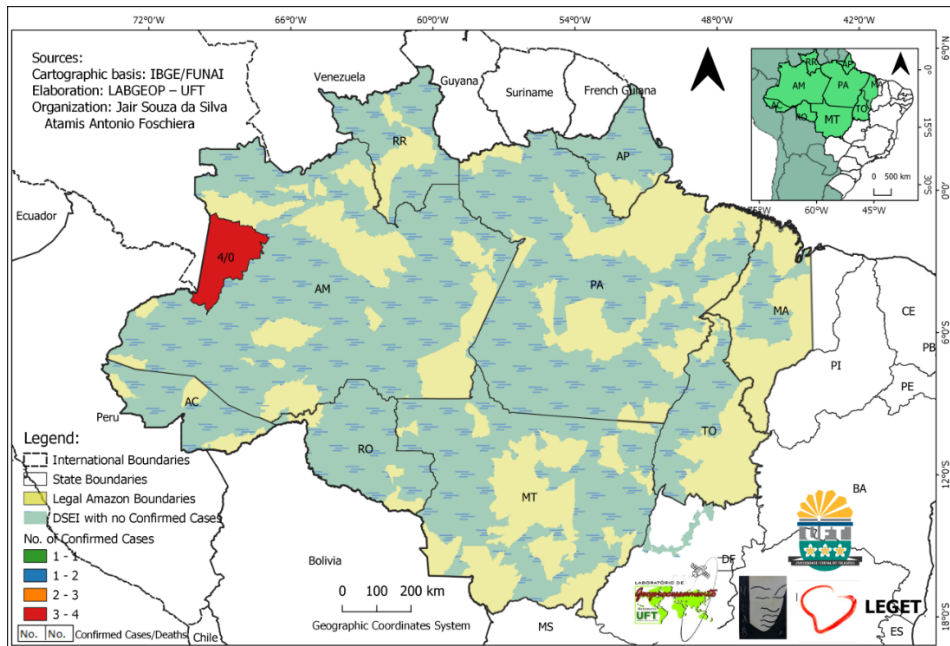


Image 02: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Especiais Indígenas (DSEI) in Legal Amazon, until 04/06/2020.

On April 13th 2020 there were confirmed cases of Covid-19 in four DSEIs in Legal Amazon. Besides Alto Solimões DSEI, with eight cases, there were six people infected in Manaus's, one in Parintins's and another in Yanomami, on a total of sixteen

cases. On that date there were already two deaths of indigenous at Alto Solimões DSEI (Image 03).

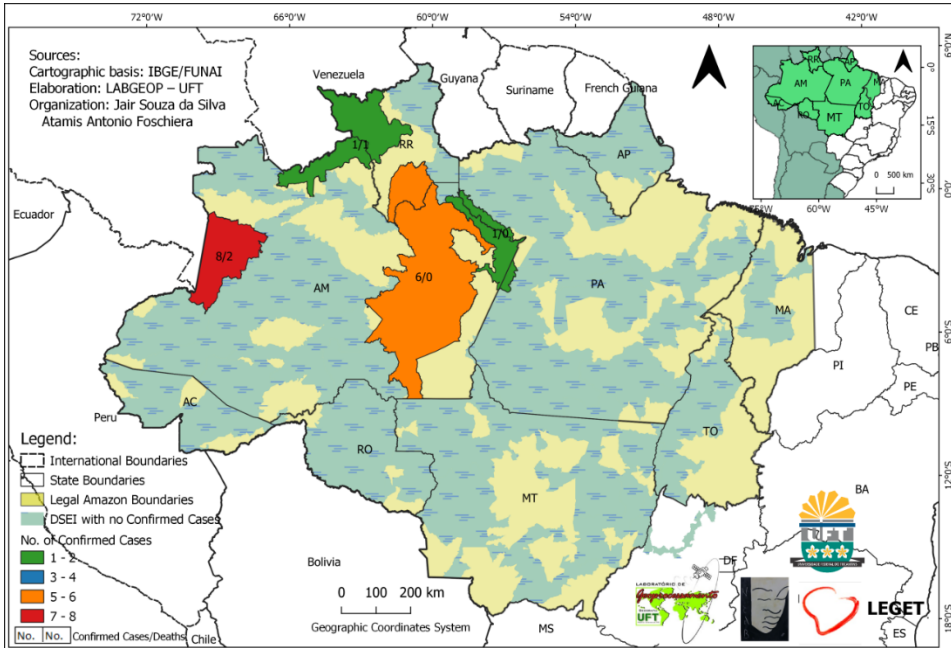


Image 03: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Índigenas (DSEI) in Legal Amazon, until 04/13/2020

On April 20th 2020, the confirmed cases of Covid-19 were still limited to four DSEIs in Legal Amazon abovementioned, with only the increase in number of cases in relation to the previous week. The Alto Solimões DSEI increased from eight to ten confirmed cases; the Manaus DSEI increased from six to fifteen confirmed cases; although the Parintins and Yanomami DSEIs remained with one case each, on a total of thirty cases. The Manaus DSEI had become the one that presented the most number of cases. There were new death cases (Image 04).

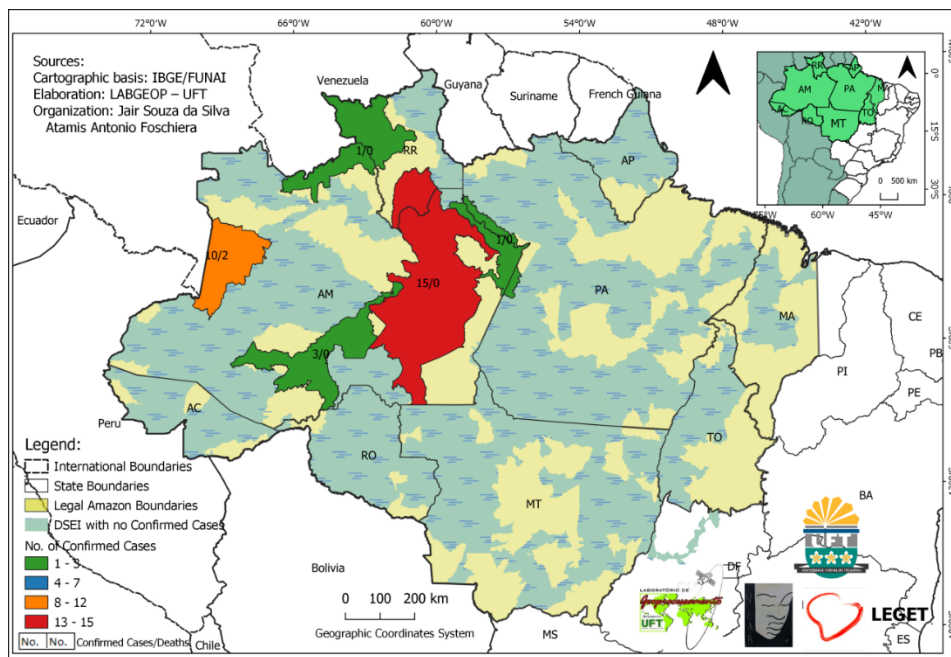


Image 04: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Índigenas (DSEI) in Legal Amazon, until 04/20/2020.

On April 27th, seven DSEIs in Legal Amazon presented confirmed cases of Covid-19, among them: Alto Rio Solimões, Manaus, Parintins, Médio Solimões e Afluentes, Médio Rio Purus, Amapá and North of Pará and Yanomami. The Parintins DSEI had a meaningful increase in the number of cases, increasing from one case to seventeen confirmed cases until that date. The Alto Solimões DSEI was again the one to have the greatest number of cases on that date, with 42 confirmed cases. On the whole, Legal Amazon presented 84 confirmed cases of Covid-19.

On that date there was one more death, in Parintins DSEI, on an accumulated total of four (Image 05).

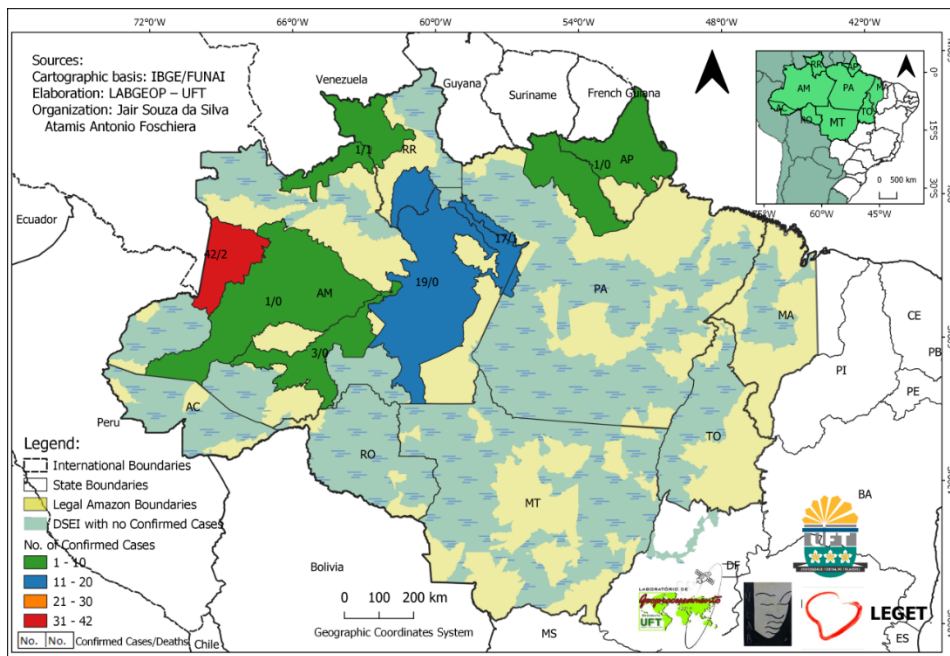


Image 05: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Índigenas (DSEI) in Legal Amazon, until 04/27/2020.

On May 4th 2020 there were confirmed cases of Covid-19 at eleven DSEIs in Legal Amazon, among them: Alto Rio Solimões, Manaus, Parintins, Médio Solimões e Afluentes, Médio Rio Purus, Amapá and North of Pará, Yanomami, East of Roraima, Gumá-Tocantins, Altamira and Alto Rio Negro. Among the DSEIs which presented for the first time confirmed cases of Covid-19 and the ones which already had it, the increase did not overcome the number of three cases a day, except for Alto Rio Solimões DSEI, which had a considerable increase, from 42 to 72 confirmed cases, on a total of 126 cases.

On that date there were already eight deaths, one at Parintins’s DSEI, another at Yanomami’s and six at Alto Rio Solimões’s DSEI, although this last one on the previous that had only two cases (Image 06).

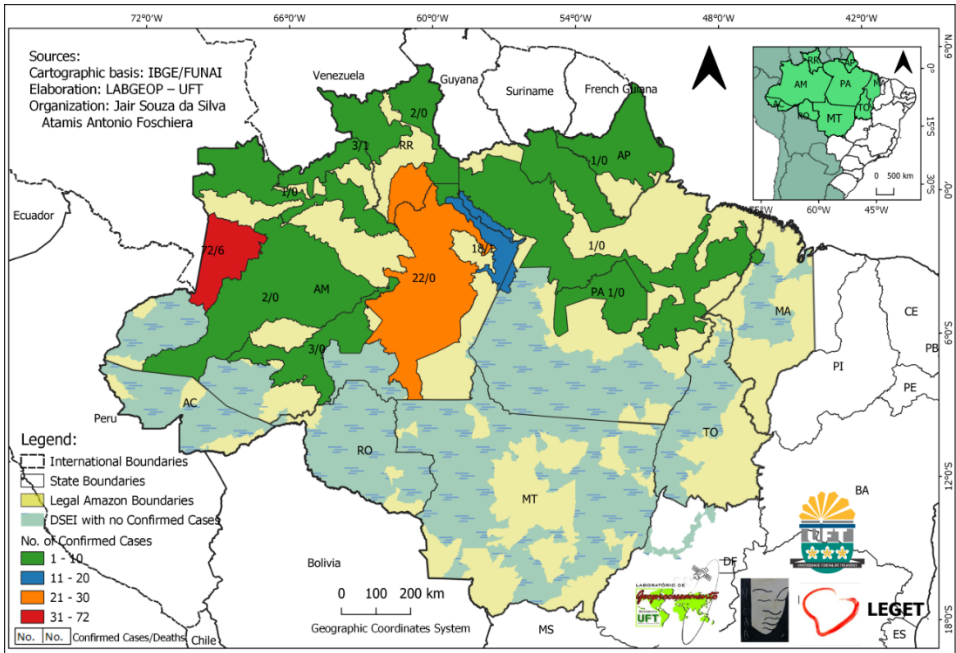


Image 06: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 05/04/2020.

On May 11th 2020 there were still confirmed cases at eleven DSEIS of the previous that in Legal Amazon. On that date two DSEIs stood out, by the greatest percentages of growth, which were Guamá-Tocantins, with 400%, going from one to five cases, and Yanomami’s, with 366%, going from three to fourteen confirmed cases. In absolute numbers, the greatest increase was at Alto Rio Solimões DSEI, from 72 to 100 confirmed cases, on a total of 188 cases.

The number of deaths increased 100%, from eight to sixteen, with emphasis to new cases at Guamá-Tocantins DSEIs and East of Roraima with one death each, and Alto Rio Negro with two, as well as a meaningful increase at Alto Rio Solimões, from six to ten deaths (Image 07).

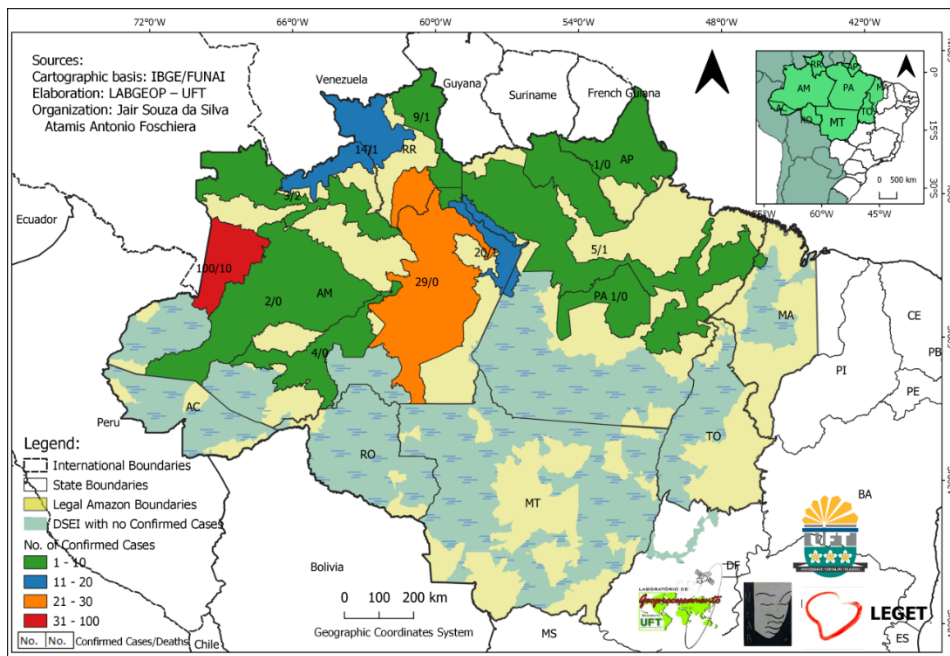


Image 07: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 05/11/2020.

On May 18th 2020 there were DSEIs in Legal Amazon with confirmed cases of Covid-19, with new cases in Vale do Javari and Xavante, with a new case each; Porto Velho, with three, and Maranhão, with seven. In percentage increase the Alto Rio Negro DSEI stands out, with 200%, from three to nine confirmed cases. In absolute numbers, the Alto Rio Solimões DSEI went from 100 to 173 cases, distinguishing a lot from the other ones. On the whole 320 confirmed Covid-19 cases were accumulated.

There were two new deaths – one at Alto Rio Solimões DSEI and another at Guamá-Tocantins’s –, on a total of twenty (Image 08).

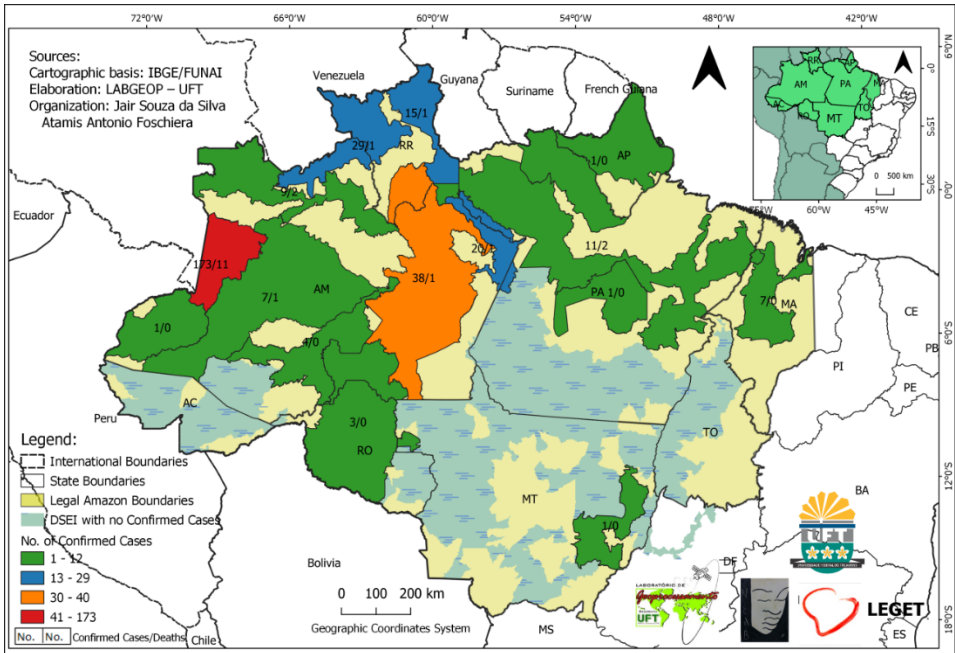


Image 08: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 05/18/2020

On May 25th 2020 there were eighteen DSEIs in Legal Amazon with confirmed cases of Covid-19, being add to those ones the Caipaó do Pará, with nine cases, Rio Tapajós and Alto Rio Purus, both with three cases. In percentage increase the DSEI of Médio Rio Solimões e Afluentes stands out, with 529%, from seven to 44 confirmed cases; Maranhão's, with 471%, from seven to 40 cases; and Guamá-Tocantins, with 227%, from eleven to 36 cases. In absolute numbers, the Alto Rio Solimões DSEI went from 173 to 286 cases, while Manaus's from 38 to 78, both distinguishing a lot from the others. On that that there were 633 confirmed cases of Covid-19 at DSEIs in Legal Amazon.

The last week there were sixteen new deaths: eight at Alto Rio Solimões DSEI, three at Médio Rio Solimões e Afluentes, and at Manaus, Guamá-Tocantins, Alto Rio Negro, Xavante and Tapajós DSEIS there was one death each. On the total there were 35 deaths (Image 09).

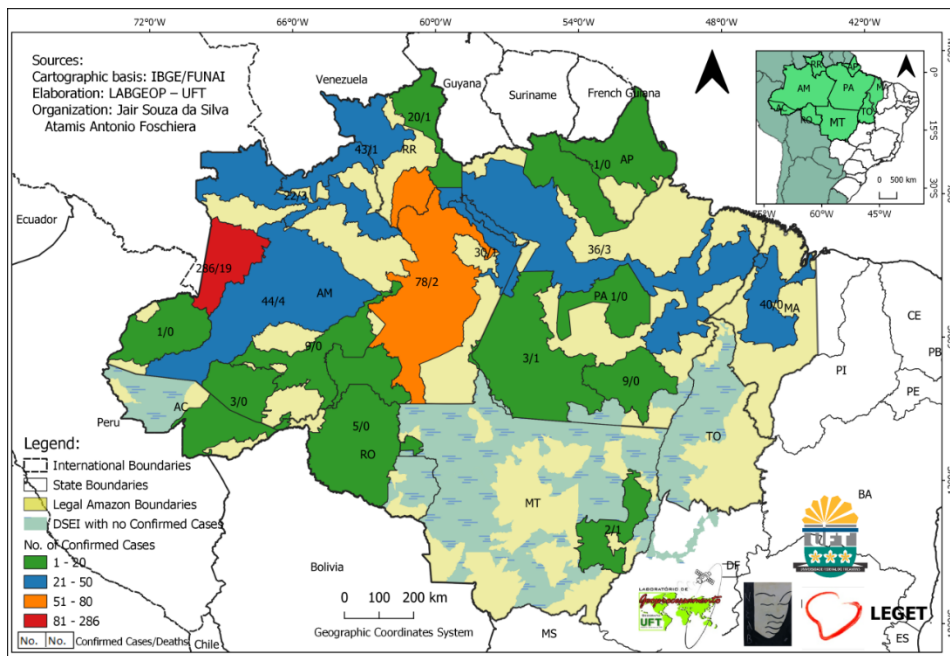


Image 09: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 05/25/2020.

On June 1st 2020 there were confirmed cases of Covid-19 at nineteen DSEIs in Legal Amazon, along with Alto Rio Juruá, with five cases. The increase in percentages emphasized at Amapá and North of Pará DSEIs, with 700%, from one to eight cases; Tapajós, with 366%, from three to fourteen cases; Guamá-Tocantins, with 236%, from 36 to 121 cases; Alto Rio Negro, with 200%, from 22 to 66 cases; and Maranhão, with 123%, from 40 to 89 cases. In absolute numbers, the Alto Rio Solimões DSEI kept ahead the other ones: from 286 to 361 cases. On that date there were 1,031 confirmed cases of Covid-19.

In relation to the previous date, there more twelve more deaths: the DSEIs of Alto Rio Purus, Porto Velho and Caiapó do Pará presented their first death; one more occurred at Parintins and Yanomami, three were registered at Guamá-Tocantins and four at Alto Rio Solimões. On the whole, there were 48 deaths (Image 10).

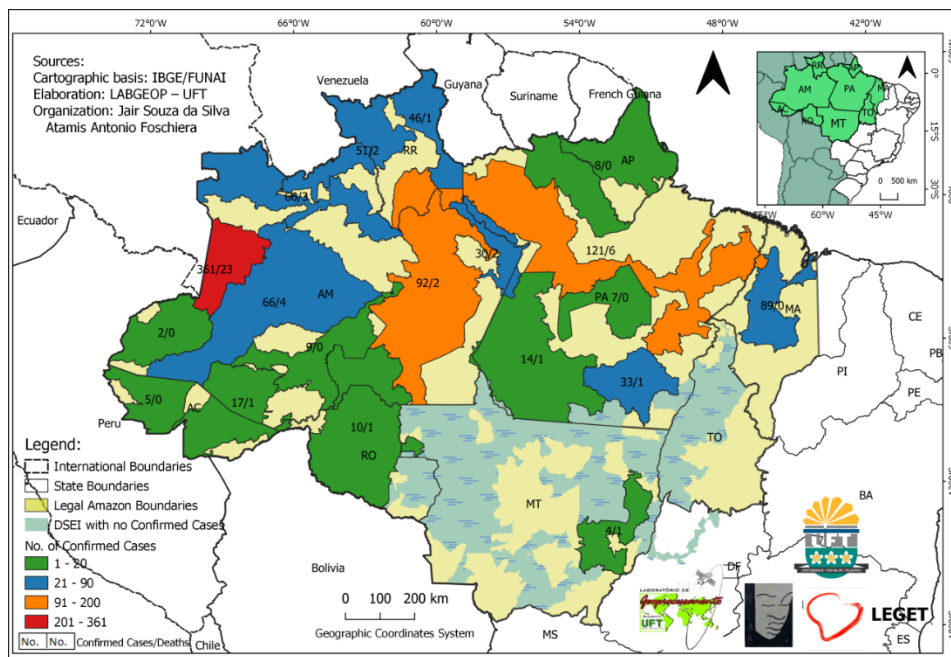


Image 10: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 06/01/2020.

On June 8th 2020 there were confirmed cases of Covid-19 at 21 DSEIs in Legal Amazon, along with Tocantins, with one case, and Xingu, with two cases. The percentage increase was emphasized at Tapajós DSEI, with 100%, from 14 to 28 cases; Alto Rio Purus, with 123%, from 17 to 38 cases; Amapá and North of Pará, with 1,362%, from eight to 117 cases. In absolute numbers, the Alto Rio Solimões DSEI has kept ahead the other ones, from 361 to 444 cases; Maranhão's, from 89 to 148 cases; and Yanomami's, from 51 to 90 confirmed cases. On that date there were 1,617 confirmed cases of Covid-19 at the DSEIs in Legal Amazon.

In relation to the earlier date, there were 25 more deaths, whereas the DSEIs of Altamira and Maranhão had their first death. There was also one more death at the DSEIs of Alto Rio Purus and Porto Velho; two at Yanomami, Manaus, Alto Rio Negro and Médio Rio Solimões e Afluentes; three no Rio Tapajós; and five at Guamá-Tocantins and East of Roraima, on a total of 73 deaths (Image 11).

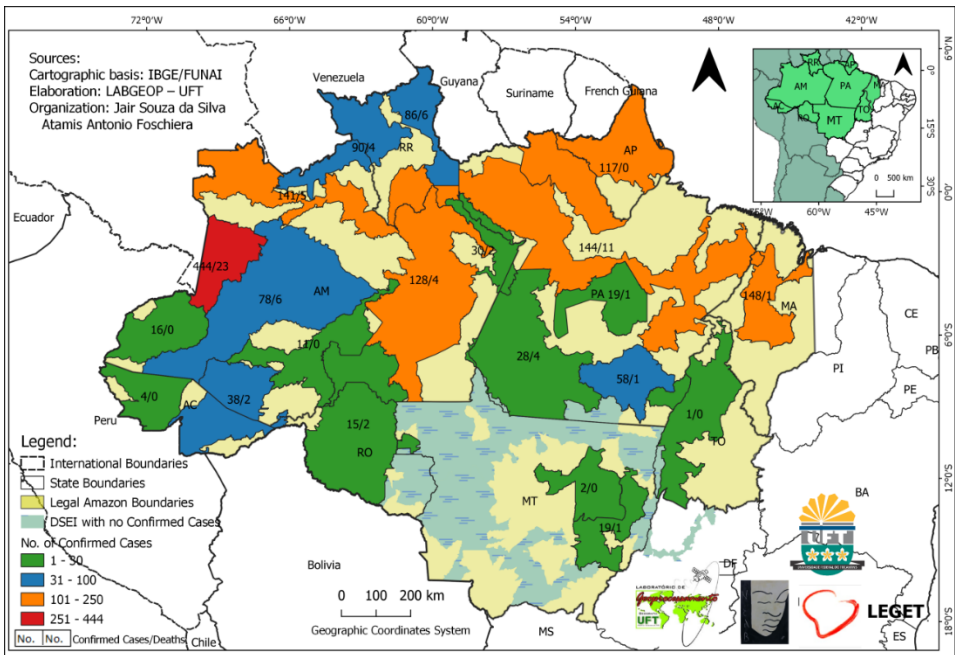


Image 11: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 06/08/2020.

On June 15th 2020, 22 DSEIs in Legal Amazon had confirmed cases of Covid-19, occurring for the first time at Caiapó de Mato Grosso, with four cases. The percentage increase stood out at the DSEIs of Vale do Javari, with 100%, from 16 to 32 cases; Caiaipó do Pará, with 145%, from 58 to 142 cases; Porto Velho, with 160%, from 15 to 39; Tapajós, with 179%, from 28 to 78 cases; and Alto Rio Juriá, 200%, from 4 to 12 cases. In absolute numbers, the Alto Rio Solimões DSEI has kept ahead the other ones, from 444 to 495 deaths; Guamá-Tocantins's, from 144 to 279; and Maranhão's, from 148 to 238 confirmed cases. On that date there were 2,310 confirmed cases of Covid-19 at the DSEIs in Legal Amazon.

In relation to the earlier date, there were fourteen more deaths, whereas the Xingu DSEI the one that presented its first death. There was one more death at the DSEIs of Médio Rio Solimões e Afluentes, Manaus, Caiapó do Pará, Guamá-Tocantins and Alto Rio Solimões, Porto Velho; two at Rio Tapajós and at Maranhão; and four at East of Roraima, on a total of 87 deaths (Image 12).

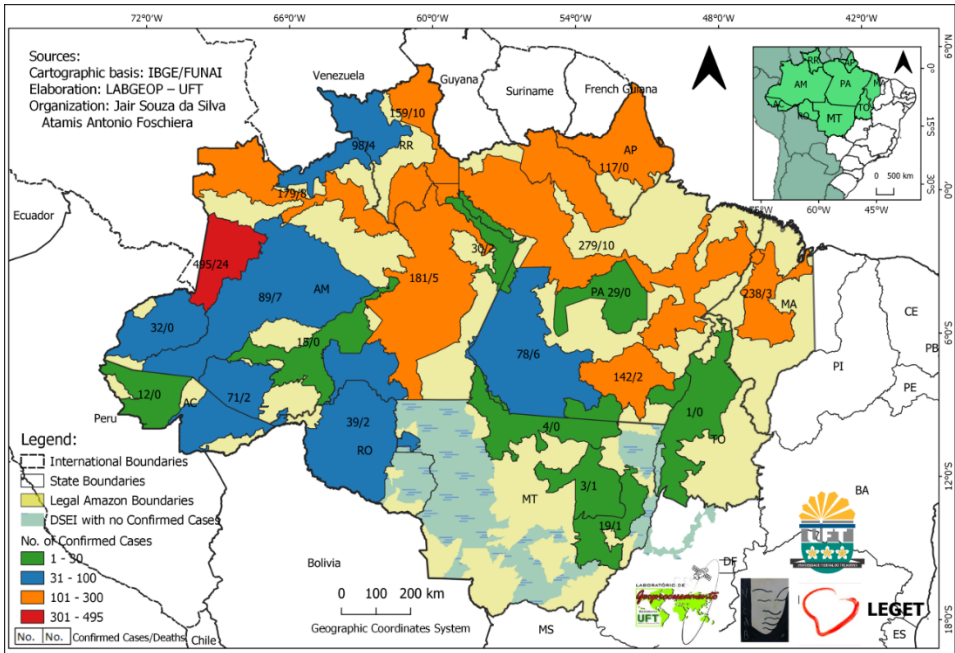


Image 12: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 06/15/2020.

On June 22nd 2020 there were confirmed cases of Covid-19 at 23 DSEIs in Legal Amazon, occurring for the first time at Cuiabá, with four cases. The percentage increase stood out at the DSEIs of Amapá and North of Pará, with 110%, from 117 to 246 cases; Tapajós, with 111%, from 78 to 165 cases; and Alto Rio Juruá, 433%, from 12 to 64 cases. In absolute numbers, the DSEI of Alto Rio Solimões has kept ahead the other ones, from 495 to 555 cases; Maranhão's, from 238 to 449; and Guamá-Tocantins's, from 279 to 377 confirmed cases. On that date there were 3,383 confirmed cases of Covid-19 at the DSEIs in Legal Amazon.

In relation to the earlier date, there were fourteen at Maranhão, on a total of 101 deaths (Image 13). more deaths, at the same DSEIs where there were cases before. There was one more death at the DSEIs of Alto Rio Purus, Manaus, East of Roraima, Alto Rio Negro; three at Rio Tapajós and Caiapó do Pará; and four at Maranhão, on a total of 101 deaths (Image 13).

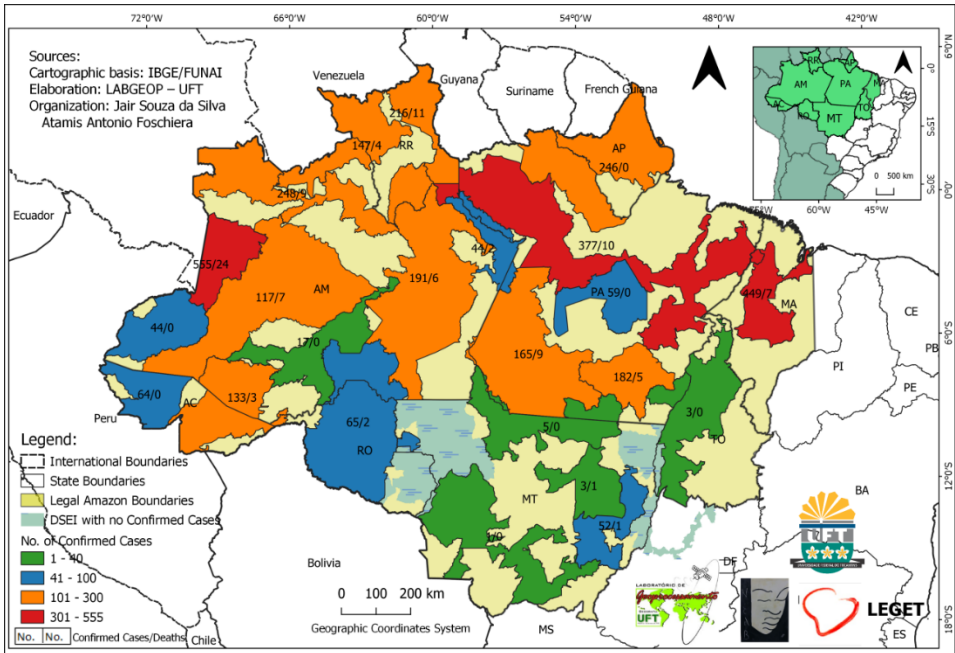


Image 13: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 06/22/2020.

On June 29th 2020 there were confirmed cases of Covid-19 at 24 DSEIs in Legal Amazon, occurring for the first time at Vilhena, with two cases. The percentage increase stood out at the DSEIs of Vale do Javari, with 125%, from 44 to 99 cases; Alto Rio Juruá, 128%, from 64 to 146 cases; and Tapajós, with 202%, from 165 to 498 cases. In absolute numbers, Maranhão's DSEI has started leading, from 449 to 614 cases; Alto Rio Solimões, from 555 to 600; and Rio Tapajós, from 165 to 498 confirmed cases. On that date there were 4,811 confirmed cases of Covid-19 at the DSEIs of Legal Amazon.

In relation to the earlier date, there were 26 more deaths, whereas the ones at the DSEIs of Alto Rio Juruá, with two, Amapá and North of Pará, with one, and Cuiabá, also with one, presented deaths for the first time. There was one more death at the DSEIs of Manaus, Alto Rio Negro, Parintins and Rio Tapajós; three at Maranhão; at Xavante there was a substantial increase, registering fifteen deaths that week. On the whole there was a total of 127 deaths (Image 14).

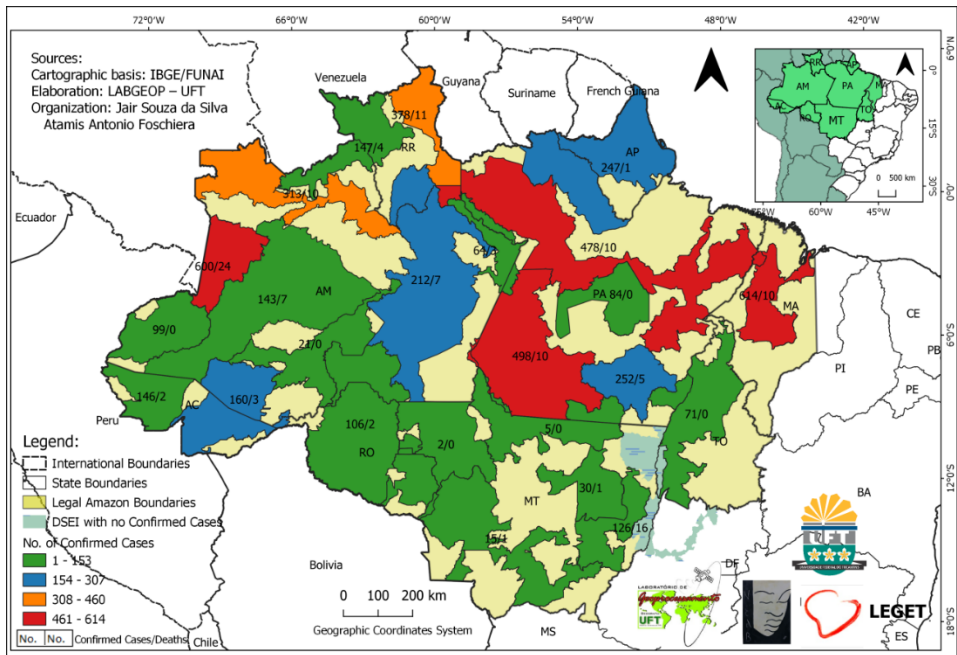


Image 14: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Indígenas (DSEI) in Legal Amazon, until 06/29/2020.

On July 6th 2020, there were confirmed cases of Covid-19 at all 25 DSEIs of Legal Amazon, occurring for the first time at Araguaia's, with four cases. The percentage increase stood out th the DSEIs of Amapá and North of Pará, with 95%, from 247 to 481 cases; Cuiabá, with 406%, from 15 to 76 cases; and Vilhena, with 500%, from two to twelve cases. In absolute numbers, the Maranhão DSEI leads, from 614 to 869 cases, followed by Alto Rio Solimões, from 600 to 811, Rio Tapajós, from 498 to 738 confirmed cases, Guamá-Tocantins, from 478 to 624. On that date there were 6,643 confirmed cases of Covid-19 at the DSEIs of Legal Amazon.

In relation to the earlier date, there were thirty more deaths, whereas the ones at the DSEIs Médio Rio Purus presented its first case. There was one more death each at the DSEIs Xingu, Porto Velho, Alto Rio Negro, and Alto Rio Purus; two at Caiapó do Pará, Guamá-Tocantins, Alto Rio Solimões and Alto Rio Rio Juruá; three at Manaus; four at Maranhão; and five at Cuiabá, on a total of 157 deaths (Image 15).

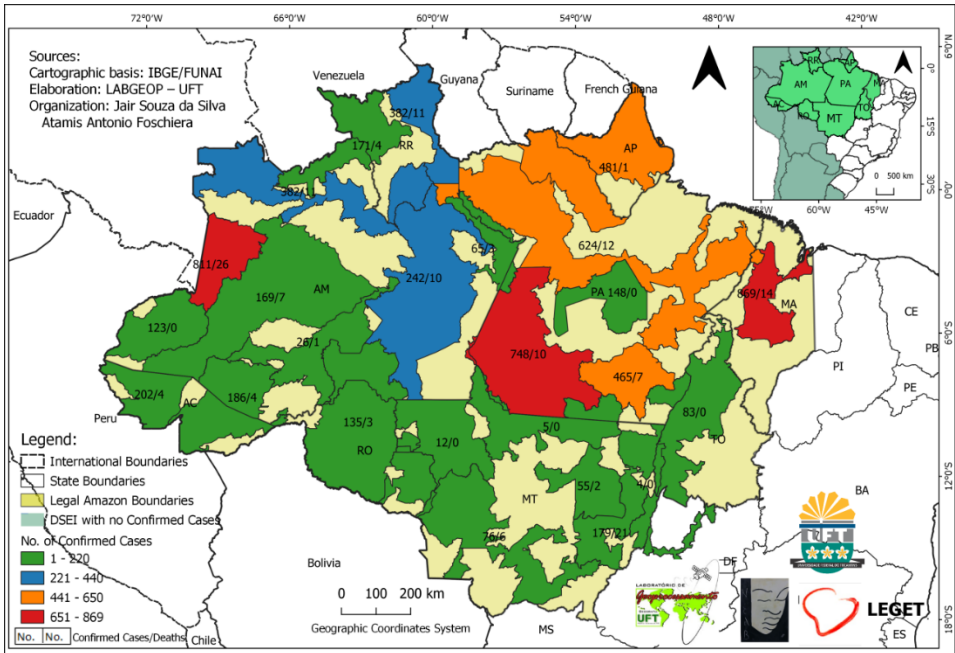


Image 15: Confirmed Cases of Covid-19 and Deaths in the Distritos Sanitários Epeciais Índigenas (DSEI) in Legal Amazon, until 07/06/2020.

Final considerations

In Legal Amazon there’s more than half the indigenous living in Indigenous Lands of Brazil. Epidemics among indigenous peoples in this region occur since the arrival of the first colonizers until this day and they have caused great indigenous populations losses.

The Secretaria Especial de Saúde Índigena (SESAI) is the responsible institution for the indigenous health and the Distrito Sanitário Especial Índigena (DSEI) is one of the regional references services. On a total of 34 existing DSEIs, 25 of them are located in Legal Amazon.

With the epidemic of Covid-19, the SESAI has started publishing the Epidemiologic Newsletters, with the DSEIs as a reference. The first positive case of Covid-19 that was registered in Legal Amazon occurred at Alto Rio Solimões DSEI, on April 13th 2020, located west of the of Amazonas. This case raises awareness for being distant from Manaus, the capital of the state, where the first cases in the state of Amazonas emerged.

It took three months and seven days so Covid-19 cases were registered in all the 25 DSEIs of Legal Amazon. The Araguaia one, which attends the population on Indigenous Lands of Tocantins and Goiás, was the last one to have cases in SESAI’s epidemiologic newsletter.

The territorialization of Covid-19 in Legal Amazon hasn't happened in a homogeneous way among the DSEIs. The central and north parts were the first ones to present cases with more intensity, while the southern part, mainly the Cerrado area, which involves Mato Grosso and Tocantins, had a posterior occurrence and with fewer cases, in the analysis period.

For three weeks of the analysis period, the Alto Rio Solimões DSEI was the one that has accumulated the most cases. However, since then, it was Manaus DSEI where the confirmed cases have become the greater ones. On the following week the Alto Rio Solimões DSEI got more cases, with a greatest difference to the other ones. In the last few weeks of analysis the Maranhão DSEI has become the one with the most confirmed cases of Covid-19.

In relation to the number of deaths, in the analysis period, the Alto Rio Solimões DSEI was the first one to have records, being the one with the greatest number all over the period. The DSEIs of Alto Rio Negro, Guamá-Tocantins and Maranhão also presented a great number of deaths, however quite inferior to Alto Rio Solimões. Until the last data in analysis, the DSEIs of Tocantins, Caiapó do Mato Grosso, Vale do Javari, Araguaia and Vilhena didn't present deaths.

During several weeks of analysis, some DSEIs had considerably jumps in cases, what indicates a fast transmission or delay in accomplishing the tests. In the reverse situation, it's important to emphasize that the DSEI of Parintins presented cases right in the beginning of the analysis period, however along the period there weren't meaningful great jumps.

There are several possible causes of transmission of Covid-19 among the populations in Indigenous Lands and there's the need of more extensive studies to validate the existing hypothesis. As it's considered an initial paper, based on quantitative data, the respective analysis is partial, but they can collaborate with future researches about the theme that have a more qualitative objective.

References

BRASIL. Fundação Nacional de Saúde. *Política Nacional de Atenção à Saúde dos Povos Indígenas*. 2. ed. Brasília: Ministério da Saúde, 2002.

CALAINHO, Daniela Buono. Jesuítas e medicina no Brasil colonial. *Tempo*, v.10, n.19, p. 61-75, dez. 2005.

CONGRESSO NACIONAL. Lei nº 1.806, de 6 de janeiro de 1953. Disponível em: <https://www2.camara.leg.br/legin/fed/lei/1950-1959/lei-1806-6-janeiro-1953-367342-publicacaooriginal-1-pl.html>. Acesso em: 15 mar. 2020.

ERIKSON, Philippe. Uma singular pluralidade: a etno-história Pano. Tradução: Beatriz Perrone-Moisés. In: CUNHA, Manuela Carneiro (org.). *História dos índios no Brasil*. São Paulo: Companhia de Letras; Secretaria Municipal de Cultura; FAPESP, 1992. p. 239-252.

FOSCHIERA, Atamis Antonio; SILVA, Jair Souza da. A espacialização do covid-19 em Terras e Parques Indígenas na Amazônia Legal. *Revista Pegada*, Presidente Prudente, SP: CEGeT FCT/UNESP [no prelo].

FRANCHETTO, Bruna. O aparecimento dos caraíba": para uma história kuikuro e alto-xinguana. In: CUNHA, Manuela Carneiro (org.). *História dos índios no Brasil*. São Paulo: Companhia de Letras; Secretaria Municipal de Cultura; FAPESP, 1992. p. 339-356.

GURGEL, Cristina Brandt Friedrich Martin. *Índios, jesuítas e bandeirantes: medicinas e doenças no Brasil dos séculos XVI e XVII*. 2009, f. 225/Tese (Doutorado em Clínica Médica) – Faculdade de Ciências Médicas da Universidade Estadual de Campinas, Campinas/SP, 04/09/2009.

IBGE – Instituto Brasileiro de Geografia e Estatística. *Brasil: 500 anos de povoamento*. Rio de Janeiro: IBGE, 2000.

IBGE – Instituto Brasileiro de Geografia e Estatística. Pessoas indígenas, por localização do domicílio e condição de indígena. *Censo Demográfico de 2010*. Disponível em: <https://sidra.ibge.gov.br/tabela/4142#resultado>. Acesso em: 27 maio 2020.

ISA. Plataforma de monitoramento da situação indígena na pandemia do novo coronavírus (Covid-19) no Brasil. Disponível em: <https://covid19.socioambiental.org/home>. Acesso em: 23 jul. 2020.

LOPES DA SILVA, Aracy. Dois séculos e meio de história xavante. In: CUNHA, Manuela Carneiro (org.). *História dos índios no Brasil*. São Paulo: Companhia de Letras; Secretaria Municipal de Cultura; FAPESP, 1992. p. 357-378.

MEDEIROS, Carlos. *Com barcos cheios, coronavírus seguiu rota de rios para infestar a Amazônia*. UOL/ECO. 08/06/2020. Disponível em: <https://noticias.uol.com.br/saude/ultimas-noticias/redacao/2020/06/08/com-barcos-cheios-coronavirus-seguiu-rota-de-rios-para-infestar-a-amazonia.htm>. Acesso em 10/06/2020.

MENÉNDEZ, Miguel A. Área Madeira-Tapajós: situação de contato e relação entre colonizador e indígena. In: CUNHA, Manuela Carneiro (org.). *História dos índios no Brasil*. São Paulo: Companhia de Letras; Secretaria Municipal de Cultura; FAPESP, 1992. p. 281-292.

MINISTÉRIO DA SAÚDE. *Relatório de gestão do exercício de 2016*. Brasília: 2017. Disponível em: <https://portalarquivos.saude.gov.br/images/pdf/2017/abril/26/RG-SESAI-2016-Versao-Final.pdf>. Acesso em: 15 maio 2020.

MINISTÉRIO DA SAÚDE. *Sobre a doença*. 2017. Disponível em: <https://coronavirus.saude.gov.br/sobre-a-doenca#o-que-e-covidO>. Acesso em: 11 maio 2020.

MINISTÉRIO PÚBLICO FEDERAL. *Recomendação nº 11/2020-MPF*. Disponível em: <http://www.mpf.mp.br/df/sala-de-imprensa/docs/RecomendacaoSaudeIndigenaCOVID19.pdf>. Acesso em: 19 maio 2020.

OLIVEIRA, Paulo Henrique de. *Direito indígena à saúde: proteção constitucional e internacional*. 2009 f. 334/Dissertação (Mestrado em Direito) – Pontifícia Universidade Católica de São Paulo, São Paulo/SP, 2009.

OPAN/CIMI-MT. *Índios em Mato Grosso: dossiê*. Cuiabá: OPAN, 1987.

PORRO, Antônio. História indígena do Alto e Médio Amazonas. In: CUNHA, Manuela Carneiro (org.). *História dos índios no Brasil*. São Paulo: Companhia de Letras; Secretaria Municipal de Cultura; FAPESP, 1992. p. 175-196

RAVAGNANI, Oswaldo M. Eu te batizo... em nome da servidão (A catequese dos Xavante). *Revista de Antropologia*, São Paulo: Universidade de São Paulo, v. 30-32, p. 133-149, 1987-1989.

RENARD-CASEVITZ, France-Marie. História Kampa, memória Ashaninca. Tradução: Beatriz Perrone-Moisés. In: CUNHA, Manuela Carneiro (org.). *História dos índios no Brasil*. São Paulo: Companhia de Letras; Secretaria Municipal de Cultura; FAPESP, 1992. p. 196-212.

RIBEIRO, Darci. *Os índios e a civilização*. Integração das populações indígenas no Brasil moderno. São Paulo: Companhia das Letras, 1996.

SÁ, Daniella Ribeiro. *Malária em terras indígenas habitadas pelos Pakaanóva (Wari')*, estado de Rondônia, Brasil: estudo epidemiológico e entomológico. 2003 f.59/Dissertação (Mestrado em Ciências da Saúde) - Programa de Pós-Graduação da Escola Nacional de Saúde Pública –Fiocruz. Rio de Janeiro, 2003.

SANTILLI, Nádia Farage e Paulo. Estado de sítio, territórios e identidades no vale do rio Branco. In: CUNHA, Manuela Carneiro (org.). *História dos índios no Brasil*. São Paulo: Companhia de Letras; Secretaria Municipal de Cultura; FAPESP, 1992. p. 267-278

SESAI. *Boletim Epidemiológico da SESAI, Covid 19*. 18 maio 2020. Disponível em: <https://saudeindigena.saude.gov.br/>. Acesso em: 19 maio 2020.

SUDAM. *Histórico*. Disponível em: <http://www.sudam.gov.br/index.php/ouvidoria/58-acesso-a-informacao/87-historico-sudam>. Acesso em: 10 abr. 2020.

TURNER, Terence. Os Mebengokre Kayapó: história e mudança social, de comunidades autônomas para a coexistência interétnica. Tradução: Beatriz Perrone-Moisés. In: CUNHA, Manuela Carneiro (org.). *História dos índios no Brasil*. São Paulo: Companhia de Letras; Secretaria Municipal de Cultura; FAPESP, 1992. p. 311-338.

Atamis Antonio Foschiera

PhD in Geography from UNESP/Presidente Prudente. Master in *Extensão Rural* from UFSM. Graduated in Geography from UFSM. Currently an effective professor at UFT/Campus Porto Nacional.

Rua Lizias Rodrigues, Qd. J, Lt. 55, Ed. Porto Nobre. Setor Aeroporto. Porto Nacional, TO.

E-mail: foschieraa@uft.edu.br

Jair Souza da Silva

Graduated in Geography from UFT/Porto Nacional and Master Degree Student from UFCat.

Rua 805, Bairro Santa Rita, Catalão, GO.

E-mail: Jair_edificacoes@hotmail.com

Received for publication August 2020

Approved for publication October 2020