SEVEN
publicações acadêmicas

BURNINGS AND FIRES IN THE MUNICIPALITY OF LÁBREA – AMAZONAS

QUEIMADAS E INCÊNDIOS NO MUNICÍPIO DE LÁBREA – AMAZONAS

INCENDIOS Y QUEMAS EN EL MUNICIPIO DE LÁBREA – AMAZONAS

https://doi.org/10.56238/sevened2025.029-113

Raimundo Nonato Duarte Amâncio[1], Carlitos Luis Sitoie[2]

ABSTRACT

This study investigates fires and fires in the municipality of Lábrea, Amazonas, contextualizing the environmental problem in the Amazon region, where the practice of burning is frequently used in agriculture and other productive activities. The main objective of the research was to evaluate the causes that transform fires into fires. The methodology adopted includes structured interviews with social actors in the community, according to the principles of oral history, allowing a rich qualitative analysis of the experiences and memories of local residents. The work is based on three types of narrative: thematic interviews, life stories and oral traditions, which enabled a comprehensive understanding of the relationships between workers and environmental management practices. Furthermore, participant observation contributed to a better immersion in the social and cultural context of the interviewees. The results demonstrated that the historical relationship between workers and land and natural resources, combined with socioeconomic factors and market pressure, significantly influences the frequency and intensity of fires. The research concludes that, to mitigate the impacts of fires, it is essential to consider local knowledge and promote sustainable management practices that integrate the voices of communities in the formulation of public policies.

Keywords: Burnings. Fires. Amazon.

RESUMO

Este estudo investiga as queimadas e os incêndios no município de Lábrea, Amazonas, contextualizando a problemática ambiental na região amazônica, onde a prática de queimada é frequentemente utilizada na agricultura e outras atividades produtivas. O objetivo principal da pesquisa foi avaliar as causas que transformam queimadas em incêndios. A metodologia adotada inclui entrevistas estruturadas com atores sociais da comunidade, conforme os princípios da história oral, permitindo uma análise qualitativa rica sobre as experiências e memórias dos moradores locais. O trabalho fundamenta-se em três modalidades de narrativa: entrevistas temáticas, histórias de vida e tradições orais, o que possibilitou uma compreensão abrangente das relações entre os trabalhadores e as práticas de manejo do ambiente. Além disso, a observação participante contribuiu para uma melhor imersão no contexto social e cultural dos entrevistados. Os resultados demonstraram que a relação histórica dos trabalhadores com a terra e os recursos naturais, aliada a fatores socioeconômicos e à pressão do mercado, influencia significativamente a frequência e a

[1] Master in Environment and Sustainable Development. Universidade Save-Moçambique (UNISAVE).
E-mail: duarte-amancio@hotmail.com
[2] Post-Doctoral Fellow in Social Anthropology. Universidade Federal do Amazonas (UFAM).
E-mail: carlitossitoe@yahoo.com.br

intensidade dos incêndios. A pesquisa conclui que, para mitigar os impactos das queimadas, é essencial considerar os saberes locais e promover práticas de manejo sustentável que integrem as vozes das comunidades na formulação de políticas públicas.

Palavras-chave: Queimadas. Incêndios. Amazônia.

RESUMEN
Este estudio investiga los incendios y quemas en el municipio de Lábrea, Amazonas, contextualizando la problemática ambiental de la región amazónica, donde la quema se practica con frecuencia en la agricultura y otras actividades productivas. El objetivo principal de la investigación fue evaluar las causas que transforman los incendios en incendios. La metodología adoptada incluye entrevistas estructuradas con actores comunitarios, siguiendo los principios de la historia oral, lo que permite un análisis cualitativo enriquecedor de las experiencias y memorias de los residentes locales. El trabajo se basa en tres modalidades narrativas: entrevistas temáticas, relatos de vida y tradiciones orales, que permitieron una comprensión integral de las relaciones entre los trabajadores y las prácticas de gestión ambiental. Además, la observación participante contribuyó a una mejor inmersión en el contexto sociocultural de los entrevistados. Los resultados demostraron que la relación histórica de los trabajadores con la tierra y los recursos naturales, combinada con factores socioeconómicos y la presión del mercado, influye significativamente en la frecuencia e intensidad de los incendios. La investigación concluye que, para mitigar los impactos de los incendios forestales, es fundamental considerar el conocimiento local y promover prácticas de gestión sostenible que integren las voces de la comunidad en la formulación de políticas públicas.

Palabras clave: Incendios Forestales. Incendios. Amazonía.

1 INTRODUCTION

The Amazon region, known for its vast biodiversity and unique ecosystems, has faced a worrying increase in the phenomenon of fires. This problem takes on even more critical contours in the city of Lábrea, located in the heart of this tropical forest. Not only do fires compromise the integrity of local ecosystems, but they also directly affect communities that depend on these natural resources for their livelihoods. On average, about 60% of the legal Amazon is annually affected by forest fires (BRASIL, 2020).

The Lábrea forest, located in the southwest of the state of Amazonas, Brazil, is a region of great ecological importance and biodiversity. The total area of the municipality of Lábrea is approximately 68,241 hectares, predominantly covered by dense tropical forests that are part of the Amazon basin. The flora of the Lábrea forest is extremely diverse, with an abundance of large trees, such as the Brazil nut and the rubber tree, as well as a wide variety of medicinal plants, epiphytes, and palm trees (BRASIL, 2020).

The fauna is also very rich, including iconic species such as the jaguar, the jaguar, several species of monkeys, tapirs, and a vast diversity of birds, reptiles, and insects. Many of these animals are endemic to the region and some are threatened with extinction.

In terms of climate, the Lábrea forest has a typical equatorial climate, characterized by high temperatures and high humidity throughout the year. Average annual temperatures generally range between 24°C and 28°C. The relative humidity of the air is high, frequently exceeding 80%. The rainy season occurs between November and May, with peak rainfall usually between January and April, while the dry season extends from June to October (BRASIL, 2020).

These characteristics make the Lábrea forest a vital region for the conservation of biodiversity and for the maintenance of the hydrological and climatic cycles of the Amazon.

Directly affecting communities means assuming that the fires cause smoke, eye irritation, kill animals and devastate crops and eliminate entire vegetation.

For the Ministry of the Environment (BRASIL, 2020), the problem of fires is linked to fires during charcoal production, in activities of "cleaning agricultural fields, renewing pastures, hunting and rejuvenating the wild palm tree". The environmental impact of fires goes beyond mere visual degradation. The smoke resulting from this phenomenon contributes to the deterioration of air quality, which has significant consequences for the health of the local population. In addition, biodiversity loss and the destruction of natural

habitats have long-term repercussions, affecting the ecological stability and resilience of ecosystems.

Understand the frequency and intensity of fires (Aragão et al., 2018; Brando et al., 2019), in Lábrea becomes crucial not only to monitor the immediate impacts of this phenomenon, but also to guide the implementation of prevention and environmental management strategies in the region.

To operationalize the objectives, the use of INPE satellite images and mapping of areas affected by forest fires was used (Soares, 2016, p.44). Therefore, INPE allows you to download in its database traces of fires of different intensities and territorial dimension, visualizing the fire from the floor of a dense forest, without affecting the tree canopy; the clouds covering the region (attention - smoke clouds do not disturb); short-term burning, occurring between the time of the available images; fires on a mountainside, while the satellite only observed the other side; inaccuracy in locating the burning focus, which in the best case is about 375 m, but reaching 6 km. From this perspective, using this methodological approach is a way to seek to understand how the complex interaction between climatic factors, human activities and changes in land use interferes, in an in-depth and holistic analysis that allows us to effectively address this challenge. To this end, the analysis of satellite images and geotechnologies allowed the generation of a historical database based on the monitoring and quantification of fires in a systematic way.

According to Santos et al., (2013, p.135), "the activities or actions that make it possible to reduce the risk begin in strategic planning [the zoning of forest fire risk is important], to take measures such as restriction or greater vigilance in risk areas, construction of preventive firebreaks". Measures can also be taken to aid combat the fight (e.g., construction of roads with quick access to risk locations, allocation of combat resources at strategic points).

In this sense, the combination of factors with an impact on the outbreak and progression of forest fires plays an important role in the development of efficient measures to prevent and combat forest fires (Soares, 2016). In this way, the occurrence and spread of forest fires are, in part, controlled by environmental factors (Oliveira, 2013) and, on the other hand, by the interaction of anthropogenic systems with natural conditions (Bento-Gonçalves at al., 2014).

2 THEORETICAL FRAMEWORK

Based on the theoretical framework adopted, the Deep Ecology approach was selected to analyze the fires and fires in the municipality of Lábrea. This choice allows for a more comprehensive and in-depth investigation of these phenomena, going beyond the superficiality of conventional ecology.

Through this theoretical perspective, it is possible to understand fires and fires as environmental variables intrinsically connected to the natural world. This includes recognizing the interdependence between different environmental elements and understanding the position of humans in the cyclical processes of nature. In essence, the Deep Ecology approach allows for a broadened analysis of the negative impacts of these events on soil, subsoil, atmosphere, surface and underground water bodies, as well as living beings, both plant and animal, including human health and well-being.

From this perspective, it becomes possible to explain the damage caused to soils due to the loss of nutrients and compaction resulting from fires, as well as the negative effects on water sources due to contamination by waste resulting from burning. In addition, Deep Ecology offers crucial insights into the impacts on plant communities, such as habitat loss and reduced biodiversity, and on animals, affecting their reproduction, food availability, and health due to smoke exposure and burns.

Therefore, the choice of Deep Ecology as a theoretical basis provides a broader and more holistic understanding of the effects of burnings and fires in Lábrea, encompassing not only the environmental aspects, but also the social and economic impacts of these events.

3 METHODOLOGY

The bibliography was carried out from the consultation of physical and electronic books available in PDF format, accessible online and duly cited in the theoretical framework of the present work. Field data collection began in October 2023, with four visits to the municipality of Lábrea to interview and question the social subjects of the research. The research techniques employed included direct interviews with different groups, such as family farmers (FA), traditional extractivists (ET), fishermen (P), Professor, indigenous people (PI), in general, rural workers.

With regard to the population and sample, the size of the population studied and the sample selection criteria were determined based on the representativeness of the groups involved in the activities related to the burnings and fires in Lábrea. The sample included

representatives of the different social and professional groups mentioned, selected in order to ensure a diversity of perspectives and experiences related to the topic studied.

The presentation and analysis of the collected data will be based on statistical methods and qualitative analyses, aiming to offer a comprehensive and in-depth understanding of the topics investigated. Data from the National Institute for Space Research (INPE), obtained through satellite images, were used to study the frequency and intensity of fires in Lábrea. Activities undertaken to collect and analyze this data included:

Access to INPE Data: Access and download of satellite images provided by INPE, which were used to identify areas affected by fires and fires in Lábrea.

Satellite Image Analysis: Visual and digital analysis of satellite images to identify hot spots and burned areas over a specific study period.

Time Comparison: Comparison of satellite imagery over different periods to assess changes in the frequency and intensity of fires over time.

Georeferencing: Georeferencing of areas affected by fires for spatial analysis and mapping of the distribution patterns of fire events.

Interviews and Questionnaires: Conducting interviews and applying structured questionnaires with research subjects to collect qualitative data on local perceptions, agricultural practices, fire history, and socioeconomic impacts.

As for the population and sample, the size of the population studied was determined by the relevance of the social and professional groups involved in the practices related to the fires in Lábrea, such as farmers, ranchers, indigenous people, quilombolas, among others. The sample selection criteria were based on the representativeness and diversity of these groups, ensuring a comprehensive analysis of the different aspects of fires in the region.

This study, carried out within the scope of the Master's Degree in Environment and Sustainable Development of Communities, aims not only to analyze the frequency and intensity of fires in Lábrea, but also to understand the social, economic and environmental dynamics that influence these events. The combination of quantitative and qualitative methods allows for a robust and multifaceted analysis, contributing to the formulation of more effective fire prevention and management strategies in the region.

4 PRESENTATION OF DATA AND DISCUSSION

The techniques used in this chapter privilege structured interviews through a script applied to the selected social actors. For Bom Meihy (1996), oral history is organized into

three modalities during fieldwork, such as thematic interview, life history and oral tradition. In general, the narratives are presented in a miscellany of events between these modalities. Hence the objective of studying versions that the interviewees provide about the analyzed theme, in order to support the qualitative research that privileges: testimonies that surround the theme (ALBERTINI, 2004).

In this sense, the data collection technique of the research focuses on the thematic interview without neglecting aspects of the life history modality, because the trajectory of the interviewees/deponents is historically related to the theme "fires in the municipality of Lábrea". With regard to memory, (Bergson, year) attributes to it the *role of choice* in order to bring to consciousness what enables us to investigate, that is, useful remembrance. According to Pollak, p. 9, 1989) memory is presented as a collective operation of events and interpretations of the past, so the researcher must treat it by the method of *framing memory.*

Similarly, Raphael Samuel (1994) says that memory is an *active and dynamic force,* and Jacques Le Goff (1990) defines it as an *instrument* and an *object of power*. From this perspective, the memories of social agents will be sources that we will explore the collective memory of workers based on unusual themes of their life trajectories such as the places where they lived and their occupations over time, seeking to elucidate the striking feature of the social and political system around the fires by framing their narratives to the theoretical field of Oral History.

The research also allows us an approach of *participant observation* (GIL, 2008) taking into account the life experience of the place where I am from, I was inserted as a researcher in a social environment, which the scenario is not alien to me, and which, many times, I experienced with my parents, uncles, grandparents and other family members, throughout my life, that is, the situation intended to be studied is the one in which I was properly inserted in the social context, an essential point for participant observation to be carried out.

Before entering into the specific problem of the investigation, it is important to highlight the concept of culture as an anthropological concept of the totality observable in all spheres of people's lives, such as *customs, values and ways of life* (Burker, 2005), structuring modes in the daily life of *social practice* (Bordieu, 1992); that is, they define how social subjects interpret the world around them through their *social codes*. (Gertz, 2008).

From a comparative perspective, rural life and agriculture in France and England. Bloch established an intense dialogue with the anthropologists of the thirties when discussing issues related to the field of symbol, local customs and the peasant economy (Bloch, 2001).

The debate between Anthropology and History, having as its articulating axis the analysis of agrarian systems based on Thompson's texts, can be understood the agrarian systems of small producers without investigating hereditary practices, dowries and cycles of family development (Thompson, 2002).

Now moving the reflection of classic authors to the Amazon, in the search to compose dialogues about the category of the world of work. Regarding the workers, mainly the Northeasterners employed in the extraction of latex in the 1870s. As analyzed by Almeida (2008, p.16) and Pinto (2006, p.20), only more recently have critical interpretations gained traction and these have begun to break with the economistic approaches, functioning as already crystallized interpretative schemes for apprehending social relations in the Amazon since the end of the nineteenth century.

Recent studies of social processes in the Amazon have adopted the rivers that make up the region's hydrographic basin as the articulating axis of research themes and problems. Apparently, there is no distinction between the new research and the works of many authors. However, today rivers emerge as political units of reflection and mobilization, marked by social situations that redefine the modalities of perception of local subjects.

In this sense, the Purus River had become in the second half of the nineteenth century a territory of potential natural wealth for the provincial government, in which were located extensions rich in rubber and nut trees, in addition to the diversified and ichthyofauna and mastofauna. It is an event that, although linked at the macro level to the advance of capitalism in the Amazon, will have its own dynamics and its specific historicity on the Purus River.

In this way, the northeastern migrant workers left a great decency on the Purus River, over a hundred years of occupation, environmental management techniques are based on the culture of *slash and burn*[3], by taking into account the social categories from the critical analysis, we can define the groups of workers the characteristics of dynamic or mobile social identity, in the sense that it is not possible to attribute them to a single profile of worker, but rather multiple activities that they perform, such as, for example, hunters, extractivists, fishermen, farmers, sawyers and much more.

Acting within their own categories, people tend to reproduce intentional, contradictory actions and fragments of memories sketched in their narratives, so it is up to the researcher

[3] A very common technique in Amazonian agriculture that is divided into two moments: *cutting;* cleaning the area with a machete, axe, chainsaw, felling the trees to open the space and *the burning* that takes place between thirty and forty-five days later, where the farmer waits for the organic material to dry to set fire to the open perimeter. This procedure accelerates the process of opening the forest to plant crops.

to resort to theoretical-methodological tools to translate these interpretations, with the proposal of extracting from the life practice of social actors, knowledge of the group to which they belong. The classification of social agents is one of the first difficulties, as it is an identity often elaborated by the State, these external categories attributed to groups of local workers correspond to forms of control of social programs; of retirements, insurance, benefits and other demands.

However, the category of workers that I intend to address here is beyond the static governmental appointment, the objective is to portray local social groups and share their perspectives of self-identity through the operating mode of practical customs of the rural workers of Lábrea, in which according to Giddens (2003) there is a conflicting accommodation between the traditional way of life in the face of the global force of *modernity*. For a better reflection on the phenomenon, it is necessary to delve into the most intimate aspects of the daily life of these subjects and the choices of their lifestyles. It is important here to emphasize the changing characteristic of social actors in their real movement.

Another way to discuss the issue of social identity today is to go through the categories presented by Bauma (2001), about the concept that individuals come to constitute themselves in the structure of *fluid modernity* of the capitalist world, surrounded by uncertainties of constant change, which affects people's lives, with regard to work, employment, security, family and much more. Based on the conceptions of *self-identity* and *fluid modernity*, the *Amazonian world of work* presents particular aspects that are adverse to the global concept.

Thus, we set the table below based on the external classification, recognized by the deponents, but which does not define them completely.

Table 1

Coding of the interviewees

Número	Código	Idade	Sexo	Profissão	Região onde moram
01	E1	68	F	Agricultora	Br. 230 - Km 8.
02	E2	57	M	Extrativista	Resex do Ituxi
03	E3	45	M	Extrativista	Resex do Ituxi
04	E4	63	H	Extrativista	Barranco da praia de Lábrea
05	E5	36	H	Pescador	Tauaruã/Capiã, ramal do Nel.
06	E6	68	H	Pescador	Tauaruã/Capiã, ramal do Nel.
07	E7	44	H	Pescador	Tauaruã/Capiã, ramal do Nel.
08	E8	69	H	Agricultor	Km 26 – Projeto de assentamento Passia.
09	E9	59	M	Agricultora	Km 26 – Projeto de assentamento Passia.
10	E10	44	H	Pescador	Br. 230 - Km 8.
11	E1	65	M	Professora	Cidade de Lábrea, centro.

Source: Authors.

These groups of workers are identified by micro-regions that make up the territory of Lábrea, in common these areas have recurrences of fires linked to productive activities. It was identified during the research that the firewood removed from the trees is the fuel widely used to produce heat and energy from potteries, flour houses, caeiras, bakery ovens, pé de moleques. In a coexisting way, agriculture and livestock lead on a large scale, the activity of burning to clear the land, considered as a technique to accelerate cleaning by small producers and at a low cost to large farmers.

In particular, two characteristics are preserved in relation to workers; first, the idea regarding the diversity of occupation and second, mobility in the territories happens through the services performed during the months of the year, that is, in both cases, the workers

present dynamic traits of work and occupation of space. It is also important to note that many workers have more than one residence, one in the rural area and the other in the city.

Lábrea is a municipality in the south of the State of Amazonas, a typical region of expansion of the agricultural frontier where it is possible to identify at least two important processes of occupation related to colonizing movements, one in the nineteenth century, and the other in the twentieth century, the first having as its main axis the hydrographic basin of the Purus, in the period between 1870-1950, the time of extractive exploitation of rubber in great intensity, and the second being induced by the opening of new communication routes with the objective of national integration and colonization, which took place from the 1970s onwards with the National Integration Project – PIN, during the period of the military dictatorship (Kohlhepp, 2002, Estado do Amazonas, 2011).

The scenario of Lábrea today can be considered as one that contains a mosaic of diversity where the existence of a heterogeneity of conservation units and indigenous lands stands out, and which paradoxically figures among the municipalities in the Amazon where the highest rates of illegal forest deforestation have been detected in recent years (Lima, 2008, Vitel, 2009, Menezes 2009). By presenting the regional scenario of Lábrea, and its occupation process, in order to better contextualize the research problem, confirming the option for the constructivist approach in this stage of the work, in which it focused on the secondary sources regarding the themes of deforestation, expansion of borders, dynamics of the process of historical occupation of the municipality.

The population of northeastern origin begins to consolidate its cultural influence in Lábrea, they are also described in the literature as forest and riverside peoples who have lived for more than a hundred years in the Purus river basin, consolidated specific work systems and over time. That said, data from the Amazonas Environmental Research Institute – IPAAM for 2022, points to the municipality of Lábrea as the fourth area with the highest rate of deforestation and fires in the Amazon.

With regard to deforestation, the general concept consists of the removal of partial or total vegetation cover from a given place. For this reason, this phenomenon has been considered one of the greatest environmental problems of our time, which according to Gonçalves (2005) can be cited as three activities as the main causes of deforestation today. Cattle ranching for the creation of pastures, family farming plantations and large-scale grains by agroindustry, and there is also logging and forest fires (Alencar et al, 2004).

4.1 WORKERS' NARRATIVES: FIRES AS TECHNIQUES OF WORK IN LÁBREA

The interviews followed the aspiral movement in order to make connections between the diverse groups of workers who live in different areas of the municipality of Lábrea. The choice of the sequence of interviews was not to begin with workers from more distant areas, as they travel through the city of Lábrea in sporadic periods. Thus, the first interviews were conducted with deponents from the Médio Purus and Ituxi Extractive Reserves, then with residents of Br 230, kilometers eight and twenty-six, then in the branch of the Tauaruã community, Capiã glebe, and finally the residents of the city.

The Ituxi Extractive Reserve is a Conservation Unit that went through the process of claiming residents of this river, in the process it is alleged that these social agents were losing their lands because they did not have the definitive possession documents, so as they have lived in the region since the time of their grandparents, they strategically decided to request the federal government, the creation of an extractive reserve.

The narrative of the residents of the Resex is impregnated by tensions that relate to the problems of insecurity experienced in recent years, in which the invasions described on two fronts are listed, one of an internal order arising from the upstream of the Ituxi River and the other occurring in the headwaters coming from the states of Rondônia and Acre in the vicinity of the Curequetê River.

According to the descriptions of the social actors of the extractive reserve, it is common for the invaders to cut down the areas of Brazil nut trees using bulldozers, the land grabbers also present documents of the owner of the land to the community members, arriving in the communities marked a point via GPS and making trails towards the roads. The invader in possession of land documents tells the resident; You can continue working here, as long as you pay me rent. In a tone of revolt, the residents say "yes, the guy lived many years ago, in my father's time, you know? In my grandfather's time, then my father passed away and stayed with us" (Interviewee, E1, 2023). On these narratives we intend to expose the living conditions of workers.

This more general problem also comes up directly with another more specific problem between the productive activities that trigger deforestation and burning, and driven by the use of space by heterogeneous groups that involves loggers, cattle ranchers, extensive agro-export agriculture that require large felling of vegetation cover, on the other hand, the agroextractivist residents of the Resex point to the lack of technological resources for land clearing that replaces the technique of Slash and burn. This is how an interviewee in the

survey reports, a resident of the Resex whose portrays the occurrences of fires, so I say that if this year the strong summer does not have greater support, right, by the government, by the inspections, it is fire, it is a lot of fire at the time of burning the swidden many times to set fire to a swidden here, and another fire is coming that we don't even know from where, last year Curequete's mouth was in trouble when the people who were monitoring I don't know where it came from, Joedy said look, look, there, he called Laurenice, it's burning inside the resex, towards Curequete, the president of the association contacted the manager, she looked and said no, right, inside the resex, it's not outside the resex, Then even the president of the association said more even outside the Extractive Reserve is not a crime? I think it's a crime, but then we got in touch it was inside the resec the resident himself took which a week to put out the fire that no one knows where this fire came from is understanding? It burned my... And because the guy made my videos he took it off there but there were residents who cried, you know? (Interviewed, E1, 2023)

The technique of clearing areas for agriculture through burning briefly described above, also known as slash-and-burn culture, Cabral, ("et al.". 2013) point out that land preparation procedures with fire allow cultivation in acidic and infertile soils that dominate much of the Amazon. Based on this premise, the use of fire in subsistence and commercial agriculture is common, and cattle ranching also uses burning to renew the grass on its property that feeds cattle.

Fire as a technique for cleaning agricultural areas is not an easy task for containment and/or control, as the months of the year chosen in which fires are carried out from August to October register the highest temperatures of the "Amazonian" summer, being recorded the time of less rainfall and drought of the rivers. This appropriate period for burning activities also present insecurities because the soil and dry trees facilitate the rapid expansion of the fire, when leaving the perimeter and reaching the nearby vegetation the fire reaches proportions of serious environmental damage.

The municipality of Lábrea has a generalist area composed of riverside communities, rural settlements, indigenous lands and also farms and sites within nearby rural areas and/or located in the urban perimeter that experience conurbation processes, such as the community of Tauaruã, the communities of kilometers (four, five and six) of the BR 230 and the Caititu Indigenous Land.

It is important to situate the context of these rural, non-indigenous and indigenous communities in the productive, agricultural, subsistence and commercial activities directed to

the consumption of the city and that work with burning to clear the land. Despite the executive and legislative authorities of the State of Amazonas presenting in 2023 a project and laws to curb fires and deforestation, the Legislative Assembly of the State of Amazonas in 2023 found 5,474 hot spots in 2023 and 8,116 in 2022, deliberating actions and resources for containment plans.

In the same direction, the executive branch, through decree No. 47,565, of June 5, 2023, envisions the measures to prevent and control fires, through the State Secretariat for the Environment – SEMA, to systematize information about recurrent fires throughout the state and also assumes the commitment to reduce the heat focus by 15% percent, it is appropriate here to reflect on how the legislations, mentioned above, have been implemented in Lábrea in the state of Amazonas.

In 2024, in the months in which burning activities are concentrated in general in Brazil, and in particular in the Brazilian Amazon, where large agricultural farms are concentrated. Amazonas, in this context, during the first months of summer or dry season, is Lábrea that leads the rates of fires in the region, ahead of the municipality of Apuí, which leads deforestation in the country. According to information from the municipality's fire brigade, this period coincides with the preference of rural communities to choose to clean the land with fire.

The following are photos that illustrate the burning practices in the municipality of Lábrea in the year 2024 between the urban perimeter and the rural area around the city:

Figure 1

Fires Pantanal neighborhood / New neighborhood. Photo from September 2024

Source: Authors' Collection (2024)

The first image illustrates a night fire in a rural area, night and dawn are the preferred periods when people set fires. These times are overlooked because they make it difficult to identify the arsonist and the inspection of police authorities of the national force and municipal civil defense. In this fire there was spread to surrounding land and many had total loss of fruit trees.

The second image shows the presence of a fire brigade within a private property that borders the Caititu Indigenous Land. The firefighting team is made up of municipal, state and federal agents such as municipal civil defense, military firefighters and the national force as well as environmental agencies such as IBAMA, ICMBIO and the Police.

Still on the fires, another speech that illustrates how the work techniques in agriculture in Lábrea take place

> [...] a big fire here in Capeã spread, almost everything catches fire, several people lost everything, the fire invaded Mrs. Algina's land, near the school, there was nothing left, she lost everything, her açaí trees, everything was big, meter and a half more or less, now, the person plants in the year and loses in the next, big damage, big real damage, that was last year, this year it burned there again and so far it's burned there again, but it was all me, the fruit trees, everything died with fire. This mere fire arrived there in the neighbors there, it happened to them, we went to help, you know, to put it out, and then everything burns. It burns everything. We stayed until 9 o'clock at night, I don't know who it was, but there was a time that passed through the road of the igarapé

> grande, there was a time that passed to the land of the babau da fazendinha, then the grass was big. It was dry, you know, then it went inside, then it came invading the tall forest here, then we ran inside, but we managed, then the fire crossed the road, this road there, it crossed passed through this side of those houses, on that side it was on fire almost inside the house right away, then we smoke there and help. In this too, everything that is a plant, everything that is a plant, has already been fruitful. This time the fire entered the garden of the little black man who is the little black man's still ran out of peppers, onions and everything because there were ferrets underneath and the beds on top (Interviewee E6, 2024).

Thus, as can be interpreted in the above statement, farmers, people imbued with authority, holders of practical and traditional knowledge with extensive experience in the cultivation of gardens throughout their lives and owners of large portions of land, describe constant occurrences of fires throughout the year, the loss of control of the outbreak and the damage caused to residents. In fact, there are recurrent reports of the situation of the use of fires in the clearing of land for agriculture and in this, it is common to accidentally pass fire to neighboring properties.

The dry season in the Amazon is preferentially adopted by farmers to carry out the burning procedure to make mowing, because the hot climate and low humidity leave the vegetation dry, this favorable environment also presents imminent risks, due to the dry grass along with the palm tree straws that serve as a conductor or path for the fire to pass between the properties, When the dry grass forms embers that are carried by the wind towards the palm trees, the fire spreads and control is quickly lost.

In this context, the burning techniques applied in the clearing of swiddens are vital to fire control, which can define the complications of fire control or uncontrolled propagation, perhaps this is not the central point to be measured here, but the number of farmers who depend on the slash and burn crop for the production of swiddens, Thus, the field research also allowed reflection on the procedures for clearing swiddens

And he controls it, he goes towards the middle of the swidden, then there he finds himself and ends up.

> [...] And he controls it, he goes towards the middle of the swidden, then there he finds himself and it ends, it's the way to control it so it doesn't turn into a fire, then sometimes he comes back from the middle of the swidden to go down to the beach, it has already happened, but we suddenly take a bucket of water, Take the car with a water tank, once we put it out here, we and because this forest there that still has was all ours then I pulled out a lot of ferrets, there is a swelling that in the corner of the ferret so as not to deforest it you don't know? If we were to deforest, we would have already

> finished everything, there was only the ferret because here the ferret invades, if the guy doesn't control it, it really invades, then we came from there to here then it invaded ours there but we controlled, we fought until, ours never caught on, it never burned ours like that (Interviewee E5, 2024).

The above statement suggests, therefore, that there is a complexity of traditional knowledge that involves the control of fire in the production of swiddens and also indicates a perpetual annual cycle of the slash-and-burn culture, without an innovative technique that overcomes this old way and manages to engender a plan to contain forest burning and climate warming. Even though research points to Carpedo and Mielnicziuk (1990) the search for alternative systems to slash and burn as options for farmers in the Amazon is not practiced.

Also regarding the system alternative systems for cutting and grinding capoeira, tested in agriculture and which present themselves as soil management technologies, ensuring sustainable agricultural production in the region without the emission of carbon dioxide into the atmosphere. Despite such innovation, Lábrea continues with repetitions of fires and various forms of propagation of uncontrolled fire outbreaks, described as an essential procedure for rural production.

> [...] In the swidden, we have to clean first, you know! Then comes the felling, then we come to untouch it to be able to cry, then we have to clean, untouch, then we stump, then I planted, right? That there is already cavano, making the graves and planting the swidden. That's the process, right? From the countryside. When we have a machine, the machine comes, does the process, right? It stumps up and we just plant it. And when there isn't, then we have to do it with our own mere arm. Then it goes to the fire, when there is no way, then it goes to the fire. With the machine, the person arrives, then he takes it, then he pulls out the stumps. She pulled out the stumps, then just plant. If not, it's like us here. We asked several times for a machine to come here, to untouch, it was necessary, we went with our hands, right! Untouch. And today, you can look there. It's just the land, so you can see that there. It was me with swollen, she with the tessado, the boys with hoe, some eight, look there, it's just the earth.. We don't need any of that, right? But today we got there. And then, we smoke untouch. Because if not, we couldn't do it, no (Interviewee E10, 2024).

The interviewee's speech demonstrates the abyss between the environmental paradigm and the way of doing things of the rural worker of Lábrea, suggesting the little effectiveness of environmental legislation in the praxis of the daily life of farmers, where the exploitation of natural resources occurs indiscriminately and according to the demand of the economic structure of the capitalist system of exploitation, that appropriates the

disadvantaged condition of the small producer with his first needs and that needs to produce for the market and guarantee the family's livelihood.

The slash-and-burn mode of production has been carried out by the Amazonian groups for thousands of years, being used in the nineteenth century by the colonizers in the Purus for the production of their swiddens, that is, the sophisticated capitalist system does not modify the structure of slash and burn that served the mode of subsistence, according to Weinstein (1993) identifies such structural problems existing in the economy of the Amazon region as a primitive structure of barter applied to the economy of aviamento, in turn, associated with modern capitalism. As illustrated in the following speech the practice of burning:

> Here, we need a machine for each settlement, even if it was one, it could handle everyone. Do you know why? He would make the roasters before the person brushed. All four-fathom wide. You didn't need to burn, you were going to clean it, you were going to pass a harrow, because fire kills the soil of the earth and you only burn once and it's no longer good to plant. Then in the machinery, you keep digging every year and the land is good, every year the land is good. With the machines, I reduced 90% of the fire. In my point of view, drone, satellite, that's just to spend money, it doesn't solve anything, the world is ending in fire. This smoke, this makes the person sick. We in the government don't look at the producer, if it comes, if some resource comes, but it doesn't reach us. I work with pineapple, watermelon and cassava fields, because I have to have flour for me to eat the cassava fields and I sell the leftovers. There I have a hectare of garden planted, almost at the point of harvesting (Interviewee, E8).

According to Santos (2017), the Amazonian scenario over the last few years involves an atmosphere with a high population of pyro clouds, which are clouds that are directly influenced by the smoke and heat of forest fires that occur during the dry season in the Amazon region. Thus, the annual period of fires in the Passiá settlement is part of a structure agreed upon among the population. According to one of the survey respondents

> What changed, came this quintura that you want the Sun, the Sun he is not even there, his light is weak but the quintura is unbearable, I was rubbing there the sweat dripping and I was drinking water, at first we went to work on the shore of a beach it was that wind all day we didn't even sweat, that cold wind. Understand? It only heated up like this at noon until about two o'clock then it was good again, now seven o'clock in the day the quintura starts all day, that unbearable quintura. I've never seen this smoke, I'm already 80 years old, I've never seen it, I hadn't seen it in my life, the first time I'm seeing it, this issue of temperature, very hot, due to burning, another, the weeding, oxa, I work twenty (Interviewee, 9).

Santos (2017) when researching the increase in surface temperature points out that the intensity of light caused by deforestation, the study showed that there is a decrease in the balance of radiation received by the pasture being on average 11% less when compared to the forest environment, generating high temperatures during the day. Thus, according to the author, this is the dry period

> Four scenarios were presented, ranging from a relatively clean atmosphere to the most polluted, generating adverse conditions in the climatic dynamics of the Amazon region. The scenarios presented were: blue ocean with low concentration of NCN (cloud condensation nuclei) of anthropogenic origin; green ocean that is related to the clean atmosphere of the Amazon during the rainy season; the third is a scenario where clouds and their formation processes are strongly affected by the fumes resulting from the burning of vegetation; the fourth and final scenario involves an atmosphere with a high population of pyro clouds, which are clouds that are directly influenced by the smoke and heat of forest fires that occur during the dry season in the Amazon region (Santos, 2017, p.166).

Thus, the repeated cycles of recorded fires and the expansion of farm areas, for cattle and grain raising, as well as logging in the municipality of Lábrea and adjacent regions, in which small and large landowners simply promote fires in the dry season. The region thus goes through a productive extension still based on the use of fire as a rudimentary agricultural technique, and perhaps even with greater intensity) a phase of intense and uncontrolled exploitation of natural resources and felling of the forest of the Purus River, as illustrated by the interviewee's statement:

> I lived in Mucuim, it's been two years, a year and a bit I lived there, on a farm, then Bessa farm here on 230, pay attention, to the side and another it's all farm, in the Canutama part. until the year brought there in Mucuim, the boy says that he used to go from a school of fish lé, right in front of memo, now there is nothing else, there is a big garapé that he leaves near Canutama called Jaihã, a large and chestnut stream, so destroying everything, there were before the felling is in the river that has the headwaters here near Bessa's farm, pay attention to the fact that there is a culvert that comes out there in Canutama a large garape, they are cutting everything down there, the chestnut groves to make pasture, the people who break it, the people come from Canutama to break there, they are already cutting it down, this is known by everyone who lives there in the city, You know that, that they are cutting down and making pasture. The guys, if you go to Mucuim, you see, the guys who are working, knocking down on the side of the road, for the truck to pass, have to wait for the felling. A big, big, big knockdown. Yes, to open pasture, there is nothing else, no, today they open it to pasture and try to take advantage of the wood. And that's why, like it or not, you have to thank this one, I don't know if I'm right or not, this Mapinguari National Park and Reseva do Abufari (Interviewee, E4, 2024).

The interviewee's speech points to a recurrent economic cycle movement in the region of Lábrea and presents a triad of deforestation: removal of wood, opening of pasture and creation of farms, with emphasis on the reaccommodation of social actors in the structure, many of whom maintain work activities in a privileged condition of the use of natural resources in a predatory manner, Continuing the social and economic relations in the municipality, that is, the old unsustainable ways have succeeded and enriched over time rich merchants, alleged owners of lakes and chestnut groves and influential figures in the local political scene.

The issue of indiscriminate removal of forest clearance to obtain illegal timber appears throughout the Purus hydrographic basin, and signals an extensive network of connection between the south of Lábrea, through the clay branches, and Br 364 in Rondônia. Another exit is through road 230, where cattle ranching advances to the city, in the kilometers of the rivers Mucuim – km 70, Mari – km 36 and Passiá km – 30, its communities live from extractivism in which the wood gains, every year, market value, and many workers receiving high demand from logging companies, have become sawyers and wood suppliers to the sawmills of Rondônia and Boca do Acre.

With this, the agricultural/timber frontier of the South of Lábrea is formed and advances over the middle Purus River (FRANCO, 2011). The unit of analysis in the region has been undergoing changes in terms of land use change and suppression of vegetation cover, resulting from the deforestation that affects the municipality of Lábrea and the life of its communities (MENEZES, 2009). An intense occupation of farms has been registered and monitored on the BR 230 highway, which employs many of the local actors at times of the year, for the service of clearing the forest to open pasture.

The installation of the regional office of the Chico Mendes Institute for Biodiversity Conservation – ICMBIO, in 2007, can be considered milestones of the arrival of this new frontier in Lábrea, which invariably conflicted with old practices of environmental exploitation such as the one described below:

> And that's why, like it or not, you have to thank this one, I don't know if I'm right or not, this Mapinguari National Park and Abufari Reserve. Mucuim is very plentiful, there was a time when going up the river with women, we didn't catch fish, ixi, we spent the day, the animal was also little hunted, the men entered from the outside of Porto Velho and took it, everything was scarce for us, now, the Mapinguari National Park and reserve helped a lot, is the one who saved these remains of land. You know that Mucuim is a very abundant, fish, kid, pirarucu, turtle, tracajá, everything that is garbage. Hunting, tapir, everything if it weren't, the reserve would be implanted there. It happened that I went up an aerial on a shore, and fought, caught a fish to eat, went

> and caught more, when the branch line opened in the back, which comes out in Porto Velho where the fishermen and miners come, then they started the deforestation, there was already a farm already deforested there.
> That's when they implemented the park this week. Now go there, you see, it's beautiful again, the game animal is having too many of all sizes and the fish has too much (Interviewee E7, 2024).

This last narrative reports the inspection movement of the competent agency in the region provides preservation impacts caused by its presence in this deforestation border region on the federal highway BR 230 – Trans-Amazonian highway. Demonstrating the regenerative capacity of nature, the forest preserved in recent years, through the creation of the national park and the Resex condition the life and reproduction of mastofauna and ichthyofaun, is already perceived, even with factors such as the advance of deforestation in the region in recent decades and the economic influence of the neighboring State of Rondônia in Labrense society.

In the municipality of Lábrea, where the most impactful issues in terms of landscape modification were the increase in deforestation and the advance of cattle ranching, it has become among the municipalities that most illegally deforest the forest, a list in which Lábrea is included as a municipality in Amazonas, which is why it has been receiving Operations Arc of Fire and Arco Verde (State of Amazonas, 2011, p.173)

As can be deduced, despite the fact that the government carries out command and control actions combined with affirmative incentive policies in the region, deforestation and indiscriminate logging continue normally, as well as the inhabitants of the forest began to act directly through the administration of "indebtedness to bosses" in a compulsory debt relationship. becoming perpetual employees of deforestation.

The significant increase in the demand for natural resources from the forest in the international market influences employers' strategies for the immobilization of the workforce. Therefore, the concepts are configured as analytical instruments that allowed the understanding of the cases studied by the research within the social relations, permeated by antagonistic views, about the environmental conflict over these territories.

5 CONCLUSION

The research on fires in the municipality of Lábrea reveals a complex interaction between social, cultural and environmental factors that influence the frequency and intensity of fires. By using oral history as a method of inquiry, significant accounts have been collected

that offer deep insight into the experiences and memories of local workers. These testimonies highlight not only the historical relationship of the inhabitants with the land and natural resources, but also the ways in which management practices, such as the culture of slash and burn, are integrated into the daily lives of the communities.

The qualitative approach enabled a richer and more contextualized understanding of the narratives, allowing collective memory to emerge as a fundamental element for the analysis of fires. The experiences reported by the interviewees reflect a past marked by struggle and adaptation to social and environmental changes, highlighting the dynamics of the northeastern workers who, over the course of a century, shaped their identities and practices on the Purus River. These narratives underscore the importance of recognizing traditional knowledge and life experiences as an essential part of the debate on the sustainable management of natural resources in the Amazon.

In addition, the research showed that the social identity of workers is not fixed, but rather fluid, composed of multiple activities and influenced by a context of modernity and globalization. This identity flexibility is crucial to understand the resistance and transformations in cultural practices in the face of external pressures, such as economic exploitation and public policies. The research also revealed how economic dynamics and market demands shape workers' decisions regarding land use, often leading to the adoption of practices that favor short-termism over long-term sustainability.

Another significant point addressed was the issue of memory and the way it is intertwined with the life practices of social actors. Collective memory, when mobilized in narratives, not only serves as a record of the past, but also acts as an active resource that influences current decisions. The reports indicate that remembering the traditional modes of cultivation and management is fundamental for the search for alternatives that can reconcile development and environmental preservation. This highlights the need to integrate this local knowledge into environmental management strategies.

In short, the study of the fires in Lábrea is not limited to the analysis of the fires themselves, but expands to the understanding of social relations, collective memories and identities in constant transformation. The results point to the need for public policies that consider this complexity and that promote a dialogue between local knowledge and scientific approaches. It is imperative that solutions to the problems of fires include the active participation of affected communities, ensuring that their voices are heard and respected in the decision-making process.

In addition, the survey highlights the urgency of promoting initiatives that encourage more sustainable management practices, taking into account the economic and social realities of workers. Such initiatives could include promoting agroecological techniques and strengthening community organizing, allowing workers to take an active role in conserving their natural resources.

Finally, the study contributes to the discussion on environmental sustainability and the development of Amazonian communities, proposing that the voices of workers be heard and respected in the decision-making process about the future of their lands and their lives. By recognizing and valuing the wealth of local knowledge, it is possible to move towards a more integrated management that is sensitive to local realities, which not only minimizes the impacts of fires, but also promotes the resilience of communities in the face of climate change and the socioeconomic transformations that are underway in the Region.

REFERENCES

Bento-Gonçalves, A., & outros. (2014). Análise de vulnerabilidade a incêndios florestais na região do Minho, Portugal. In Anais do Riscos - Associação Portuguesa de Riscos, Prevenção e Segurança (pp. [intervalo de páginas não informado]). Guimarães, Portugal: Universidade de Coimbra.

Brando, P. M., Paolucci, L., Ummenhofer, C. C., Ordway, E. M., Hartmann, H., Cattau, M. E., Rattis, L., Medjibe, V., Coe, M. C., & Balch, J. (2019). Fire regime in the Brazilian Savanna: Recent changes, policy and management. Annual Review of Earth and Planetary Sciences, 47, 555–581. https://doi.org/10.1146/annurev-earth-053018-060221

Brasil, Ministério do Meio Ambiente. (2020). Orçamento 2020. Recuperado em 18 de março de 2024, de https://www.camara.leg.br/internet/comissao/index/mista/orca/orcamento/OR2020/red_final/vol4/44_meio_ambiente.pdf

Gontijo, G. A. B., Pereira, A. A., Oliveira, E. D. S., & Acerbi Júnior, F. W. (2011). Detecção de queimadas e validação de focos de calor utilizando produtos de sensoriamento remoto. In Anais do XV Simpósio Brasileiro de Sensoriamento Remoto - SBSR (pp. 7966–7973). Curitiba, Brazil: INPE.

Lima, G. S., & outros. (2018). Avaliação da eficiência de combate aos incêndios florestais em unidades de conservação brasileiras. Floresta, 48(1), 113–122. https://doi.org/10.5380/rf.v48i1.XXXXX [Nota: DOI fictício; verificar o DOI real]