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vol 9 ◆ no 1 ◆ 2025

Special issue
Indigenous knowledge and languages in interaction –
Amazonian and Arctic approaches

Guest editors
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Foreword to the special issue: Indigenous knowledge and languages in interaction – Amazonian and Arctic approaches

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This special issue connects Indigenous studies, linguistics, and Indigenous anthropology in Amazonian and Arctic contexts. These two regions have unique cultural and ecological diversity, and their own challenges and opportunities related to the vitality of Indigenous languages and traditional knowledge systems. Besides Indigenous knowledge and languages in diverse contemporary contexts, this special issue also looks at methodological and ethical approaches, as well as new language technologies developed to support the study, renewal and vitalization of Indigenous languages in both regions.

The collection of texts results from the exchange project "Indigenous Studies on languages, traditional knowledge and the environment within Amazonian-Finnish collaboration," funded by the Team Knowledge Finland program of the Finnish National Agency for Education. The project enabled knowledge synergy between the UH–University of Helsinki, UFAM–Federal University of Amazonas located in Manaus, and UFPA–Federal University of Pará located in Belém, Brazil. Between 2022 and 2024, it supported teaching and research visits, seminars, and workshops for faculty members and doctoral students. For many researchers, particularly for those travelling to Northern Europe or South America for the first time, this was a significant and transformative experience.

To make universities diverse, it is important that different Indigenous researchers can participate actively in academia beyond the regions and countries where their territories are located. While preparing our Foreword, one of us guest editors, Justino (Sarmento Rezende Dʉpó), a Tuyuka scholar, contextualized the current Amazonian situation of Indigenous researchers with his personal experience and view:

"Over years and decades, countless people from diverse cultures, territories, and nationalities have enriched my life journey, which I began in a small village called Onça-

igarapé in 1961. My entry into university opened the door to a broad range of knowledge and led me to engage with different academic spaces both nationally and internationally. Between 2023 and 2024, I participated in the knowledge exchange project between the three universities: University of Helsinki (Finland), Federal University of Pará and Federal University of Amazonas (Brazil). I participated in two exchanges, one in Finland and one in Manaus.

The act of leaving one's own country and arriving in another is, in itself, a profound learning experience building interculturality and internationalizing knowledge. For us Indigenous people—Silvio Sanches Barreto (Bará), Rosijane Fernandes Moura (Tukano), Justino Sarmento Rezende (Tuyuka) and Francisco Apurinã—who are researchers in training, it was a great linguistic challenge, because we didn't speak English. Yet, the linguistic difficulties were overcome through the presence of Brazilian colleagues, who spoke English, and people who spoke Portuguese. Thus, linguistic bridges were built, and, through them, we were able to take our Indigenous knowledge to professionals from another continent. And, from there, we managed to internalize the knowledge of the Sámi people as well as the research results of researchers carrying out studies with Indigenous peoples from different areas.

The collaborative project between the researchers from the three universities resulted in a reciprocal enrichment. Each researcher shared the knowledge developed over many years of study, acquired through extensive travel and long-standing relationships with numerous interlocutors in the field. The Brazilian Indigenous participants and Sámi researchers contributed with specific knowledge from their respective peoples. Every exchange period served to share life experiences and research practices. With a distinct life trajectory, each researcher continues advancing, deepening, and making visible knowledge they carry."

This reflection stresses, on the one hand, the challenges faced by Amazonian Indigenous researchers in accessing higher education and overcoming language barriers, and on the other, the efforts to build bridges that bring different Indigenous knowledge systems to new academic spaces.

Despite the vast distance between the continents of our universities (UH, UFPA, and UFAM), during the exchange, there were no barriers to understanding the deep connections between Indigenous languages, ways of knowing, and ecological perspectives. Interconnections of biodiversity, and cultural and linguistic diversity have been evident for a long time, and this special issue celebrates the richness of Indigenous languages and their unique capacity to carry specific philosophies, ecologies, and socio-cosmologies.

The special issue includes four peer-reviewed articles and eight essays. Each contribution is shaped by the authors' personal experiences and dialogues with different interlocutors. The texts evoke multiple sensory dimensions (flavors, scents, sounds, and images) and guide readers through a variety of territorialities where knowledge of different peoples emerges. They take us to the Brazilian Amazon, with contributions from José Carlos Almeida Cruz, Jimena Bigá, Marília Ferreira and Tereza Tayná Coutinho Lopes, Justino Sarmento Rezende Duꞑpó, Silvio Sanchez Barreto, and Tânia Hachem, Sidney Facundes and Antônio José de Souza (Wãtu), and to Fennoscandinavia, with the contribution by Hanna Ellen Guttorm.

In the accelerated process of change, the vitality of Indigenous languages and knowledge remains at risk. Yet, this vulnerability also gives rise to feelings of resistance and further

valuation of Indigenous languages and knowledge systems. Examples of these transformations and preservation efforts are addressed in the contributions by Jaqueline Wajuru and colleagues, Gessiane Lobato Picanço, and Jack Rueter and Niko Partanen. Some of the texts are shorter but reflect key topics discussed during our exchange project, such as Francisco Apurinã's text on the Indigenous heritage objects repatriated from museum collections to their original communities.

The themes of this special issue remain open to further development, deepening, and renewal. We hope that future collaborations will continue to expand academic dialogue between Amazonian and Arctic peoples. The investments that the universities make in academic exchange projects can encourage researchers to rethink their research methodologies, educational practices, and means of establishing research grounded in care and linguistic sustainability. Languages, traditions, knowledge systems, and societies are constantly evolving, and most importantly, a growing number of Indigenous scholars are entering universities and graduate programs, becoming researchers who bring their own epistemologies to a wide range of academic fields.

This introduction and Justino Rezende Sarmento's text were translated from Portuguese by Pirjo Kristiina Virtanen and the texts by José Carlos Almeida Cruz and Silvio Sanchez Barreto were translated by Luiz Costa. Several texts in this special issue were revised by Mark Shackleton and Abi Graham.

We would like to express our gratitude to the reviewers, and to the Finnish National Agency for Education for its financial support. Pirjo Kristiina Virtanen extends her thanks to her project co-leaders Sidney da Silva Facundes (UFPA) and Thiago Mota Cardoso (UFAM) for collaboration. We are also grateful to the EDGES project for allowing a further synergy between our institutions, and finally, to the Dutkansearvi Sámi Language and Culture Research Association for opening this space to our special issue. In this way, the Dutkansearvi journal is also better able to reach researchers in different continents.

Fire and the Wai'kahana practice of slash-and-burn agriculture, Upper Vaupés River/Northwest Amazonia

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Abstract

This article is based on a traditional millenary practice aimed at restoring and regenerating degraded environments in Piratapuia Indigenous territories. It starts with an ethnographic description built on the biography of the author, who is an Indigenous anthropologist of the Piratapuia people. As its field of research, it makes use of memory, which the author defines as oral echoes transmitted by the ancestors, and which are essential for constructing knowledge, including knowledge of patrilineal coexistence in the village. The work contributes to a continuous dialogue between social anthropology and Indigenous and non-Indigenous perspectives. Its aim is to describe the oral and practical theoretical understanding of fire management in the face of climate change, dealing with both how these changes are handled and with solutions for recovering degraded environments in Indigenous territories. It is concerned with the quest for the restoration and regeneration of forests, lands, waters, hunting grounds, fishing spots, and other places. The practice presented here can be applied and adapted to different global contexts wherever nature and technology coexist.

Keywords:
Regeneration, climate change, fire; Piratapuia People, Upper Vaupés

Wai'kahana na pehkẫme' e toho nikã̃ na wehseri ʉhã̃-ohté-ba'á-da'rasé, Ahpẽkó mã̃ Bu'ipʉ/Noroeste Amazônico.

José Carlos Almeida Cruz
Federal University of Amazonas

Wehéne nʉ'kõ ohâró

A'ti papera artigo, dʉ'pokãtí, atirope'tá tʉ'oyã da'raseti, nipe'tisé kahtisé nisé ditá dohorẽke're, matapʉtá ahopkã', da'ra muhãtike', na ukũ ohté ahpokã', pi'ni yahsã wihí buhuakã weékã', na Waí'kahara na yé kahtisé di'tapʉré na weé kũke', ukũsé me'na, nu'ka muhãti. A'teré ohoakʉ'ʉ kʉ̃ʉ wi'imagʉ pʉtá, teé kʉ̃ʉ ni'kãnoakã, kʉ̃ʉ Wai'kãharã kurá khũ Antropólogo, kʉ̃ʉ yã mahsĩka'tike're, kʉʉ ohoke'é nií. Kʉ̃ʉ yá di'tá kahsé, kʉ̃ʉ yehkʉsʉmʉã, pahkʉsʉmʉã, mayẽhkʉ̃sʉmʉã na ukũkũke're kʉ̃ʉ ohoáke'e nií. Teétá nií, mahsiseré ahponʉ'kõ da'rasé tisé, toho nikã pahkʉsʉmʉã me'rã kahtí nisetisé dʉ'pokã kahsé ayũsé. A'té da'ra bohká weéke', tohope'tá wesetikã ayũsató, nií ukuseti weató niíno weé, antropologia social me'na, na po'terikaharã na tʉ'oyã, na ʉkʉsetí, pehkasã yé me'rã, ba'parẽ ukũsetiató, nino weé. Toho weéro maha, a'té ukũsé toho nikã teé ukũsé me'na mií yẽ'e, da'raseré, ohâno'nosá nike'nií, pehka me'e kahseré, wehseri da'rana, ukũséré ohoáke'e nií, a'té kʉ'mari duhkayusé kʉ'mari wa'ro wa'teroré. A'tirope'tá da'rasetina mari, toho ku'mari duhkayuri teroré, a'tirope'étá, ayũrosató mani kahtisé di'tá, dohore ke'ré, ahpó da'rasé, mani niíse di'ta pʉré, niíseré ohoke'e, nií. Da'ra ba'na, nʉhkʉriné, di'taré, ahkóré, wai kurã dehsuba'seré, waí dehsuba'seré, ahpokã'a, ahpaturi ukũse me'rã bahsé ahpó, bahauakã weékã'a, weésétise kahseré ukũ, a'ti papera artigo puni. A'té bahsé ahpose, ukũse me'na da'rasetisé, a'tií di'ta, nipe'tina kahtinã na nisé di'tá pati pʉré, tʉó'kasató, pehkasã yé me'na, ni'kãno me'na ukũ, da'raseti, nikano me'na kahtisetisé niísa, nií tʉ'oyãkãné.

Ukũsé-pãsé:
Kahtirotí pinibuhasé, kʉmarĩ dʉhkâyusé, pehkâme'e, Waí'kãharã Kurá, Ohpekõ diá

Introduction

As a historical base, we can engage our conversation with the analyses of Carlos Fausto on the "Indians before Brazil". This author takes note of the descriptions and reports of colonizers and missionaries during the 16th and 17th centuries as a source for studying contemporary Indigenous populations. The soil of this land, in his view, is not rich (Fausto 2000, 7). In the book, Fausto presents us with the relationship between acidic soils and natural hazards, which destroys much of the registers of human presence. He also mentions the dense forests which hide many of the sites that were occupied historically. In what pertains to the forests, there is no doubt that there are indeed vast parts of the continent which remain unknown from an archaeological point of view. In his survey of conquest, we have information on the characteristics of the soils and the forests, but no reference to fire. In a critical and reflexive view, we find a concern with the fears and desires of the conquistadors, who sought to discover gold, convert the gentiles, occupy land and enslave natives (Fausto 2000, 8).

Current scholarship questions how much contemporary Indigenous peoples can tell us about ancient populations. From an anthropological perspective, the question is: Are present-day sociopolitical and cosmological system similar, in some way, to those that existed at the time of conquest or even before? What is implied is that Indigenous and non-Indigenous ethnology can provide a critical eye toward historical and anthropological interpretations. In the Western view, and according to anthropology, the socio-political and commercial relations of native people was locally and regionally articulated and interconnected. What is attested is that the texture of the history of Indigenous peoples is forged on an opposition between highlands and lowlands. The highlands are the mountainous Andean areas, running parallel to the Pacific coast. The lowlands lie to the to the east of the Andes, and include the tropical forest: green, dense and humid. In social anthropology, this opposition arranges various dichotomies, which were gradually established during the 19th century, opposing the socially and politically developed highlands to the almost natural (savage) societies of the lowlands, a sterile and inhospitable place. In the midst of this dichotomy, Lévi-Strauss, under the aegis of the separation of nature and culture, deals with the "raw and the cooked" in his analytical scheme, qualifying myth as the explanation of something supernatural (Lévi-Strauss 2004, 37). According to Lévi-Strauss' (2004, 13-14), as summarized by Beatriz Perrone-Moisés, his translator into Portuguese, we should underscore the analytical-comparative understanding of the notion of:

(…) "maître de, which is complex and variable. There are cases in which these figures are not understood to be "possessors" of things or beings, but representatives, or obligatory intermediaries between humans and these things or beings. In other cases, they are "lords" in the sense that they possess leadership over these things or beings, which they "order", but which they do not necessarily "possess". In other case still, they are figures which produce, generate, things or beings, which they may or may not then order, and which they may or may not care for, distribute or cause to reproduce. In each mythological complex, the best translation will be the one that comes closest to eliciting these distinctions. But here, since we are dealing with a comparative effort, I needed to use a single term. The jaguar is, indeed, the owner of fire: he possessed fire before humans relieved him of it, becoming thus the owners of fire. Since it is with the jaguar that we begin, I have maintained 'owner of' as a translation for maître de" (Perrone-Moisés 2004: 13).

To reach this conclusion, Lévi-Strauss analysed myths of the following peoples: Jê (Brazilian savannah, Paraguay and Bolivia), Kayapó (Brazilian Amazonia, state of Mato Grosso and central and southern portions of the state of Pará), Apinaye (extreme north of the state of Tocantins), Timbira (south of the state of Maranhão, eastern Pará and northern Tocantins), Xerente (Tocantins), Guarani-Mbyá (Paraguay, Bolivia and Argentina), Tupi-Apapocuva (northern coast of Brazil, Peru, Bolivia, Paraguay, Argentina and Uruguay), among others.

In all cases, we can see that Lévi-Strauss used the word 'myth', which is a word taken from the colonialist literature, which distorts and disqualifies Indigenous knowledge as mere mythologies of the Highlands and Lowlands (Amazon basin). This silences the knowledges that Indigenous people possess, in their intellectual-oral traditions, the knowledges that permeate their lives and the blood of their resistances, from the conquest to the present. We can claim, in light of Lévi-Strauss' work, that it is possible to describe knowledge about the origin of fire from the perspective of the *kumuã* (specialists) of the Vaupés, in the Upper Rio Negro, located in Northwest Amazonia, an anthropological region of lowland South America. In the cosmological knowledge of the *kumu*[1] (specialist) of the Vaupés, the soils and the rivers (red, white, and black) are described as places where milk and honey flow. The river, which originates in the Milk Lake, propitiated life for the Indigenous people (pamuri mahsã), enabling their transit by means of the transformation canoe (pamuri yuhkʉsʉ). In this view, for the people of the Vaupés, the matrix and origin of fire is associated with the Sun, with man, animals, and some elements of the forest, as I will develop, within a more general context, throughout this article.

Thus, the construction of Indigenous thought on fire and slash-and-burn practices in Wai'kahana agriculture is based on the following categorical presuppositions: What can Indigenous people contribute with their traditional practices founded on the millenary knowledges of their ancestors? And what is the panoramic view of the Piratapuia people of the upper Vaupés in the search for solutions and practices that contribute to mitigate the effects of climate change in their reality and territoriality? This quest invites us to look at the historical narratives of the Piratapuia elders on fire and the possibility of its control in the practice of slash-and-burn agriculture in Piratapuia gardens.

It should be stressed that the ethnographic approach adopted here is based on traditional practices of fire management, in particular those than manage the cooling of the ashes and the earth/soil, by means of a technology of intelligible thought known as *bahsesé*[2]. It is a perspective of knowledge transmitted intergenerationally, on what we call, in the ethnological literature, the *coivara* regime.

Coivara is a Tupian word, included in Portuguese-language dictionaries, which expresses a concept related to the traditional agricultural system. It is a specific, locally adapted variety of slash-and-burn agriculture, and throughout this article I will used the word *coivara* in place of 'slash-and-burn'. The practice of breathing that is involved in *bahsesé* (treatments for

[1] Kumu (sing.), kumuã (plur.), in the Tukano language, is a specialist in performing ceremonies to protect, sooth, pacify, etc.

[2] In the context of Indigenous thought, bahsesé are formulae used to negotiate with and mitigate diseases, as well as to calm down animals, hostile or rebellious nature beings, or even nature itself. They are also formulae of activation, geared towards improving the health and well-being of humans and nature. In brief, they are the conversations of the kumu (bahsegʉ), for which, in certain bahasesé, the formula for sweetening is applied so to restore forests (nʉhkʉrĩ), soils (di'tâ), plantations (ohtesé), animals (waikʉrã) and people (mahsã).

improving health and well-being) is an understanding proper to the Indigenous peoples of the Vaupés, which seeks the control of fire to achieve success when burning the garden. This practice is also linked to the fertilization of the soil, seeking a good crop yield. Coivara, for its part, involves cutting stems and branches followed by burning. In the context of the Upper Vaupés, coivara practices are applied when the traditional methods of burning the garden are unsuccessful. In other words, this coivara practice is employed as a method to improve burning by cutting stems and branches and gathering them in piles. Coivara agriculture is frequently used by tropical forest agriculturalists in many parts of the world, to make animal pastures (in South and Central America) and by dry rice cultivators in the mountain regions of Southeast Asia. The resulting ashes fertilize the soil and the terrain is made relatively clear of undergrowth. After many years of planting, soil fertility reduces and undergrowth returns. This is the time to allow for the regeneration and restoration of the forest, for 5 to 10 years, so that soil and forest can reestablish themselves.

Thus, alongside clearing and using fire to burn, the Indigenous practice is completed by the traditional cosmic breath of the kumu, so that success in burning can be assured. It is thus a practice that can be applied to the usufruct of forests, soil, and fire in the cultivation of plants. And the garden is linked to the theoretical oral practices and to the concrete practices of managing forest and soil. According to this understanding, the garden is one of the main agricultural sources of food and food safety for the people of the Vaupés. Climate change has altered these cycles, causing scarcity of manioc stem plantation and a lower yield of its fruit, manioc. Consequently, we are witnessing a decrease in sustainable production and in the exchange and sale of manioc derivatives, such as farina, manioc bread, manioc gum, etc.

These ethnographic data are based on *in loco* coexistence, in the oral transmission received from kumu specialists and registered by a Piratapuia researcher. I am from the Wai'kaharã-Piratapuia people, born near the black waters of the Pauprí River, a tributary of the Vaupés, in the municipality of São Gabriel da Cachoeira, in the Brazilian state of Amazonas, near the border with Colombia. I am an Indigenous teacher and hold a licentiate degree in Intercultural Pedagogy, specializing in Indigenous School Education, as well as a Master's degree in Social Anthropology. I am currently studying for my doctorate in Social Anthropology at the Federal University of Amazonas. The register of the origin of fire I present here is of the Tukanoan peoples, but it is known to all Indigenous peoples of the Vaupes; the practice for controlling fire, however, is knowledge obtained from Tariana, Piratapuia, Arapaso, Tukano, etc., kumu. It is knowledge complemented by conversations amongst the kumu.

Piratapuia methodology for knowing and researching coivara practices in our territories

A kumu Piratapuia is a generally experienced member in the local context of each Indigenous Vaupés peoples, who has his own understanding of the cosmological world of his people, of plants and animals, of the diagnosis, prevention and cure of disease which may be caused by *waí mahsã* (fish-people/cosmic beings), the reparation and regeneration of ruined environments and *ʉmʉkohori põrisé* (worldly disease).

As I showed in my Master's dissertation, the Piratapuia kumu Jacinto Cruz (in memoriam) and the Arapaso kumu João Lemos, rely on a more rigid practice of preparation and seclusion to take on this function: to diagnose; to construct and adapt the bahsesé ritual (cure, protection,

tranquilization) which will benefit the dwelling-environments (hunting grounds, fishing spots, places where fruit is gathered, controlling animals, controlling pests) and the bahsesé for the integral life of the person. They understand the dwelling-worlds (method) of the waí mahsã, so that they can carry our conversations and diagnoses. They assure harmony, resolve people's illnesses or ailments, and also ensure the life of the forest, the river, the fish, the soil, the garden, the feasts, etc. (Cruz 2023, 68-69).

This study is hence an intercultural and interdisciplinary dialogue because it expresses the result of shared knowledge between people speaking languages of the Tukanoan language family. The Tukano language is the lingua franca in the territory known as the Tukanoan Triangle, in the Vaupés River basin.

In the epistemological context of the appropriation of Piratapuia knowledge, we can call the methodology *ukũsé bohkasé*, which is the meeting of the foundation of speech and Piratapuia knowledge. Thus, claimed the Pitapauia man Jacinto Cruz (in memoriam):

Having and/or appropriating life in the cosmic garment of your ancestral grandfather of transformation, ornamenting yourself with it, with their adornments and taking possession of these elements, when you sit, you, as a Piratapuia, will be at the same level of eyesight and understanding the "other" in your stool, cigar and yaígʉ of knowledge and/or knowing (Piratapuia, registrado em 2023).

Ukũsé bohkasé is the practice of appropriating knowledge and facing up to the globalized world; a practice which activates transit and diplomatic dialogue with different knowledges and in different places and/or global environments. They are also ancestral visible and invisible adornments and ornaments (Fig. 1), in the sense that the Piratapuia Indigenous person can use them in material or immaterial form.

Fig. 1. Ornaments and elements for the appropriation of knowledges. Drawn by the author, José Carlos Almeida Cruz.

1. Bu'sá – ornaments
2. Su'tiró – all of the elements of the body
3. Ʉhtã boho – yaí quartz stone
4. Ahpoã pihirĩ – Necklace with gold plates
5. Kahperi – the eyes
6. Kumurõ – stool
7. Yaígʉ - shaman's rattle lance
8. Mʉnorõ – cigar
9. Kahtiri waháro – raw gourd of life (gourd of life)
10. Kahtirí sãrirõ – raw life support (life support)

According to this cosmological perspective, fire management and its constitutive elements, such as ashes, propitiate the life of plants. The garden, one of the activities inherited from the creator-divinities, is the foundation of life and food security for the peoples of the Vaupés. It is because of this and other basic factors of Indigenous agricultural practice that the National

Historical and Artistic Heritage Institute[3] recognizes Indigenous Gardens of the Upper Rio Negro as a Traditional Agricultural System[4], a cultural patrimony of immaterial nature[5]. This practice, which involves ancestral agriculture and the use of traditional knowledges, is seen to be an important element in the identity and memory of the Indigenous communities of the region.

We must understand the Tukano words used in this study: *waí mahsã, mahsã, waí, o'me mahsã, waikʉrã* and other beings, who may be visible or invisible. I call them the snuff of words. Tobacco snuff is a traditional product, made not only of tobacco, but also of select herbs and tree ashes, inhaled for therapeutic and spiritual effects. It should be used with care. The beings involved in the snuff of understanding are as follows;

1. waí mahsã (fish-people);
2. mahsã (people);
3. waí (fish);
4. o'me mahsã (people of the mist/people who fall with the rains);
5. waikʉrã (animals in general).

'The snuff of words', in the context of this article, means having contact with these words in our language.

These beings live in the three worlds or dwelling-places (layers):

1. ʉ'mʉsé pati (sky-layer);
2. ditá patí (earth-layer);
3. wamʉ diá (earth core-layer).

Furthermore, the non-Indigenous methodology has developed within the descriptive-ethnographic, ethnological, context, an analytical-reflexive comparison of conceptions. Not all that different from Indigenous anthropology, it also involves interviews, fieldnotes, recordings, and transcriptions in Indigenous languages, through the mediation of technology (cell phones). With the same characteristics of the Piratapuia method, the experience of coexistence in a village are part of the sociocultural, professional and academic career of this Indigenous author, anchored in an unwritten memory of his own biography.

Otherwise, an understanding of the interculturality and interdisciplinarity of epistemological knowledges have guided the analysis and conversation with knowledges from sociology, biology, ecology, philosophy, geography, history, environmental rights, sustainability, etc. It is in this framework that I have developed the theme of the control of fire and the traditional practices of managing burning in the Piratapuia garden.

Waí mahsã in Piratapuia cosmological understanding

For the people of Vaupés River who inhabit the Tukanoan Triangle, the waí mahsã are cosmological beings, guardians of space (Barreto 2013; Azevedo 2016; Maia 2018; Rezende 2021; Cruz 2023). Thus, Indigenous anthropologists register these things in their research, essays, dissertations, and theses. And what, exactly, are the *o'me mahsã*?

According to my father, the Piratapuia Jacinto Cruz (in memoriam), the *o'me mahsã* are beings that fall with the rain, mediated by the *o'me ahkoro* (mist rain), which causes the *o'me poeró* (mini flood of mist rain), which propitiates the mini *piracema* (when fish lay eggs on the várzea). They are the fish. For the Piratapuia and Aparaso people, waí mahsã and mahsã are the beings that inhabit the three dwelling-worlds and transit autonomously through them. The first are the beings

[3] Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN).
[4] Sistema Agrícola Tradicional (SAT-RN).
[5] Administrative Process nº. 01450.010779/2007-11.

proper to this world, and the latter travel through them by means of intelligible thought and/or with the aid of *kahpi* (ayahuasca) or *wihiõ* (paricá).

source of life, they make up this perspective: wind, water, Sun and Moon, starts, and everything that has influence over the well-being of these people.

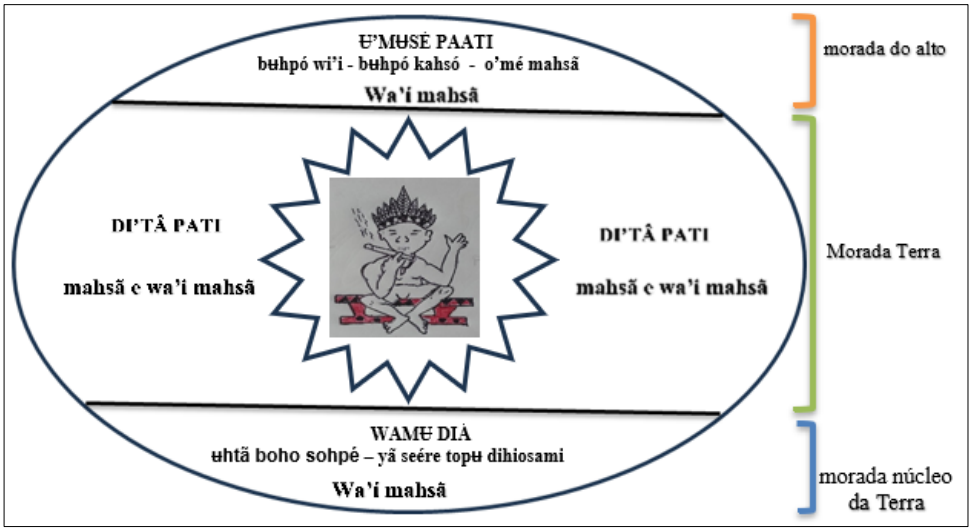

Fig. 2. Beings in the three layers of the worlds: Sky Layer: Earth Layer, and Earth Core Layer. Drawing by the author, José Carlos Almeida Cruz.

The waí mahsã beings, in their world, are gifted with intelligence, thought, the power of metamorphosis, wisdom, material (visible) and immaterial (invisible) domain, ever since the journey of the Transformation Canoe (pamʉri yuhkʉsʉ) (Cruz 2023). Barreto (2022, 180-191) calls this power of metamorphosis "sutiró", which translates as 'garment'. However, it is the temporary embodiment in the body of another or in the body of another being.

It must be stressed that waí mahsã does not only refer to the fish, but to all the cosmic beings that can be our allies or our enemies, and can cause disease, strife, and even death (Cruz 2023). Thus, the waí mahsã beings are fish, snakes, reptiles, birds, vertebrate and invertebrate animals, venomous and non-venomous animals, as well as plants (forests and their fruits). As parts of the

Taking western understandings of these concepts, we can explain that these beings experience two cosmological times: 1) Time of the emerging people (bahuari mahsã) or of pre-transformation; 2) Time of the transformation of people[6] (pamuri mahsã) into mahsã (people/humans). In the former, beings dominated the power of metamorphosis of su'tiro (protective ornament). In the latter, people-beings leave behind this power of su'tiro, or returning to life. They thus function through bahsesé, which involves intelligible thought. They also seek the assistance of kahpi and wihiõ to access the three worlds/dwellings, while the waí mahsã being retain the attributes of the first time in their trajectory through the second time, up until the present day.

Likewise, we can claim that a part of the waí mahsã transformed into "human people"

[6] This refers to an understanding of beings which were human people but embodied in fish form. It refers to one of the translations of pamuri mahsã, which, created by a divinity representing its people in the milk lake, journeyed along the Brazilian coast until the adventures of transformation on the Amazon rivers, its tributaries and sub-tributaries. Pamuri mahsã are the people of transformation, marking the transition from this condition of cosmic beings to the condition of human people.

and others, those that stayed, remains waí mahsã (cosmic beings). Those who stayed have retained their capacity to change skin or hide: they are sometimes fish, sometimes snake, sometimes land animals (Cruz 2023, 48-49). Thus, during the time of the emerging people, there were only creator divinities, which appeared by themselves, and which dominated use of fire. It was – if we may here borrow the Western term – a "magical" time. But, if we analyse things properly, the natural world is still magical.

The origin of fire in a conversation between the Piratapuia of the Papurí River and the Tukano of the Vaupés

According to the Sebastião Tukano, *yepâ oãkɯhũ* (yepâ divinity) intermediated the origin of the possession of fire with the pamɯri mahsã (people of transformation) by stealing the fire from the Sun, who was the "keeper of fire". The aim was that the pamɯri mahsã, in possession of fire, would be able to use to roast meat, fish and other food.

Without possession of fire, the pamɯri mahsã fed on maniwaras (ants), muchivas (a type of larva that feeds on chonta pulp), and species of earthworms and water worms (daracubí).

Fig. 3. Fish being smoked. Image: José Carlos A. Cruz.

Fig. 4. Maniwaras ants. Image: José Carlos A. Cruz

Fig. 5. Muchiva larvae. Image: José Carlos A. Cruz.

Fig. 6. Types of Vaupés fish. Image: José Carlos A. Cruz.

Fig. 7. Piranha with maniwara antes. Image: José Carlos A. Cruz.

Fig. 8. Cooked paca meat. Image: José Carlos A. Cruz.

Eating only these foodstuffs, the pamuri mahsã lacked some ingredients which strengthened their bodies. These foodstuffs that were eaten before the possession of fire are today serves as hors d'oeuvres, sold in markets.

Fig. 9. Piratapuia man smoking fish with fire. Image: José Carlos A. Cruz.

Without fire, they could not roast (or smoke) fish or the meat of animals (game meat) to feed themselves, which, in the view of yepâ oãkuhũ, meant that his grandchildren were always physically weak. This fact triggered the theft of fire, which is also its origin.

Analytical interrelations of waikurã (animals) and mahsã (people)

Through the narrative on the origin of fire, we can claim that the technique for producing fire was under the control of the waí mahsã and waikurã, as attested by the fact that the alligator interfered in the theft of fire from yepâ oãkuhũ, who, for his part, stole it from the Sun.

The cacique birds tried to take fire from the alligator, striking it with their beaks, in the hope that it would open its jaws. They were unsuccessful, succeeding only in making the hard and scaly hide of the alligator emerge through their blows and pecks. While pecking the alligator, the cacique birds were burnt, and the configuration of their garment (su'ti) or garments (su'tiro) underwent changes. In scientific language, the cacique birds underwent a metamorphosis in their garment and ethology, assuming their different colourings and becoming black caciques, red-beaked caciques, white-beaked caciques, and caciques with red beaks.

The alligator, having stolen fire and fled with it, shared it with all waí mashã beings, such as paca and other nocturnal animals. Paca is an animal with nocturnal habits. Others probably stole it from alligator. All waí mashã with nocturnal habits obtained fire, one way or another. For this reason, we claim that waí mashã exist in their world and, in their world, they are people (mashã).

In the sociocultural and epistemological context of the quest for fire, yepâ mahsũ (yepâ people), by means of the force of their intelligible thought (bahsesé), sought to reclaim fire. In their quality of pamuri mahsu, yepâmahsu, in possession of bahsesé (intelligible thought), conversed in dreams with the alligator. Using the bahsesé as an artifact of persuasion, through elements of the quest for knowledge, settled with tones of insistence, they succeeded in making the alligator open its jaws to reveal the technique for producing fire.

In dreams that mediated the conversation between mahsu and waí mahsu, in its quality as wai mahsu, the alligator asked his grandson yepâ mahsu to fetch material such as: the branch of *mohsã* (achiote) and a piece of the *paxiúba* palm broken into a rod,

made smooth, along with scrapings of the achiote branch.

Thus, control of fire, which marks the origin or emergence of the technique of producing fire, occurs first through the control of fire by waí mashã. It is hence a waí mashã technique passed on to the mahsʉ. What was the technique? To the use the paxiúba rod, along with the achiote branch scrapings. The former is gently swizzled on the achiote branch scrapings. The rotating movements continue until fire is produced.

The process of the origin of fire therefore comes from the Sun, and later Yepa oãkʉhũ steals it from the Sun. In possession of fire, Yepâ oãkʉhũ, in turn, has it stolen by the alligator. The cacique birds then try to rescue fire, but they fail. The alligator shares fire with all of the nocturnal animals. That is, through a technique passed by on the insistence of persuasion (keeper of lies), mediated by the bahsesé and dreaming, the pamʉri mahsʉ succeeded in possessing fire. Since first possessing fire, the pamʉri mahsã have faced the difficulty in keeping it lit and/or of keeping an ember alive. The only way that they found which worked was to keep an ember lit in a ceramic oven (di'í ehtaro). In the aftermath, other people came to get fire. No doubt, they shared the technique with many people. I would like to stress here that a function of Indigenous women is to always keep the fire lit, so that she may cook her food, or else to keep it alive in the over. In general, the ember is kept lit by a specific firewood from the *vacú* tree (a wild fruiting tree bearing bitter fruit).

Wehsé ʉhʉãgʉ ũkũro/ di'tâ yʉhsʉoró. Fire and coivara practices in Wai'kahana (Piratapuia) agriculture in Upper Vaupés

As an Indigenous researcher, I describe a *practice that involves theory and practice*. Theory is the dialogue of intelligible thought and practice is the result of the management and control of fire in its concrete form. In its essence, this is a millenary cultural practice of managing fire which does not have large-scale effects. It is a possible and tried practice, ready to both face the impacts of climate change and to find possible solutions for recovering degraded environments in the Indigenous territories of the Vaupés.

Fig. 10. Management and control of fire: the force of the wind of birds (eagles). Drawing by the author, José Carlos Almeida Cruz.

The Piratapuia bahsegʉ enacts this practice. He prepares his cigar with tobacco and does the bahsesé, applying the strength of the winds and the eddies that the eagles and/or hawks produce when they flap their wings at the moment in which they catch prey. That is, the kumu activates the wind that is produced by the flight of the birds. The winds become manifest as eddies. This is the potency of the winds incorporated in the bahsesé. The eagles are not, however, fire; the wind is the strength that activates the potency of fire. Each of the hawks, eagles, and the two birds are enveloped in a natural force of winds that are at once visible and invisible. The kumu embodies the wind through the bahsesé, the firewood with the active force of fire as ember (pehkâ porãtise). And the fire is manifested as types of veins and winds of hot air. The potency of the fire eddy in the form of a wind spiral rises, envelops, and burns the garden.

Fig. 11. Virgin wood garden. Image: José Carlos A. Cruz.

Fig. 12. A recently burned garden. Image: José Carlos A. Cruz.

This is the moment of fire management in small-scale coivara practices. We can claim that the birds, with their wind mediated by the strength of the kumu's breath, make it possible to control fire during the burning the Piratapuia garden, as an Indigenous cultural practice. This practice aims to strengthen planting, ensure the care of plant growth, and generate a crop yield that can sustain the daily life of Indigenous community in their territory. The nine eagles and two little birds are elements that produce and are enveloped by their own force and by the Piratapuia kumu's bahsesé, which mediates between them. According to my father, Jacinto Piratpauia (in memoriam), these birds are:

1. kâuré eagle;
2. garden hawk (wehsé á);
3. long-tailed hawk (á pihkõ yoá);
4. umbaúba-leaf hawk (bo'tea purĩ á);
5. tuvira eagle (marãpi á);
6. pacú eagle (kasama á);
7. 'yʉ eagle, chief of the eagles (deýu á pahkʉ); and then we have:
8. the vulture (yuhká);
9. the king vulture (wuawá).
10. And, to complete: 1) swallows and 2) baáro and/or pihkõsé.

In the process of orally transmitting the teachings of the bahsesé to the apprentice kumu, the senior kumu teaches the formulae in their proper sequence. In this case, we can observe the birds that are interrelated in this management of fire. Thus, it befalls the apprentice kumu to exercise and perfect it, in his practice, which requires memorization.

We can therefore clarify that all bahsesé is a ritualistic practice that demands the use of intelligible memory, and, no doubt, this practice of managing fire is a management of intelligible thought toward the burning of the Piratapuia garden.

According to Piratapuia analysis, the hawk and/or eagle, the two vultures, the swallow and the baáro bird (scissor hawk), each one in its own way of being, in intelligible thought, are provided with boughs that conduct strands of wind and/or the elongated wind tails. When they stop down to imprison their food, the cause a sound (weoó) of wind produced by the air of their wings.

Thus, it is these strands of conducting boughs of wind and/ or elongated wind tails which the kumu manages and/or manipulates in his thoughts involving intelligible memory. The kumu then activates these forces, making them very sweet, to make them reach a successful level (uhpití weé), pulling the winds, raising them and making them form mini-tornadoes or eddies.

Analytically, the hawks, the eagles, the vultures, the swallow, and the baáro are invisible but manipulable by the intelligible thought of bahsesé. They are embodied; that is, they become cosmic instruments with

visible and invisible material forces, making the wind and its strength emerge, as well as the wind eddy.

Yet only the apprentice or experienced kumu, or the yaí (shaman), who have undergone initiation and received the attributes of a kumu, can manipulate these elements, since beings, such as the waí mahsã, dwell with all of their being and way of life in their world.

The bahsegʉ (agent of the bahsesé) operates with his intelligible thought the force of these beings and their strength-elements which cause wind to create a successful garden fire. The kumu evokes, selects, saying the name of each bird involved in the bahsesé, and scrutinizes each detail of the wind for the successful evolution of the garden fire.

The bahsesé practice of cooling as control of the ardour of the fire's embers enveloped in the place and in the soil of the garden

According to Pirtatapuia knowledge, control lies in the cooling breath after the burning. My Piratapuia father and other wise kumu elders say that control is in the breath, which is the opposite of what was carried out during the burning.

The kumu unmakes the gusts of burning. He removes the strength and undoes the wind eddies caused by each of the birds. He then cools the fire and the ember and stores away each bird in their dwelling-places. This cooling of the earth involves removing the ardour which hovers over the burning. It involves implanting the types of fertile soil in the earth for planting.

According to my Piratapuia father, Jacinto, the Arapaso João Lemos, and the Tukano Gabriel, after burning the soil is hot. It is for this reason that the bahsesé of *di'tâ yʉhsʉoro* (cooling of the soil) and *di'tâ ahporó* (reordering of the soil/fertilization) is indispensable. The traditional practice of managing fertilization (a sort of composting) by means of intelligible thought is the focus of my doctoral research. Some ideas are therefore not included in this article, because the understanding of the use and control of fire is the fruit of a collective labour, in what pertains to the ethnographic description of the thesis of the Indigenous Piratapuia researcher.

Another important factor for the wise kumu elders is the element of water in their bahsesé, to cool the land by means of intelligible thought, sitting and enveloped by elements that embody real facts, such as events and/or happenings. However, the kumu may blow into a cigar or a pot of water so that, afterwards, the water can be poured into the soil which delimits the garden, after the blessing.

We can therefore stress that this agency generates and operates an interconnection of man and nature with its elements. The epistemological understanding, which involves an understanding of context, allows these practices to function in any environment of the terrestrial globe, since the functioning of these elements transcends physical matter, or, better yet, they operate on physical matter in material and immaterial spaces.

It is this understanding of the management of traditional practice which is operated with intelligible thought that makes viable the practice of controlling fire, according to the Piratapuia people and other peoples of the Upper Vaupés. They thus attest to three types of water: white water (ahkó buhtisé), black waters (ahkó yĩsé) and red/silty waters (ahkó soãsé). Each one of these has different tastes and flavours and possess states as cooling and/or cold waters (yʉhsʉasé weri mãri), or pots of cold waters that generate life (weri ahkó kahâ).

In brief, to the thought of traffic and intelligible memory, the Piratapuia kumu adds breath, transforming and gathering water in one single mixture with the three

qualities of water: good water (ayũsé ahkó), cooling water (yʉhsʉasé ahkó) and tasty/flavourful water (ʉ'seásé ahkó). With the cigar, the kumu preforms the bahsesé of puffing, and he sprinkles water on the burnt land. This is the meaning of cooling the land or the soil where burning took place, through the bahsesé, an interconnection of intelligible thought connected to natural elements that promote an interconnection with the life of forest beings and other beings that inhabit it. It is a practice geared towards the regeneration and resurgence of forests.

It is worth noting that in the conception of the peoples of the Vaupés everything has life. Therefore, this practice of bahsesé, which involves the forces of the winds of the eagles and/or hawks and the elements of water is a traditional negotiation which also propitiates the fertility of the soil and the development of cultivated plants, and, later, the plants that will grow in this place will have an abundance of water to ensure the (re-)existence, regeneration, and resurgence.

It is a fact that the plants, the trees of the forests, even in the height of summer, resist the heat of the Sun because the earth received the element of water by means of the bahsesé of the Piratapuia kumu.

In this understanding, these practices deal with the restoration of landscapes and dwelling-places that have been ruined by the waí mahsã and the mahsã. This can be an effect of human activity but also of the waí mahsã. As has been stressed previously, this practice involves intelligible thought on the invisible forces and invisible forces, the thought of people that generates harmony in life and well-being between the mahsã and waí mahsã beings.

Fire and its relation to burning the Piratapuia garden has many meanings. I here highlight some of them:

1. The garden, delimited on a small scale and burnt properly, is a productive and nutritious garden for plants, understood as waí mahsã and/or yukʉri mahsã beings.
2. A poorly-burnt garden is not good for planting, because it is not composed of elements such as ashes, which give plants a nutritious odour. It invites practices of sweetening[7], fertilization and/or nutrition of the soil with the elements of the Bahsé ahpose[8] (dealing with ruined environments).
3. The garden that has been successfully burnt will regenerate, sprout, grow and reestablish a new forest in its natural place. It does not necessarily require Bahsé ahpose.
4. A fundamental rule, a cultural practice, is to apply a fallow period of approximately 20 years of more, and to not apply rotation of cultigens after the yield of plants (manioc, potatoes, sugar cane and others). That is, we should not reuse the garden in the same place, during this time which is safeguarded for the restoration and regeneration of the forest and the soil.

Based on these four observations, we can attest that fire is an asset, when used properly, when used to benefit life, but, at the same time, a destructive evil if used with

[7] To carry out the sweetening *(mumipose)* which involves *kãrakosãse*, the following plant species and their fruits are used: the three types of sugar cane (small, medium, and large) planted by Indigenous peoples and the three types of sugar cane (small, medium and large) planted by non-Indigenous people; to this we add species and types of bananas, except for the inajá banana because it harmful to our health. The kumu bahsegʉ can also add the two types of cucura

[8] The term *bahsé ahpose* refers to the set of bahsesé carried out by the kumu (a specialist on the cosmologies and cosmopolitics of his people), with the aim of furthering negotiation aimed at reordering man with nature and man with himself. Thusm, the *bahsé* is the act of blessing, while *Ahpose* refers to the act of fixing, seeking to restoring places to their former state. This reordering seeks the alimentary well-being of the person, as well as harmony in hunting

bad intent – depending on how it is used it can even be catastrophic. Fire, as an element used in subsistence agriculture, must, as a rule of the people of the Vaupés, be followed by a fallow period of 20 years or more so that the forest and soils can be regenerated, so that they may later be used again.

In sum, the sense of the management of fire in burning the Piratapuia garden is Bahsé ahpose, which is the bahsesé that propitiates restoration, regeneration, and resurgence of forests and the beings that inhabit it, the soil, and the cultivation of plants. It is the return of the land to its formerly productive state. It should be reaffirmed that the Bahsé ahpose can be applied to any environment of the three layers/dwelling-places of the mahsã and waí mahsã.

I here present some solutions proposed by this researcher of Piratpauia traditional practices for facing up to the damages of ruined environments:

1. The traditional Indigenous diplomatic dialogue between mahsã (people) and waí mahsã (cosmic beings) avoids existential conflict between these beings.
2. Fire and its control, in the coivara practices by means of the bahsesé of the kumu, so that gardens may be successfully burned, in small scale and in a contained way, and therefore without the extension of fire to other environments which are not under the operation of the bahsesé.
3. The success of garden burning involves, in bahsesé, the powers of the wind of the birds, which, afterwards, must be undone by the bahsesé of cooling, fertilization and nutrition of the soil.
4. The practice of the bahsesé of cooling the soil with the three waters (red, white, and black), mediated by the sweetening, in a single water with the different flavours, acts in the same way, on the soil (red, white, and black), making it fertile (fertilized) and provided with water, which will give it sustenance and resistance, propitiating restoration, regeneration and resurgence – of the soil, the plants, the forests, and other mahsã and waí mahsã beings.

It is a fundamental rule to allow the place to remain fallow for approximately 20 years or more, and to not rotate cultigens after plants have been collected (manioc, potatoes, sugar cane and others). That is, the garden should not be reused in the same place, during this period, which is set apart as a time for the restoration and regeneration of the forest and the soil.

This practice is hence the Indigenous Piratapuia technology for regeneration and reforestation. Without bahsesé, plants will not grow healthy. In the case of manioc stems, for example, these may grow to be exuberant, but they will not bear fruits. Or they may grow but fail to reach maturity. Thus, ecological restoration needs this bahsesé to complement reforestation.

There are some precautions against the elements of fire in the raw life of the pamuri mahsã (transformation people) or mahsã (people). In what pertains to the raw life (kahtisé) of the peoples of the Vaupés, known as pamuri mahsã or mahsã, and their interrelation with nature and the beings that exist in it, and in the understanding of the Sun as fire, among others, there are 6 precautions that have been practiced since they were created by the Grandmother of the World (Ũmuũkho Yehkõ). These are practices that have been tried in theory and in concrete practice:

1. The newborn child cannot be exposed to the Sun. We understand and we claim that the Sun kills (muhipũ wehẽka sami) the child, making black spots appear all over its body, leading to implications such as: “the rays of the sun burn”, the child cries, causing its skin to change;

2. Without the protection of achiote, the Sun burns the face of women;
3. Certain types of heartburn come from the ember, the smoke of burnt firewood. Firewood can contain burning poisons (nimã) because they come from specific types of toxic plants used to smoke/roast fish.
4. The Kumu (blesser) must, by his own rigidity and the perfection of the bahsesé practices, take care not to eat hot food and not to blow on fire; if he does these things, his blessing loses its power and the efficacy or success, that is, the power of his blessing of curing, weakens, loses potency, and it may only achieve results after the bahsesé has been practiced many times.
5. In regards to the meaning of fire linked to the body, in the organs of the human body the intoxicated food burns the stomach. For example, chili causes "pũrisé" pain and "ʉhʉ̃asé" heartburn. The heart may burn, by intoxication, whether intentionally, by human action, and/or due to an accident.
6. The leftovers of hot food, such as liquids, should not be poured into the water nor in places inhabited by people, since these are paths or dwelling-places of the waí mahsã/ This is particularly true during travels, hunting, fishing, etc.

Thus, these practices are indispensable to the physical, psychological, alimentary, social and cultural health of the person.

Final Thoughts

The management and control of fires is the dialogue of traditional diplomatic negotiation between the Piratapuia kumu and the forest beings-people towards its regeneration and resurgence. In a general sense, a good kumu, an experienced specialist, can store the beings of the forest, bring them back, and/or extinguish them. Thus, it is a millenary cultural practice of fire management which does not have large-scale effects, because it derives from subsistence agriculture. Furthermore, the forest and land used must, as a rule, remain fallow for 20 years or more, so that it may be restored and regenerate. This is the differential of the management of fire, of the forests and the soil. As a traditional subsistence practice, the Piratapuia carry out this management with no financial cost, that is, there is no financial aid for restoration and regeneration, even for preservation and conservation in a business sense. Yet this practice works and can be applied to any global context where there are soils, forests and beings that inhabit it. And it is a tried and tested method against climate change, that can make up the search for possible solutions for recovering degraded environments in Indigenous territories in the Vaupés.

However, the extinction of beings is not the bahsesé thought of the Piratapuia kumu. He seeks a solution for degraded and ruined dwelling-environment places, in the hope of returning them to their former state, to make them pleasant for the existence of the waí mahsã and the mahsã. This has thus been the scope of this research: the restoration, regeneration, and resurgence of living beings in the dwelling-environments. More specifically, it is a traditional practice to keep forests standing, green, and full of life. To think of theory and practice through existence, propitiation, and the perpetuation of life for future generations. Yet it must also be noted that there exists a thought contrary to this one.

Thus, the Bahsé ahpose, which involves traditional dialogue with forest people-beings beyond the visible, activates all ecological systems that exist in the Piratapauia understanding (the three layers-worlds) and the material and immaterial populations of the ecosystem. It is the vital vein of preservation of the environment and all aquatic, terrestrial and airborne species.

It is for this reason, the propitiation of mahsã and waí mahsã life, that the practice of fire consists in the traditional Indigenous diplomatic dialogue with the waí mahsã beings, the goal of which is to prevent others from ruining their dwelling-environments with fire. These beings, in their dwelling-environment, possessing or lacking fire, in human (mahsã) form in their worlds, can suffer consequences and, at the same time, disseminate evils and/or well-being to man and nature.

It thus befalls the kumu to promote (or not) the good neighbour policy, and to further peaceful coexistence, which functions in the agency of the Bahsé ahpose, as a practice, through concrete elements of "nature" which can be, at the same time, abstract but "materialized" by the intelligible thought of memory that makes possible the use of fire and forest, interlinked in the garden. It is according to this perspective that the Bahsé ahpose extends its benefit in the usufruct of the forests, in the care of its beings, in the fertilization of the soil, in planting and in abundant yields. Without these engagements, the desired results will not be attained. In brief, the final phase is regeneration and resurgence. It should be stressed that burning the garden, as described here, means burning trees felled by the axe in a small scale. Or, better still, it is the success of traditional diplomatic dialogue with tree-peoples (yuhkuri mahsã), before the garden can be opened, and the virgin forest felled. The land of the virgin forest is the future result of a good yield. To this end, we converse with the forest-peoples, with the beings that inhabit the forest, with the soil, with fire, with the animals. Without the garden we would not have farina, chibé, manioc bread, nor caxiri to drink. The garden sustains our existence; without it we go hungry. ♦

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Land-Based Education and Tuxá Cultural Resilience in the Opará River, Brazil

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Abstract

Recent discussions on land-based education emphasize its importance for sustaining territorial relationships and knowledge systems. This article explores how the Tuxá people in Rodelas, Brazil, displaced from their ancestral lands, transmit traditional knowledges in a new environment. Despite being displaced from ancestral areas, land-based education places a crucial role in reclaiming traditional Tuxá knowledge and strengthening their territorial rights. Through *radarãiedea*, a holistic framework of ancestral inheritance, Tuxá youth collaborators reinterpret their relationship with the land, waters, bush, and dunes. The findings show that Tuxá peoples transmit knowledge through a dynamic process that blends ancestral wisdom with adaptive learning and emphasizes multispecies relationships. By means of a small number of young people engaging in land-based education, they preserve their cultural identities and reinterpret their knowledge systems. This integration of environmental stewardship, spiritual engagement, and multispecies interactions ensures resilience in the face of land dispossession and ecological changes.

Keywords:
Land-based education, Tuxá youths, *radarãiedea*, ancestral knowledge, multispecies relationships

Introduction

Land-based education has been integral to Indigenous pedagogies, shaping lifeways, knowledge creation, and the transmission of wisdom across generations (Cajete 1994). It is rooted in Indigenous epistemologies (Wildcat et al. 2014, 6; McDonald 2023, 5), where land itself is seen as an active participant in the co-production of knowledge, and is closely linked to traditional ecological knowledge (TEK) (Berkes 2012). TEK, a dynamic body of knowledge arising from ongoing interactions between humans and their living environments, is interwoven with spiritual beliefs and ecological practices (Davidson-Hunt & Berkes 2003; Berkes 2012; Turner and Clifton 2009). As McGregor (2004) points out, Indigenous peoples view traditional ecological knowledge as a way of life, intrinsically woven into spiritual experiences and connections to the land. Indigenous-led land-based education is essential for sustaining knowledge transmission, as it reinforces the deep interconnections between territory, ancestral wisdom, spirituality, community values, and well-being (Cajete 1994).

This perspective challenges Western views of the land as passive, instead recognizing its multispecies inhabitants as active agents in shaping knowledges (Kohn 2013; Tuck & McKenzie 2015; Virtanen et al. 2024). In the case of Tuxá peoples in Rodelas, in the Brazilian northeast, this relationship reinforces the importance of Indigenous-led land-based learning and the re-signification of cultural and ecological knowledges despite displacement.

Previous studies on land-based education (e.g. Wilson et al. 2021; Virtanen 2022, Ermine 2024; Datta et al. 2024), place-based learning (e.g. Hohenthal & Veintie 2024; Roze des Ordons and Hill 2024), and traditional ecological knowledge (e.g. Witharana et al. 2025), focus on the role of land-based education in adapting to climate change, fostering sustainability, and promoting cultural resilience. It also explores how Indigenous youths integrate ancestral wisdom with contemporary environmental and political awareness. However, a gap exists in understanding how Indigenous communities, specifically through multispecies perspectives, actively reinterpret and adapt their knowledge systems in response to land dispossession and ecological degradation. This study addresses this issue by examining how such adaptations take place through the lens of multispecies relationships and spiritual connections to the land. I explore how Tuxá people of Rodelas transmit their traditional knowledge in a radically transformed environment from which they were displaced.

The Tuxá peoples of northeastern Brazil, who originally resided along the São Francisco, or as the Tuxá of Rodelas called it, the Opará River, faced significant disruption in the 1980s with the construction of the Itaparica hydroelectric dam, nowadays known as Luiz Gonzaga dam (Cruz 2018, 40–41; Vieira 2016; Durazzo & Fiori 2021, 10). This project submerged vital cultural sites, fragmented their territories, and scattered the Tuxá into three groups, who resettled in Inajá, Ibotirama, and New Rodelas. Despite displacement and the loss of their ancestral lands, the Tuxá of Rodelas have fought to revitalize their ancestral language—silenced during 18th-century religious missions—as a way of sustaining their deep cultural and spiritual connection to their territory, which they perceive as a living, sentient entity. However, this relationship is not solely based on physical land but on continuous interactions with the more-than-human world, which have forged the core of Tuxá identities and knowledges.

This research is grounded in radarãiedea (rada= terra/land, arayêde= ancestral, antigo – ancestral land), a holistic Tuxá framework

of ancestral inheritance within Indigenous methodologies (Virtanen et al. 2021; Kovach 2021; Smith 2012). Integrating Tuxá ontologies, epistemologies and axiologies, and following Tuxá ethical and cultural protocols, radarãiedea emphasizes respect, reciprocity, and interconnectedness, guiding Tuxá youths' relationships with the land, both historically and, for some peoples, still today. These connections extend beyond human interactions to encompass all living beings, shaping individual lives and entire communities (Lacan et al. 2024). They include cosmological beings and spirits, reflecting the agency of more-than-human entities in shaping knowledges.

During my first visit to the territory in 2022, a Tuxá woman explained that the land manifests itself differently to each non-Tuxá person, as "eles" (the guardians) will reveal to me what they want me to see and know. This emphasizes the active role of non-human entities in guiding and shaping experiences, knowledges, and understandings, a concept aligned with multispecies ethnography (see Chao & Kirksey 2022; Taylor 2024).

The fieldwork for this study was conducted between 2022 and 2024 in collaboration with the Tuxá people of Rodelas, employing conversations, field notes, photographs, and participatory methods, including youth-led audiovisual documentation. It also incorporated Tuxá knowledge production practices, such as observation, co-living, walking, and direct engagement with the territory. The targeted group consisted primarily of a small number of young Tuxá collaborators aged 15 and older (10 young collaborators), who are actively engaged in land rights advocacy and have close interaction with the territory. To understand how the territory was in the past, material was also produced in collaboration with adults, educators, and knowledge keepers (approximately 35 people).

This study's objectives are: 1) to explore how Tuxá people of Rodelas transmit and adapt their traditional knowledges in response to land dispossession and ecological changes. 2) To examine the role of land-based education and rituals in protecting and reinterpreting ancestral knowledges for contemporary challenges. 3) To identify Tuxá's understanding of their territory as a multispecies system, emphasizing the interconnectedness of humans and more-than-human beings in the knowledge transmission process.

As a non-Indigenous researcher, my positionality was shaped by my Latin-American cultural background and professional formation in cultural heritage, Indigenous studies, and archaeology. Thus, I aimed to engage in community-led projects, learning to conduct research in ethical ways with, rather than on, Tuxá. My role was to observe, collaborate, and ensure reciprocity while respecting their cultural inheritances, protocols, and land rights.

The material shows empirically that Tuxá peoples of Rodelas transmit traditional knowledges in new natural environments through a dynamic process that blends ancestral wisdom with adaptive learning. Because some of them still engage in Indigenous-led land-based education, they maintain and evolve their cultural identities through embodied practices, multisensory experiences, and ritual interactions with the land and other-than-human beings. Despite the challenges of land dispossession and ecological changes, the young Tuxá collaborators reinterpret their knowledge systems by attempting the integration of environmental stewardship, spiritual engagement, and community-driven ecological practices. This evolving approach ensures that traditional knowledges remain relevant, resilient, and capable of addressing contemporary environmental and social realities.

Theoretical basis for land-based education

Indigenous land-based education is deeply rooted in epistemologies and ontologies that emphasize the interconnectedness between land, language, and knowledge production, as Tuck and McKenzie (2015, 13) suggest. This approach prioritizes storytelling, ecological practices, and embodied experiences, ensuring the transmission of ancestral knowledge through engagement with land, rituals, and multispecies landscapes. The recognition of Indigenous land rights further strengthens this educational framework by embedding environmental sustainability and sovereignty into learning processes (Datta et al. 2024). By reclaiming control over their ancestral lands and natural resources, Indigenous peoples assert their autonomy and ensure the ongoing stewardship of the environment. This is central to both cultural identity and ecological resilience (Datta et al. 2024, 180).

Scholars like McDonald (2023) argue that land-based education fosters cultural identities, resists dispossession, and reinforces sovereignty through ecological and ceremonial practices. These practices, as noted by Hohenthal and Veintie (2024) and Roze des Ordons and Hill (2024), ensure the continuity of Indigenous worldviews, viewing land as a living entity with memory, agency, and presence. Legal battles and grassroots movements further highlight the role of Indigenous governance systems in protecting traditional territories from environmental harm while reaffirming relational ontologies that position the land not merely as a physical space, but as an active participant in cultural and environmental sustainability (Datta et al. 2024, 180).

Schroeder (2006) describes how land-based education emphasizes the pedagogical significance of the environment, while place-based education functions as a broader framework that situates learning within localized ecologies and relationships between humans and more-than-human beings. Moreover, rather than adhering to universalized models of knowledge transmission, Hohenthal and Veintie (2024) argue that place-based education grounds learning in specific territories, fostering a critical engagement with land and colonial histories. As Virtanen (2022, 345) points out, Indigenous education is deeply grounded in the land, where knowledge emerges through place-based relationships among diverse life forms, and where stories, languages, and traditions are rooted in local contexts (see also Wildcat et al. 2014). This approach resonates with Furman and Gruenewald's (2004) argument that place-based education is closely connected to place-conscious pedagogy, which challenges the capitalist and ecologically damaging assumptions of mainstream schooling. Consequently, this perspective aligns with Indigenous visions of sustainability and relationality, reinforcing the importance of localized, culturally rooted pedagogies.

Similarly, Virtanen (2022) discusses how relational ontologies expand the understanding of knowledge production as a co-constitutive process involving both human and more-than-human entities. Likewise, Indigenous education models have long emphasized interdependency within ecosystems, demonstrating that learning occurs through reciprocal relationships, as Whyte (2018) points out. Consequently, knowledge is not merely extracted from the land but instead emerges through dynamic intra-relations between beings, reinforcing the idea that learning is an ongoing, interactive process rather than a unidirectional transfer of information (Virtanen 2022).

Van Dooren and colleagues (2016) extend this framework through multispecies studies, recognizing that all living beings emerge and evolve within entangled ecological and historical relationships. Accordingly, this perspective challenges

anthropocentric views of knowledge production, emphasizing that learning is co-constituted through relationships among plants, animals, microorganisms, and other life forms. Haraway (2008) argues that multispecies relationality reveals the reciprocal entanglements between beings, positioning education as a practice of becoming-with rather than an isolated process of knowledge acquisition. Likewise, Kohn (2013) aligns with Indigenous perspectives by conceptualizing learning within complex ecologies of selves, where meaning, agency, and intersubjectivity are distributed among diverse life forms rather than being confined to human experience.

While Tsing (2015) does not directly advocate place-based learning or pedagogical frameworks, her discussions of collaborative survival and multispecies assemblages suggest a way of knowing that moves beyond humancentric perspectives. This intersects with place-based learning and advocating for pedagogies that acknowledge the agency of more-than-human entities in shaping knowledge systems. Consequently, this approach challenges dominant anthropocentric narratives and fosters attentiveness to the interdependent processes of living and dying, being and becoming, within multispecies communities. Furthermore, as van Dooren and colleagues (2016) point out, multispecies perspectives open up new discussions on responsibility, conservation, and justice in educational practices, prompting scholars and educators to reconsider the ethical and political dimensions of land-based and place-based learning.

Cleaver (2024) also argues that Indigenous land-based sustainability reveals how education is not merely the transmission of ecological knowledge, but rather an active engagement with the ethical responsibilities of living in reciprocal relationships with the land. Moreover, as Cajete (1994, 2005) emphasizes, centering Indigenous ways of knowing and being through land-based education fosters processes of resilience, empowerment, and healing, offering pathways toward decolonization grounded in relational and ecological understanding.

Both land-based education and relational ontologies provide complementary insights into Indigenous learning systems. On the one hand, McDonald (2023) suggests that land-based approaches prioritize tangible interactions with land as a primary source of knowledge. On the other, Kohn (2013) highlights that relational ontologies emphasize the entangled nature of knowledge production, extending beyond physical landscapes to include more-than-human entities. Speed (2017), for her part, explains that place-based education intersects with these frameworks by fostering a critical territorial consciousness, particularly in regions affected by environmental degradation and resource extraction.

The integration of land-based pedagogy within formal educational systems remains a challenge, as traditional Indigenous practices often conflict with institutionalized structures, as Fleuri and Fleuri (2017) note. However, scholars argue that revitalizing land-based learning can recover epistemologies disrupted by historical and colonial contexts, as Ermine (2024) suggests. The incorporation of relational ontologies, multispecies perspectives, and Indigenous land rights into these discussions underscores the need to recognize Indigenous knowledge as fluid, collective, and embedded in reciprocal relations with the living world.

Ultimately, land-based education, place-based education, relational ontologies, and Indigenous land rights provide a multidimensional understanding of Indigenous learning, reinforcing the importance of lived experiences, ecological relationships, and the interdependent nature of knowledge systems. As McDonald (2023) underscores, by integrating these

perspectives, Indigenous education can continue to evolve in ways that resist dispossession while honoring traditional epistemologies and ontologies.

Tuxá ways of life and well-being before 1988

I first became aware of Tuxá peoples and the realities faced by Indigenous communities in northeastern Brazil during an online event on Indigenous rights in 2018. There, I met a Tuxá social anthropologist with whom I developed a strong friendship. Over time, I gradually learned more about the Tuxá peoples and their situation. Given my longstanding interest in territorial issues and my desire to use my academic background to support Indigenous groups, I initially focused my research on multispecies heritage, exploring traditional ecological knowledges.

As my engagement deepened, I began discussing the possibility of conducting collaborative research with the Tuxá peoples in Rodelas. We held virtual meetings with the local school via Meet, where we explored potential sustainability projects. My first in-person visit took place in 2022, with one of my doctoral supervisors, the social anthropologist Leandro Durazzo, alongside during a workshop on the revitalization of Dzubukuá, the Tuxá ancestral language. This visit provided me with the opportunity to propose a potential research project in person. Since then, we have been working together, refining the preliminary proposal based on the Tuxá peoples' most pressing needs.

Tuxá peoples once inhabited over 33 islands, each serving distinct purposes. However, natural floods and expropriations gradually reduced their territory. Until 1988, they lived in Old Rodelas (Velha cidade, old city), as Tuxá refer to their dwelling in the ancestral territory situated on the riverbanks, retaining only the islands of Ilha da Viúva (Widow's Island), referred to as Ilha Mãe (Mother Island) by the Tuxá, and Surubabel.

The Surubabel island was expropriated by non-Indigenous people, who established plantations there, and where some Tuxá worked until a flood submerged it. Consequently, Tuxá arrived to their Island, Ilha Mãe (Ilha da Viúva), a vital space for their sustenance, ecological practices, and *ciência* (ritual complex). Ciência is a mode of communication between Tuxá peoples and between Tuxá and Encantados (cosmological forces) (Durazzo 2019, 19). A female knowledge keeper emphasized that Ilha da Viúva had a learning environment, with well-being and healing potential.

A woman Tuxá adult collaborator explained to me that Tuxá knowledges are expressed through *arâyede* (ancestral, ancestors), *dzu* (water, river), *liedse* (forest, bush), *radawa* (rada = land, wa = to walk – walking sand, walking land – dunes), *hewi* (air), and *dzunerada* (dzu = water/river, ne = to see/to take care/to protect, *rada*= land – land protected by water, island), reflecting that learning is shaped by the reciprocal ties of multispecies with the land, co-producing *radarãiedea*.

Before the flooding, children learned land science through daily life on the *dzunerada* or Ilha da Viúva, developing care, reciprocity, and respect for the land and its cycles. Mornings were spent helping their fathers with agricultural work on Ilha da Viúva before attending school the afternoon and evening, gaining knowledge through caregiving, patience, and time awareness (Santos 2021).

Agriculture was central to the Tuxá economy (see more Nasser 1975), but the Opará River, as the Tuxá refer to the São Francisco River, was equally vital (Tuxá & Tuxá 2020, 26). One adult Tuxá collaborator and specialist in revitalizing the Dzubukuá language explained that *Opará* -word probably stems from the Tupi

language, meaning river-sea, a reference to its vastness. In Dzubukuá Tuxá, the word for a river or water (depending on the context and usage) is *dzu*, *wodzuie* (big river; to evoke the sense of the sea). Known as canoe people, Tuxá saw the river as a nurturing father, sustaining body, soul, and mind. Even after displacement, young collaborators today still find its waters restorative, embodying ancestral ties despite its changes.

In the past, the Tuxá used to have a deep understanding of their environment through long-term observation and interaction, acquiring ecological knowledge through hands-on experience through oral but non-verbal communication. River behavior dictated life rhythms—when the waters were steady, agriculture and *ciência* took priority. They practiced polyculture, cultivating guava, mango, banana, grapes, sweet potatoes, beans, manioc, red rice, onion, and later, sugarcane, among other things. Manioc and sweet potatoes were grown along the riverbanks, harvested before natural floodings, then replaced with other crops. Tuxá used to have a flour house that was located in the old city and played a crucial role, where families took turns producing manioc flour and *beiju* for year-long storage. When natural floods arrived, hunting capybara (*Hydrochoerus hydrochaeris*) and chameleon became essential, reinforcing social bonds as families shared the meat, mirroring harvest-time solidarity.

Before the major flooding, the Tuxá relied on local medicinal plants—gathering leaves, bark, and herbs from Ilha da Viúva, as well as paths full of healing plants, or stones found underwater or from the bush. However, after the intentional flooding, many species vanished. The bush, where there was once a plentiful supply of plants, was replaced by coconut and mango plantations. Now, finding these medicinal plants requires traveling longer distances, and only those with knowledge of the plants can harvest them with the guidance and permission of bush spirits. In the past, as well, to harvest a medicinal plant, the Tuxá were guided by moon cycles, river behaviors, and bush spirits' permissions. The drying up or increasingly winding path of seasonal streams also influenced access to the bush and to natural resources.

Respect, reciprocity, and sustainability remained central — people understood the right time for planting, hunting, and harvesting. A female knowledge keeper, sitting in her hammock in the backyard and smoking a *paewi* — a pipe in Dzubukuá Tuxá, whose etymology is rooted in the lifeways of the Kariri and Dzubukuá peoples (*pa* = to kill, *e* = to charge, to carry, *wi* = to be; in Tuxá *ciência* = to remove evil from someone) — explained that reciprocity means respecting the land's cycles, as it provides both physical and spiritual sustenance. For instance, *lhédzihe*—a sacred tree or plant known as jurema—refers to the smooth, thornless jurema variety. It includes two species: white jurema (*Mimosa hostilis*) and black jurema (*Mimosa tenuiflora* [Willd.] *Poiret*), both of which have been used in the past and continue to be used today in private as well as in public ceremonies. While these species were once commonly found on the islands, they have become increasingly scarce. In contrast, the thorny jurema variety has been and still is more commonly found in the Caatinga biome, where the Tuxá people inhabit. Lhédzihe holds healing power and serves as a communication means in rituals. Tuxá still harvest only select parts of plants, ensuring their regeneration, as each root, leaf, and flower carries a specific function. For instance, bark is used to make infusions that strengthen the immune system, or biting a small piece of *lhédzihe* bark can relieve toothache, among other uses.

This knowledge system extends beyond human actors. *Radarãiedea* is protected and guarded by *Eles* (them), the *Encantados de luz*, *Encantados*, or *mestres Encantados* (various names are used to refer to cosmological forces), while some also

acknowledge the *pajé* (spiritual leader, healer) who *ancestralizou* (passed away) some years ago. Everything—*dzu*, *liedse*, *radawa*, and *rada*—has owners and guardians, requiring permission before use or entry. A female knowledge keeper, while crushing *lhédzihe* bark, recalled how rituals were once performed before, during, and after any practice to express gratitude and seek permission from guardian spirits. Nowadays, some people follow the same rule. Even I had to request permission to enter certain sacred sites or to enter the territory, river or the bush. Traditionally, children learned these values of respect, gratitude and care through everyday behaviours, absorbing land rhythms and understanding the guardians of *radarãiedea*.

Yet, during my visits, I noticed that not all Tuxá members actively seek permission in *radarãiedea*. Those most connected—mentally, physically, and spiritually—understand its necessity and the consequences of neglecting this responsibility. Watts (2013, 23) asserts that ecosystems and habitats possess ethical frameworks, interspecies treaties, and agreements that shape human understanding and behaviors. More-than-human beings are active participants; just as they permit hunting, fishing, planting, and gathering, they can also enforce consequences when obligations are ignored, such as not being successful in the ecological practice one wishes to carry out or not finding what one is looking for. Tuxá permissions may involve placing a flower at a specific spot, directing smoke toward a tree, or engaging in private rituals. Nowadays, many youth collaborators have learned these practices from their grandparents, similar to observations made by Virtanen (2022, 348) among the Apurinã in the Purus River region, where children learn to act in relation to the invisible more-than-human world.

However, this way of life was profoundly disrupted by an intentional flood caused by anthropic actions, threatening not only Tuxá livelihoods but also their ecological knowledge, non-linear cultural continuity, and spiritual connections.

Cultural ruptures and resilience: Tuxá post-flood

In the 1970s, the Itaparica hydroelectric project began and was completed in the 1980s. By the end of the decade, a major flood submerged Old Rodelas and Ilha da Viúva. Oliveira (2022, 118) notes that while other Indigenous groups in northeastern Brazil, such as the Pankararú, Pankararé, Atikum, and Truká, faced similar challenges, the Tuxá were most affected. The Tuxá were dispersed into three groups and forced to leave their ancestral lands, with each group resettling in a different location: Inajá, Ibotirama, and New Rodelas. This displacement severed their ties to their ancestral territory, causing a profound cultural and spiritual rupture (Silva & Arruda 2013, 140) and erasing traditional practices and legacies, and de-subjectivating the ancestral territory.

As Santos (2017, 229) asserts, Indigenous groups impacted by river damming in the region have developed distinct ways of perceiving and accessing natural resources, each engaging uniquely with their environments. The flooding also altered several socio-cultural aspects such as ecological practices, reducing local flora and fauna and affecting culturally significant species like catfish (*Pseudoplatystoma corruscans*), golden dorado (*Salminus franciscanus*), capybara (*Hydrochaerus hydrochaeris*), and *lhédzihe*, as well as impacting their land-based learning, their socio-environmental relationships, and their social organization.

For the Tuxá of Rodelas, moving away from the river led to a cultural breakdown: family groups distanced from their territory, ecological practices were disrupted, and the river's significance faded. Oliveira (2016)

studied how the distance to the river influenced lifestyles in the islands (the ones who lived on its riverbank compared to those living inland) in the São Francisco River area during the religious missions, highlighting its impact on social and cultural dynamics. A Tuxá knowledge keeper shared that they were peoples raised in the riverbank, and nowadays there are children raised away from the river who are losing vital knowledge coming from it, including the ability to swim, which disconnects them from their roots and the territory. This is a consequence of the increased distance to the river. She explained that a child who does not learn to swim will grow with fears.

With the same cultural symbolism as *dzu*, the Tuxá peoples also acquire knowledge from *liedse* (see e.g. Houart et al. 2025), which encompasses plants, clay, leaves, and all the agencies dwelling there, as well as forest guardians. Like *dzu*, *liedse* has strengthening and healing potential, particularly spiritual healing. However, *liedse* is not a specific location; it is an area, an ever-present entity. It is not limited to plants—it can be a clay-rich creek used as raw material for houses and ceramics, or a cluster of leaves that serves as a resource for various purposes.

The use of each resource is learned through knowledge of the ancestors—whether for healing, building settlements, or gathering honey and beeswax, and each resource has its own function. Yet, *liedse* is not just a bush; it is all beings that coexist and become-with, through the intrinsic relationships among them, through which things acquire form and meaning. Though it is farther from the river, at times people must go to *liedse*, and at other times to *dzu*, to connect deeply with ancestral knowledge or primordial knowledge.

A Tuxá woman adult recounted that in their history, one Tuxá group lived in *liedse* and another in *dzu*. Between them, values of solidarity and care were strong, as they exchanged food and knowledge—such as between families who fished and those who hunted. They also shared spiritual wisdom.

In 2010, the Tuxá began reclaiming part of their ancestral land in D'zorobabé, also called *Aldeia Avó* (Grandfather's village) by the Tuxá, reorganizing into 11 family groups with varied ties to the territory. They self-demarcated the area in 2017, with rotating families guarding it to prevent encroachment. This fragmentation disrupted daily life and education, creating disparities in the transmission of knowledge, especially regarding traditions, spirituality, and environmental management.

Yet, during my participation in a workshop about the language revitalization organized at the local school in 2022, an adult Tuxá woman collaborator explained that, after losing their land, education became their main tool in the fight for land rights. Recognized for their educational skills, the Tuxá's history traces back to a time of ethnic recognition when Indigenous groups in the Northeast had to prove their Indigenousness (Carvalho & Carvalho 2012, 113), often through cultural markers like the *toré* dance (Grünewald 2005). The Tuxá were central in revitalizing this tradition in groups where it had disappeared (Reesink 2000, 373), while later on these groups also re-signified their chants, rhythms, and dances, they reinforced Tuxá's solidarity with neighboring communities.

During my fieldwork, I spent several days helping the local school systematize the content of the subjects. I attended many meetings with educators, talked with educators, and observed and learned about their educational system. Today, Tuxá children attend school, where they receive a blend of national and Indigenous education. As part of this curriculum, they dedicate one day a week to learning *Dzubukuá* (*Dzu* = water, river, *bu* = appearance, *ku* = white, *a* = plural: water of white appearances, clear

river, river of crystal-clear waters), their ancestral language, which is currently undergoing a revitalization process (Durazzo 2019). Projects like language revitalization, traditional knowledge, poetry, and music aim to strengthen ties with the land and ensure knowledge development. However, as a male educator noted during a coffee break in the educators' meeting, while school-based education is valuable, it alone cannot fully reconnect children and youths with the land. Indigenous-led education, guided by elders and rooted in lived experiences in the territory, is essential. This is especially true when learning Dzubukuá, as the language is best acquired through direct engagement with the territory rather than in a classroom, reflecting how Tuxá cultural dynamics emerge through the deep interplay between their ancestral language and the land.

Integrating traditional knowledges into formal education remains a challenge, as many youths are disconnected from their roots. While they attend the local school, which operates throughout the day, they are not engaged in the *ciência*, where specific Tuxá knowledges are passed down. Only a small number of young research collaborators dedicated to land rights and to maintaining traditions, participate in these practices. However, adult collaborators stress the importance of youths connecting with the land alongside knowledge keepers to learn about plants, the river, and the territory through observation and other forms of communication.

Youth collaborators speak nostalgically of Ilha da Viúva, the Opará River, *radawa*, and *liedse*, emphasizing the strong bond with the environment and its guardians, which shape daily life and *ciência*. They believe that *dzu*, *liedse*, and *rada* contribute to the co-construction of personhood for the Tuxá and other-than-humans, such as the river, bush, and land, reflecting a worldview where subjectivity is not exclusive to humans. As Viveiros de Castro (2004, 469) explains, in animist ontologies, the "intentional stance" is universalized rather than reduced, attributing agency and consciousness to non-human entities. This understanding resonates with a young Tuxá girl's reflection that, although the Opará River has changed, its presence is embedded in *toré*, chants, graphisms, spirituality, and even in their bodies—flowing in their blood—highlighting the enduring, reciprocal relationship between people, place, and spirit. While Opará has traditionally been considered a father or a friend, for the younger generations it has become an internalized being—alive within their bodies and everyday experiences. This shift illustrates the ontological multiplicities that link the Tuxá with their ancestral territories, where beings transform, endure, and take on new forms of presence across generations.

During a school activity in the main square of the village, a young girl collaborator explained that from childhood some are taught that *D'zorobabé*, *liedse*, *radawa*, and *dzunerada* are the dwelling places of their ancestors, fostering a sense of belonging and forming Tuxá identities. A young boy continued by explaining that some of them learn to respect and care for these sites, from plants to precolonial material items like *paewi* and arrowheads, as these things hold their history, ancestry, and identities. They learn the values of respect, responsibility, care, and reciprocity through these connections.

Nowadays, youth collaborators acknowledge the importance of knowledge (re)generation through *ciência*, since they believe that key knowledges come from the *Encantados* (cosmological beings), who protect and guide Tuxá decision-making and life. Knowledge generation and transmission happen not only verbally through stories, but also oral but nonverbally. I observed during *toré*, *handicraft*, *graphisms*, etc., that bodies play a key role, being an epistemological source for Tuxá peoples with interdimensional communication and in the interconnections

with the land. Human hands, for instance, create objects that are capable of being subjectivized with cosmological forces, showing intrinsic relationships through interaction and the motion of bodies (*dzu* - body, *liedse* -body, *radawa* - body, *rada* - body) constituting *radarãiedea*, namely being in a condition of constant protection, learning, and guidance by *mestres encantados* (cosmological forces).

Paewi, for instance, is a means of socializing with cosmological beings and spirits and is both important in ritual contexts and in the daily life of Tuxá culture (Bigá forthcoming). *Paewi* is an essential object made of *lhédzihe* roots and Tuxá craftsmen know exactly from which part of the plant they need to take not to kill the plant. This extraction needs cosmological permission in which reciprocity, care and respect are shown. It is never borrowed and is only destined for one person.

Kaklodi, *kakrodi* (the action of smoking the *paewi*) happens through the interaction between *toe* (fire, lightning, using fire, lighting the *paewi*, in regard to elders' words and actions during ritual contexts), and *badze*, *badzé*, *paka* (tobacco) that produced *Pukuá* (*soprar em branco*, smoke), signifying the presence of cosmological and spiritual dimensions. Children are taught *kaklodi* from an early age to learn respect for the environment, sustainability, and the acquisition of specific Tuxá knowledge. *Paewi* is a sign of reciprocal interdimensional communication through smell, sight and gesture, denotating protection, healing, and connection and it has a strong cosmological force.

Knowledge production and transmission also occur through body and face paintings. Here geometric patterns, which are distinct for men and women, represent the connection between *dzu*, its current, and *dzunerada*, ancestral dwellings. These graphisms, made with *jenipapo* (*Genipa Americana*) (using the fruit to make black dye) and *urucum* (*Bixa Orellana*) (using the seeds to make red dye) fruits, are part of Tuxá and other-than-human personhood, making visible their cosmologies of ancestral *dzu* and *dzunerada*. Tuxá also acquire knowledge through *ciência*, occult practices where they receive specific wisdom from cosmological forces. They also acquire knowledge through public rituals like the *toré* dance, involving all the senses and human and more-than-human interactions. After dancing the *toré*, a young girl collaborator emphasized the importance of rituals in *radarãiedea*, as they hold deep cosmological and spiritual significance that is often related to healing. For instance, as a woman knowledge keeper noted, performing the *toré* during self-demarcation created a powerful spiritual connection.

Youth collaborators outlined that strengthening the bond with the territory is essential to ensure that ancestral knowledge is passed down to future generations. In this way the intrinsic relationship between culture, living surroundings, community, and ancestry is respected. To achieve this, it is crucial to carry out activities that promote both the connection of youths with their roots and the practice of ecological actions. These practices are manifested as activities such as waste collection from D'zorobabé, among other activities that are currently being planned to be carried out regularly. Environmental care is key to keeping the traditions alive and to ensuring the well-being and balance of Tuxá peoples with the land.

Conclusion

The transmission of traditional knowledges among the Tuxá peoples of Rodelas is a dynamic process, particularly as they navigate shifting environmental and social landscapes. As Ermine (2024, 63) explains, land-based education reconnects Indigenous roots through engagement with the living natural world, thereby fostering a regenerated connection to the environment.

This form of education has historically been central to Tuxá knowledge systems, integrating verbal and oral but non-verbal communication while emphasizing embodied practices, multisensory engagement, and relational interactions with other-than-human beings. Moreover, rooted in their cosmological framework of forest/bush, water, and air, the Tuxá self-identify as people of these elements, reflecting a holistic worldview that co-produces *radarãiedea*, a cultural framework that understands their ancestral territory as an interconnected system of knowledge, spirituality, and ecologies. Although this knowledge has been passed down, it is not uniformly retained by all Tuxá youths. Nevertheless, the evolving educational practices of the Tuxá reflect both an attempt to maintain an ancestral connection to the land and an adaptive response to contemporary challenges.

Two primary forms of Indigenous education are identified in Tuxá culture: *ecological practice-based land learning*, which is based on direct engagement with the land and aligns with the concept of traditional ecological knowledge (Davidson-Hunt & Berkes 2003), and *ciência* as Tuxá collaborators call it, or as Durazzo named it "bush education," which integrates ancestral language and cosmological-pedagogical connections (Durazzo 2019, 31). Specifically, while *ecological practice-based land learning* historically required direct interaction with the living environment, it is now undergoing a re-signification as land dispossession limits access. Conversely, *ciência* remains deeply embedded in the land and highlights the active agency of the land in the learning process, fostering a co-learning relationship between humans and the living environment. It makes its transmission reliant on proximity to the ancestral territory and emphasizes the importance of multispecies place-based learning in recovering disrupted knowledge. Tuxá youth collaborators engage in *ciência* through ritual practices that encompass decision-making, healing, territorial claims, and interactions with cosmological forces.

These practices allow young people to engage actively in a dynamic process where the land remains an agent of co-learning. In fact, in Tuxá cosmology, the environment is not a passive backdrop but an active participant in the learning process, aligning with Virtanen (2022), who describes how animals and natural elements serve as "messengers" that humans must learn to observe and interact with. Historically, Tuxá knowledge transmission has been relational, requiring individuals to co-sense with the land and interpret the signals of other-than-human entities.

As some Tuxá youths reconnect with their ancestral land, this process represents more than a physical return; instead, it embodies a spiritual and epistemic transformation that directly addresses contemporary environmental concerns. Elders worry that the younger generations are losing touch with traditional practices. However, youth collaborators are reshaping them by integrating a new environmental awareness, such as territorial care, maintenance, waste collection from D'zorobabé, and deeper spiritual engagement. Witharana and colleagues (2025) emphasize that traditional ecological knowledge fosters resilience in changing conditions, thereby challenging the notion that tradition must remain static. Instead, Indigenous knowledges are inherently adaptive, evolving in response to environmental degradation and land dispossession.

Hohenthal and Veintie (2024) argue that this transformation contributes to a broader socio-environmental consciousness, enabling Indigenous youths to recognize the interconnections between social and ecological systems. They also stress that ecological consciousness fully develops when students understand the holistic relationship between humans and the

environment (Hohenthal & Veintie 2022, 365). This suggests that Indigenous youth are not only adapting traditional knowledge but are also engaging for land rights activism, positioning themselves as defenders of their territories. Some fear that integrating political and environmental awareness may distance youths from traditional ways of knowing. Others see it as a necessary evolution, ensuring the relevance of Indigenous knowledge in resisting threats to their land. These perspectives highlight different facets of the same process: the resilience of Indigenous knowledge systems as they adapt while honoring traditions and responding to current challenges.

As Virtanen (2022) and Ermine (2024) argue, this evolution is part of the process of decolonization, wherein Indigenous knowledge is reshaped to address contemporary challenges, asserting sovereignty and self-determination. Comparatively, Indigenous-led land-based education contrasts with Western systems that prioritize abstract, fact-based learning. Tuxá adult collaborators, however, emphasize relational knowledge that is rooted in direct engagement with land, animals, plants, and spiritual connections to the living environment. Consequently, this education transcends ecological stewardship to become a form of cultural resurgence in which land is experienced as an embodied presence engaging all senses. Wilson (2008) defines relational knowledge as a way of knowing grounded in ongoing relationships with the land and its beings. While his work is not based on research with the Tuxá people, this perspective does align with Tuxá practices, where young people learn not just survival skills, but cultural and spiritual practices embedded in the landscape and in the collective memory. Likewise, this perspective resonates with Roze des Ordons and Hill (2024), who argue that Indigenous epistemologies persist through bodies, memories, and daily practices.

The case of the Tuxá people reflects broader trends in Indigenous-led land-based education, which, as Datta and colleagues (2024) suggest, evolves with contemporary challenges such as climate change and land rights advocacy. Clearly, schools alone cannot fully reconnect Indigenous youths to their land, making Indigenous-led learning in the territory essential. Consequently, Tuxá youth collaborators are actively planning to promote regular ecological activities aimed at engaging more young people in visits to the land, inspired by initiatives previously introduced into schools. These activities are central to the decolonization process, as they enable Tuxá youths to reclaim not only physical space but also cultural identities, epistemologies, and sovereignty.

Datta and colleagues (2024) emphasize that Indigenous land-based learning serves as an intersectional framework that encapsulates diverse aspects of Indigenous knowledges, cultures, and identities. Thus, by integrating traditional teachings with contemporary understandings of environmental stewardship, Indigenous communities worldwide revitalize their connections to the land while addressing pressing social justice issues. This holistic approach acknowledges the interdependence of ecological, cultural, and social systems, and emphasizes reciprocity, respect, and responsibility toward the land and all its inhabitants (Absolon & Willett 2005; Wilson 2008). Moreover, engaging in reciprocal relationships with the land and each other cultivates empathy, understanding, and shared responsibilities toward environmental sustainability and social justice (Marker 2020), as demonstrated in this paper.

Ultimately, the Tuxá experience underscores the fact that Indigenous knowledge systems, particularly Tuxá-led land-based education, are dynamic and continually evolving in response to ecological and political challenges. Hence, these practices do not merely preserve

knowledges; they adapt them, ensuring their relevance in a changing world. By reconnecting with the land and cultural practices, Tuxá youths not only navigate new environments but actively participate in the decolonization of their knowledges, land, and beings.

Accordingly, this highlights the resilience and adaptability of Indigenous knowledges, emphasizing their role in shaping a sustainable and just future for both Indigenous communities and the broader world. In conclusion, as the Tuxá navigate unfamiliar living environments, they adapt their traditional knowledge transmission by integrating ancestral practices with new ecological understandings. Through Tuxá-led land-based education, they evolve cultural identities by engaging in multisensory learning, ritual practices, and relational interactions with the living environment. Despite challenges such as land dispossession and ecological changes, Tuxá youth collaborators actively reinterpret teachings through ecological stewardship, spiritual connections, and collective memory. This dynamic process ensures the resilience of their knowledge system, allowing them to sustain non-linear cultural continuity while responding to contemporary environmental and social realities.

Future research could explore the impact of land-based education on Indigenous youth's political activism, particularly in relation to their participation in land rights movements. Such studies could explore how traditional ecological knowledges shape youth perspectives on environmental justice and sustainability, and how these teachings influence their engagement in activism. By examining the intersection of land-based education and political action, researchers can gain insights into how cultural and ecological awareness empower young Indigenous people to advocate for their rights and the environment.

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Names, Nicknames, and Surnames in Amazon: Traditional Gavião-Jê Naming Traditions

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Abstract

This article aims to contribute to safeguarding the naming institution of the Gavião-Jê language and tradition by providing explanations regarding names, surnames, and nicknames. The act of naming children in Gavião-Jê tradition involves an endogamous system which defines significant aspects of a person's life, such as affinity relatives, formal friendships, potential relationships, ritual moities, and body painting patterns. The Gavião-Jê did not traditionally have surnames. In the 1980s, based on a community decision, this Indigenous people began to be registered by notaries using their parents' first names as surnames, establishing this as a new social norm.

Keywords:
Amazon, Gavião-Jê, Indigenous language, nomination, anthroponym, nickname, surname

General Introduction

Gavião-Jê is a Macro-Jê language spoken in the southeastern part of Pará state in the Amazon region of Brazil. This language is a member of the Timbira dialectal complex (Rodrigues 1986). Timbira societies are organized into pairs of moieties that divide the population into groups for rituals based on seasonal periods or other criteria, such as age groups. According to Jõpaipaire (2011), the population has had intense contact with non-Indigenous society since the 19th century. Krôhôkrenhum used to relate how the non-Indigenous people (kupên) from the nearby areas occasionally invaded their territory, which was rich in Brazil nut trees, to gather nuts to sell. The Gavião began to "get used to" their presence in their territory, as the relationships initially seemed friendly, since they obtained goods such as machetes and axes from the kupên. However, violent episodes occurred, with deaths on both sides, especially after the assassination of one of the Indigenous chiefs by nut gatherers in the lower Tauri River. The Gavião-Jê retaliated by killing three non-Indigenous men and burning their huts. The cycle of revenge marked by deaths intensified the tension between these Indigenous people and the locals.

Conflicts between the Gavião and the nut gatherers increased as that product grew in value for the regional economy. The Gavião were known for committing "great savagery," and in Marabá, during the 1930s and 1940s, local politicians, merchants, and nut field owners organized extermination expeditions against this Indigenous people. Armed clashes occurred over an area of almost 180 km, covering lands in the current municipalities of Tucuruí, Itupiranga, Marabá, and São João do Araguaia, on the right bank of the Tocantins River.

In 1937, the Indian Protection Service (SPI) established a post on the Ipixuna River, aimed at attracting the Gavião. The Indigenous people discovered the location and began to visit the Post to receive tools and other "gifts." On one occasion, during one of these visits, they "found the Post devoid of tools and especially of flour. After expressing their discontent, they killed one of the workers with several arrows. They ceased visiting the Post, having established peaceful contacts in other areas of the Tocantins, including a place called Ambauá, opposite Tucuruí" (Arnaud 1964).

In 1945, the SPI set up a post in Ambauá to resume attraction efforts. The Gavião were organized into different “groups” and villages near this location. They began visiting the area, sometimes becoming involved in violent incidents that made national news between 1948 and 1951 (Arnaud 1964). Internal conflicts among the groups also arose due to theft of agricultural products, accusations of witchcraft, or abductions of women. It was in this context that separations and rivalries occurred.

In the 1950s, the Gavião's social organization weakened due to the fragmentation of common territories, an epidemic outbreak among them, and depopulation. One group of 15 people whose community had been almost decimated arrived in Itupiranga, a neighboring municipality of Marabá, and sought contact with non-Indigenous people. They were cared for and baptized with non-Indigenous names. The few members of the Cocal community, a village of the Parkatêjê, who were under Krôhôkrenhum's leadership, were contacted in 1956 by an expedition organized by the Dominican Friar Gil Gomes Leitão and Lieutenant Hilmar, working for the SPI. The purpose of the meeting with the Gavião was to prevent punitive expeditions, supported by local politicians, from exterminating the Indigenous people in order to exploit the chestnut resources on their lands. During the time they were in Itupiranga, according to Friar José's manuscript, a deputy from

Belém had bought the Indigenous territories.

Taken to the same SPI site, they began to work under a forced intensive regime, collecting Brazil nuts in the region. A man known as "Mr. Benedito" who was living on Gavião territories "allowed" them to collect nuts there for themselves. According to Da Matta (1967, 115), the production was sold in Itupiranga. SPI was responsible for selling the nuts, but very little of the revenue reached the Indigenous people—until they managed to recover and strengthen themselves.

The Gavião-Jê were aware of another Indigenous people from Maranhão (the Kyikatêjê), who spoke a variation of the same language and lived near their land. The traditional chief, Tomprãmre Krôhôkrenhum Jõpaipaire (in memoriam), invited the Kyikatêjê to come live together in a large common village. They accepted and joined the community from Pará, taking the collective name of Parkatêjê, while remaining aware of their individual origins.

By the 1970s, the Indigenous people began fighting to manage the work with nuts themselves. Following troubled times, the Parkatêjê people entered a new historical phase in the mid-1970s. In the 1980s, having reestablished themselves and gained experience, they started to take control of the economy generated by their regional products and to lead their own decision-making. This moment was favorable for reviving their culture and traditions. Joining with another predominantly monolingual community brought vitality to their traditional practices, and the Indigenous population grew in number.

In the 1980s, the State imposed economic projects to develop the southeast of Pará: the construction of the Pará-Maranhão (PA-70 or BR-222) railway, which cuts through Indigenous territory to connect the city of Marabá with the Belém-Brasília Highway; the installation of electricity towers by Eletronorte; and the Carajás-Ponta de Madeira Railway by the Vale Company (Araújo 2008).

The impact of the construction of the Carajás-Ponta de Madeira Railway was so significant that the Indigenous people obtained a court order to receive monthly compensation from Vale, as life in the community had been irrevocably altered by the arrival of high-voltage equipment, the death of wildlife, and many other issues. On the one hand, the compensation was positive, as it provided them with a more comfortable life. On the other hand, the money brought about profound changes to their way of life, resulting in an increase in illnesses such as diabetes, high blood pressure, high cholesterol, and obesity. Access to goods led to greater exposure to Portuguese language and tradition in areas that had previously used only the traditional language, causing a weakening of traditional language and culture.

In the 2000s, a split occurred between the Parkatêjê (from Pará) and the Kyikatêjê (from Maranhão), despite the strong consanguinity ties they had at that time. The Kyikatêjê left the Mãe Maria village, located at km 30, and established a new village at km 25. As of 2024, there are at least two dozen villages spread along the BR-222 Highway, which crosses Indigenous territory. Nonetheless, despite the number of communities, the total population does not exceed 1,000 individuals. Of this population, less than 5% speak the traditional language, as Portuguese has taken over social spaces once occupied by the traditional language. For more than five decades, children have not learned the traditional language as their native language.

Onomastic Studies

Onomastics is devoted to the study of names and constitutes a discipline that is in constant dialogue with other areas of Linguistics and human knowledge. Among

these areas, we can mention Historical Linguistics, Anthropological Linguistics, Semantics, Logic, and the Philosophy of Language.

Names and nicknames are fundamental to both individual and collective identity, reflecting the cultural and social aspects of a people. The study of Onomastics helps us understand how these elements reveal traditions, histories, and cultural values throughout the history of languages and societies. Names are often linked to rituals, beliefs, and social practices. Since nicknames can replace proper names in certain contexts, they too are the subject of research within the field of Onomastics, as demonstrated in the works of Matfunjwa, Muzi, et al. (2024), Urdang (1987), Hornsby (2007), Vanzolini (2019), and Hugh-Jones (2006).

Martins (1994) emphasizes that the proper name "can evoke a world of possible representations. It can elucidate, in fact, worlds that are studied by the most diverse disciplines, from linguistics, anthropology, and law to biology, psychology, and psychoanalysis." The two main areas of study in Onomastics, according to Seabra (2006) and other authors, are Anthroponymy and Toponymy, both of which examine linguistic elements that preserve ancient naming stages (Seabra 2006, 1953).

The number of studies dedicated to aspects of the Onomastics of Indigenous languages is still generally considered small. In Brazil, specifically, the vast majority of research on this subject focuses on Anthropology. Motta and Silva (2000) point out that Onomastics in Brazilian Anthropology primarily enters through Indigenous ethnology, although it also occurs in studies of urban Anthropology and rural populations.

In this context, studies on Indigenous Onomastics in South America have been heavily influenced by the debate proposed by Viveiros de Castro (1992), who defined societies with internal name transfer—such as the Jê peoples of central Brazil—as opposed to others where names come from "outside," as in the case of the ancient Tupi, who acquired names from enemies who had been killed. Thus, the different forms of personal naming reflect various social organizations among Indigenous peoples.

According to Vanzolini (2019, 107), for example, the Onomastic system of the Aweti, a Tupian-speaking people who live in the headwaters of the Xingu River, explores how personal qualities are evoked through names. In the Alto Xingu, every Indigenous person must have at least two names given by maternal and paternal grandparents during the first months of life. These names are called by the Aweti tekyt eput, roughly translating to "green names" referring to their childish nature. Girls change their names during puberty, while boys ideally do so during the ear-piercing ceremony, a ritual celebration marking the beginning of adulthood. In the Aweti tradition, using a name that has already been exchanged is considered dangerous, as it may attract bad things to the individual.

According to Vanzolini (2019, 107):

“The same family names go from village to village in the Upper Xingu through interethnic marriages: while neither prescriptive nor preferential, such marriages are allowed and common. Although some of them are recognizably associated with some linguistic groups, broadly they are shared by all those whom the Aweti refer to as mo’aza—humans or, in a narrower sense, Upper Xinguano people.”

Therefore, names circulate between villages through marriages and are widely shared among Xinguan peoples, regardless of linguistic meaning. It seems that they choose certain names based on their aesthetic preferences.

Aside from family names, considered their true names, the Aweti may also have

nicknames and "white" names that are not obligatory. In the absence of a family name, a "way of calling" is used instead. The so-called "white" names can be self-assigned, but nicknames are always given by others, often carry humorous connotations, as is common in many parts of the world (Vanzolini 2019).

Hugh-Jones (2006), when describing the Tukano onomastic system, also notes that while family names are generally associated with spiritual qualities and group belonging, nicknames are established through everyday interactions and refer to bodily signs or events from personal history, serving as a form of individualization.

In the field of Linguistics specifically, the number of studies related to Indigenous Onomastics remains quite limited, despite the linguistic and cultural importance of research on the subject, as discussed in Lopes (2017, 2022).

The first approach to Parkatêjê proper names was presented by Araújo and Ferreira at a seminar in Brazil in 2001. In their preliminary presentation, Araújo and Ferreira (2001) briefly addressed the naming system and the structure of names, and provided a list of names collected in a census conducted by the authors two years earlier. They stated that proper names in Parkatêjê can be either denotative or figurative. From this perspective, denotative names are those whose primary meaning is denotation, while figurative names consist of metaphors or metonyms. They did not publish a complete paper on this topic.

In Brazil, there are researchers working on Onomastics, such as Dick (2000) and Carvalhinhos (2007) at São Paulo University; Seide (2022) at Federal University of Minas Gerais; Andrade (2017) at Federal University of Tocantins; Sousa (2019) at Federal University of Acre; and Santos and Rodrigues (2024) at Federal University of Pará. However, studies specifically focused on Indigenous Onomastics remain scarce. Lopes' thesis (2017), titled “Parkatêjê Onomastics: A Morphosyntactic and Semantic Study of Proper Names”, represents the first systematic linguistic research on the subject about a Macro-Jê language. This study examined linguistic and cultural issues related to the onomastic system of the Parkatêjê people. The research demonstrates that Amazonian Indigenous people possess a sophisticated system of naming. Drawing on the perspectives of authors such as Dick (1996; 1997; 1999; 2000; 2001), Lyons (1977), Ullmann (1964), Seabra (2006), Carvalhinhos (2007), among others, Lopes provides a general overview of the nomination system of Timbira languages, primarily based on the works of Coelho de Souza (2002), Nimuendajú (1946), Melatti (1978), Arnaud (1964), and Carneiro de Cunha (1986), in addition to her own research.

Several morphosyntactic and semantic aspects identified in the proper names of the Parkatêjê language share the characteristics identified in Ferreira’s work from 2003. Lopes' PhD dissertation, titled "Parkatêjê (Timbira) Toponymy: A Study on Place Proper Names," delves into the linguistic, historical, and cultural context of the onomastics of the Parkatêjê, Kỳikatêjê, and Akrãtikatêjê by documenting, describing, and analyzing toponyms known and used by native speakers of the Parkatêjê language. The primary goal of Lopes' dissertation was to contribute to the description of the morphosyntactic, semantic, and motivational aspects of Parkatêjê proper nouns that denote locations. As a practical outcome, the Parkatêjê Toponymic Glossary now compiles all known toponyms in a single reference source, serving as a starting point for future studies on the Parkatêjê language and for initiatives aimed at teaching the native language.

According to the standard methodology in toponymic studies, the corpus representative of the semantic field of proper nouns denoting locations is divided

into two large groups: natural geographical features—such as “rivers”, “creeks”, or “streams”—and human geographical features, subdivided into “abandoned villages,” “new villages,” “paths,” “camps,” and “cities.” Based on this classification, lexicographical toponymic tokens proposed by Dick (2002, adapted for the context of this study) were filled. The resulting data was subsequently organized in a digital database using Fieldworks Language Explorer (FLEx) v. 8.2.8, which was then processed using the Lexique Pro software (www.sil.org) so as to generate a toponymic glossary. Linguistic data was analyzed based on its morphosyntactic and semantic structure. The data collection and the division of the corpus into natural and human geographical features was followed by taxonomic classification of the toponyms, as proposed by Dick (1992). The classification takes into account the description given by Indigenous consultants to explain the motivation behind the nomination act. The semantic content of the toponyms is grounded in the worldview of Indigenous individuals, but also in the collective worldview of the community to which the individual belongs, revealing aspects of the people’s history, cultural and physical landscape and values, among others. Both projects were supervised by Prof. Marília Ferreira at Federal University of Pará, in Belém, Amazonia, Brazil.

The studies in Onomastics have shed light on a very interesting issue—the use of nicknames in the community. Our working hypothesis was that all Timbira Indigenous people in Pará had nicknames, due to the fact that their anthroponyms consist of two or more words, making them long, thus difficult to use in fast and natural everyday speech. In fact, nearly everyone has a nickname derived from their names, with a few exceptions in which the nickname has a distinct origin.

Methodology

The methodology used for the development of this study followed the usual standards in Descriptive and Anthropological Linguistics, which emphasize the importance of comprehensive data collection, ethical practices, and cultural context. Descriptive linguistics focuses on documenting the structure of the language, while anthropological linguistics investigates how language relates to social and cultural phenomena. The steps taken were:

a) **Critical analysis of bibliographical references**: Works such as Araújo (1977, 1989), Arnaud (1964), Coelho de Souza (2002), Dick (1992, 1996, 1997, 1999, 2000, 2001), Ferreira (2003, 2005), among others, were considered;

b) **Fieldwork for data collection**: The data were obtained through interviews recorded in audio and video within the main target Indigenous community. The recordings were made using a digital camera and audio recorder, and the questions were posed directly to the speakers. Each interview was conducted by one of the two authors. Based on the list of anthroponyms presented in Lopes (2017) and Lopes and Ferreira (2018), one of the authors asked participants which nicknames could have originated from proper names.

   Recording only the nicknames originated from proper names restricted the data collection. An informal poll was also led by one of the authors to understand the community's history and decision to create surnames for formal registration in notary offices.

c) **Transcription and organization of data**: The material collected in the field was transcribed orthographically in both Portuguese and in Parkatêjê,

following the orthographic conventions proposed by Araújo's (1993).

d) **Morphological segmentation of the data**: The data were segmented in a way that facilitated subsequent analyses.

e) **Morphosyntactic and semantic analysis of the research corpus**: A detailed analysis of the morphosyntactic structure and the meanings of the collected data was carried out.

f) **Presentation and analysis of nicknames in Gavião-Jê**: The format of a nickname related to a proper name keeps the segmentation of words. In general, a lexical part of the expression is chosen as a nickname. So, the results obtained throughout the research were discussed.

These steps ensured a systematic and rigorous approach to the research, reflecting the recommended practices in the fields of Descriptive and Anthropological Linguistics.

Findings and Discussion

Nomination in the Parkatêjê Tradition

In general, Parkatêjê people receive their proper names when they are babies, shortly after birth, although nominators can choose names during the mother's pregnancy. The act of naming a child in Parkatêjê tradition involves an endogamous system to initiate a person into the world. According to Arnaud (1964), a man is responsible for naming the son or grandson of his sister (sororal nephew: (kêti [maternal uncle/maternal grandfather] – ituwa [nephew]) and a woman for naming her brother's daughter or granddaughter (katuy [paternal aunt] – ituwa [fraternal niece])

Araújo e Ferreira (2001) stated that name-givers, or nominators, choose a trait of their own behavior or character and use it as the basis for creating a name to assign to the name-receiver. Along with the given name, children also inherit affinity relations, formal friendship, potential relationships, ritual moieties, and body painting patterns. These elements are shared with the nominator, with whom the name-receiver forms a particular bond. From an anthropological perspective, the Parkatêjê tradition of creating a nomination based on a personal trait to identify a person involves the nominator giving part of themselves to create a kind of ego copy.

Linguistic Analysis of Anthroponyms and nicknames

Parkatêjê given names are, in most cases, long compounds containing two, three or more words. According to Lopes (2017), they can be divided into exclusively male, exclusively female, or unisex names. This depends on the full meaning of the name. One the one hand, activities or characteristics that, in the Parkatêjê cultural context, are restricted to one sex generate exclusively male or exclusively female anthroponyms. For example, activities that involve taking care of the land, gardening or denoting feelings and so on, are female-related. Thus, we find names such as Purprãmre "loves the field," Purkôre "plant in the rain," and Purhêre "field worker," which refer to exclusively feminine activities.

On the other hand, activities or characteristics typically assigned to males generate anthroponyms restricted to this gender. For example, male-related activities involving hunting give rise to names such as Hàkti "hunter" and Ropkatêre "jaguar hunter." According to our research, certain anthroponyms whose meanings denote activities without cultural restriction to men or women, such as Pamaprĩ "slow walk," Kôkupati "fear of river," and Kãmtaihoprãmre "writing lover," can be used by both sexes.

A large percentage of Parkatêjê anthroponyms are formed through the combination of sequences of simple roots. Such roots can belong to the same or different word classes. According to Araújo and Ferreira (2001), compounds resemble noun or verbal phrases—some simple and some complex. A simple anthroponym can be constituted of a nominal base plus a derivational suffix -re "diminutive" or -ti "augmentative," such as Kuwêre "bow," lit. "little bow;" Hõmjĩre "thorn;" Pàrhyti "chilli," lit. "nuisance taste;" and Hàkti "hunter," lit. "hawk." In the same way, there are anthroponyms constituted by verbs and suffixes -re and -ti (with verbs, these suffixes function as intensifiers or attenuatives of the verbal action), such as Nãkôti "sweat a lot," Kurẽkti "pierce a lot," Awỳre "beggar" and Aihure "fall down." Examples of other anthroponyms using transitive verbs and nouns include Akrôjarêre "field worker;" Tuxêre "tied belly;" Kiakakwĩnre "break the kia;" Piekawêre "walks with her husband," lit. "glued to her husband."

There are anthroponyms formed by two, three or more nominal bases. The noun on the left functions as a modifier, as in Awarkwỳi "girl/woman who likes to eat inajá fruit," lit. "inajá girl/woman" or Prĩtikwỳi "girl/woman who likes to eat pequi fruit," lit. "pequi girl/woman." Thus, the nominal bases Awar "inajá fruit" and Prĩti "pequi fruit" function as modifiers of the noun Kwỳi.

During traditional festivities in the village, people gather around the singer, who is always accompanied by a girl who dances in front of him with her head down. That girl is the Kwỳi of the party. This social role, by all indications, is only performed by a girl aged between 13 and 18 years. Thanks to its prominence, the noun Kwỳi is a constituent part of several feminine anthroponyms that Parkatêjê people translate approximately as "girl" or "woman." Examples include Takwỳi "raining girl/woman," Kukênkwỳire "agouti girl/woman," Atỳrkwỳi "wet girl/woman," and Amkràkwỳire "sunny girl/woman." It is important to note that the name Kwỳi has verifiably not been attested in other contexts.

There are many anthroponyms that use Jõ as a prefix, such as Jõtwỳm "fat food," Jõkumti "hot food," Jõtàmre "raw food," Jõjapỳre "take food and run away," Jõpiti "all the food," Jõkàntàtàre "join the food shell," Jõjapêre "stingy of food," Jõtũmre "old food," Jõkwỳrkutom "manioc cake," Jõhire "gnaw bones from food," Jõkakure "rotten food," Jõmpeiti "eat a lot," Jõpêptyti "hides food," Jõrẽre "throw food," and Jõpaipaire "throw up food." From the preceding names, one might infer that Jõ means "food," but there are other cases where this meaning is not so transparent, such as Jõkuhyre "fan the fire," Jõkopti "scratch," and Jõxàrti "play arrow."

The meaning of anthroponyms cannot be reduced to the simple sum of the constituent lexical items; rather, they present a meaning that goes beyond what is present in their internal parts, according to Ferreira (2003). To understand the meaning of anthroponyms in Parkatêjê, it is necessary to have contextual information and knowledge of the cultural world of the traditional language. The Parkatêjê tradition's familiar conviviality leads some people to receive a nickname which in general is a short part of their whole given name. This is the topic to be explored in the next section.

Nicknames

In the Parkatêjê tradition, nicknames are frequently used within a community among relatives, friends, and neighbors to express affection, familiarity, and sometimes amusement, to allude a character trait or attitude, or even to refer to a person's physical characteristics, such as "whale" for a fat person or "hairy" for a bald man. The same occurs in Brazilian Portuguese. Sometimes—depending on the situational

context—a nickname is a substitute for a person's proper name.

There does not appear to be a formula for giving someone a nickname, and it is not given in the same manner as an anthroponym. In the present text, the focus is on nicknames related to anthroponyms or proper names. After analyzing field and personal notes plus data collected to describe anthroponyms, we are in a position to assert that the shortening of proper names is the most common way to give someone a nickname. However, it is not simple to explain how reduction principles are applied to proper names to create nicknames, as the choice of which part will be used for the nickname seems to be arbitrary. Nevertheless, it is worth noting that the selected portion always corresponds to a lexical item in the Indigenous language.

The anthroponym Krôhôkrenhum, whose meaning is "Krôhôkre's father," undergoes two types of simplification in its pronunciation in the current speech: a) reduction in size by losing the syllable hô: Krôhôkrenhum > Krôkrenhum; b) dropping of the first /r/ in the first syllable: Krôkrenhum > Kôkrenhum; and dropping of the /h/ in hum (father/man): Krôkrenhum > Kôkrenum. Thus, the nickname related to Krôhôkrenhum is Kôkrenum. We can see that this simplification made the pronunciation easier.

The way anthroponyms are created gives the name-giver the freedom to form new names by combining different words in the language, but often the nicknames may end up sounding similar due to the combinations made. Feminine proper names using the noun Kwỳi "girl/woman" as a constituent part can undergo reduction by taking out the modifier, that is, the constituent on the left. Examples include Takwỳi "raining girl/woman," Kukênkwỳire "agouti girl/woman," Atỳrkwỳi "wet girl/woman," and Amkrokwỳire "sunny girl/woman." Nicknames originating from those names would have the same form of Kwỳi. Then to make distinctions in the current speech, it is important to specify some unique characteristic, such as "Kwỳi, the wife of Kuya," for instance. The same kind of reduction occurs when men have a proper name containing the noun Katê "hunter." For example, Ropkatê "jaguar hunter," or Kukrytkatê "tapir hunter" as the modifier in the left position is suppressed, the nickname is Katê.

Gavião individuals with proper names containing the Jõ prefix, whose meaning is not very clear, may have a nickname that suppresses the rest of the name while only keeping Jõ. This is the case for both men and women. However it is possible, in some cases, to suppress the Jõ prefix, as in Jõjapêre, where the nickname becomes Japêre. Normally people would choose part of the name equivalent to a single word and use it as the person's nickname; for instance, when they meet someone with a name like Kamtaihopramre "(the nominator) is a writing lover," the nickname would probably be Taiho. A person named Têkikupati "fear of arrows" can be called Têk. Sometimes, however, it is not easy to predict what the community would do.

Once more, the list of observed patterns of nickname formation from anthroponyms suppressing the modifier, in cases like Ropkatê "jaguar hunter" > Katê "hunter," and Atỳrkwỳi "wet girl/woman" > Kwỳi, indicates a similar way to create these names in which the more specific part of the compound is omitted, leaving the more generic name. In the cases of anthroponyms beginning with the Jõ prefix, one might conclude that certain individuals will possess nicknames created on the principle of suppressing the most specific noun in the compound, as in Jõxàrti "play arrow" > Jõ, but the nickname related to that name could be also Xàr. These names, Ropkatê "jaguar hunter," Atỳrkwỳi "wet girl/woman," and Jõxàrti "play arrow," differ in the position of the most generic and most specific part of the compound. In the first two examples, it appears that the name on the right is the

modifier, while in the last one the modifier is on the left. In order to complement the present research, a follow-up study is planned to clarify this finding by applying experiments to generate nicknames and by evaluating the naturalness of using them.

Surnames, Family Names, or Last Names

Indigenous peoples around the world have increasingly begun to use their Indigenous nation names as surnames for a variety of reasons, including to reinforce a sense of cultural identity and pride. This practice allows individuals to honor their heritage and maintain a connection to their ancestral tradition, raise awareness of Indigenous communities and their histories, and contribute to a greater understanding of their struggles and rights within wider society. It also serves as a means to actively resist pressures of colonization and assimilation. By adopting their nation names as surnames, Indigenous peoples can assert their rights and autonomy as a political statement.

Following years of colonization and forced assimilation, during which Indigenous names were often replaced or erased, the adoption of nation names as surnames can be a powerful act of reclaiming identity and lineage. It also serves to reinforce a connection to the territory, as Indigenous names may reflect ties to specific territories or natural environments. This connection to the land is fundamental to many Indigenous cultures.

In general, by using nation names as surnames, these communities can pass down cultural values and history to future generations, ensuring that cultural practices and identities are preserved, as we saw in the case of the Parkatêjê. Furthermore, a reality in Brazil is that more Indigenous people are seeking to formally recognize their identities through nation naming, particularly in legal documents, which can have an impact on their rights, entitlements, and representation in various institutions. Overall, the practice of using nation names as surnames serves multiple significant purposes in promoting dignity, identity, and resilience among Indigenous populations.

Indigenous peoples in Brazil have traditionally not used surnames, family names, or last names in the way that Western traditions do. However, as in other parts of the world, some Brazilian Indigenous individuals who have gained national prominence have begun to use, or even be referred to, by their nations designations along with their first names, such as Mário Juruna, Célia Xakriabá, Alessandra Munduruku, and Aílton Krenák.

With close contact with non-Indigenous people and the understanding of what a surname would be, the Parkatêjê community made the decision to use paternal and maternal anthroponyms as the family's surnames. This became a rule, and all Indigenous people began to be formally registered by the notaries of Marabá in this way since the 1980s. For example, if a couple—a male Jõkumti and a female Prĩtikwỳi—had a baby girl who received an anthroponym like Jõjapêre, her full name would be Jõjapêre Prĩtikwỳi Jõkumti. From our knowledge, no other Macro-Jê communities have made such a move.

It appears that, when the Gavião-Jê were contacted, personnel from the SPI, in order to identify them and register how many individuals were part of this nation, used the strategy of recording their given names followed by their affiliations. Older Indigenous people who witnessed this considered it a good strategy for formal identification and civil registration in notary offices, adopting the first names of the mother and father as surnames. This illustrates that community decisions are more powerful than individual actions, and also demonstrates the arbitrary nature of surnames as linguistic signs. In addition, this is a way to keep the memory of their ancestors alive for the entire community.

Conclusion

The objective of this work was to contribute to the safeguarding of the institution of naming in the Parkatêjê language and tradition—documenting parts of this system, such as names, surnames, and nicknames originating from anthroponyms. This type of research can reveal historical, cultural, and linguistic facts about a people, yet names are a linguistic aspect that often receives little attention when linguists are involved in grammatical descriptions of endangered languages. For example, to clarify some anthroponyms, the Indigenous people need to recall everyday events that have marked their history in some way, and for this reason are used to name their named individuals. This also applies to nicknames.

Using unpublished sources, such as field notes and personal writing, it was possible to go further in capturing excerpts of a kind never recorded before. Future investigations could go even further by examining other types of nicknames and ways of calling someone “father of so-and-so,” considering the linguistic and cultural importance of names, nicknames and identity.

The institution of Indigenous names within the Gavião-Jê community is significant and socially relevant, as everyone, without exception, adopts and uses their traditional names. Since these names are generally composed of two or more words, they tend to be long. Thus, everyone has a nickname formed from their Gavião-Jê given names, which results from a selection process in which a lexical part of the name is used, through shortening, as a nickname. Only a few people have a nickname that is not related to their anthroponyms. Another point that should be highlighted in this regard is that the traditional language of the Gavião-Jê is considered a heritage language for younger generations. Despite this, all people segment the anthroponyms according to the conventions of the Indigenous language.

In general, Brazilian Indigenous peoples do not use surnames or family names. However, in all places where Indigenous peoples are present, they have begun to use their nation names as surnames for various reasons. The Gavião-Jê, perhaps due to contact with non-Indigenous society, decided to use their maternal and paternal anthroponyms as surnames, in the same order that Brazilians use their family names—after the anthroponym comes the mother’s name and finally the father's name. This community decision, made in the 1980s, was discussed and accepted by all and was based on the way in which personnel from the SPI identified them by recording their given names followed by their affiliations. The elder Indigenous people who witnessed this thought it would be a good strategy to have surnames so they could be identified by their families and formally registered in notary offices. This decision is unique in Brazil and demonstrates how a community retains supreme power over individual actions. These findings are important to the Gavião-Jê community, enabling them not only to document their history more fully but also to describe their language and culture. This, in turn, informs our understanding of the cultural forms of other Macro-Jê peoples.

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Engaging Wajuru /Wayoro and Makurap communities in collaborative documentation: Recording, learning, and communicating

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Abstract

In this article, we present an approach for engaging Wajuru and Makurap communities in a documentation project that aimed to provide systematic documentation for their traditional languages. The methodology that we employ combines technical training in ethnolinguistic documentation, capacity building, and a community-based approach for carrying out documentation and producing a digital encyclopedia of the two languages. We demonstrate how the application of this methodology was very effective in raising awareness about linguistic and cultural documentation, in building documentary capacity among the community members, in producing a large and comprehensive ethnolinguistic collection and in generating interest in linguistic and cultural revitalization.

Keywords:
Ethnolinguistic documentation, capacity building, community-based approach, Makurap people, Wajuru people, endangered languages

Introduction

In this article, we present an approach for engaging the Wajuru and Makurap[1] communities from Brazil in collaborative documentation efforts and the first results of this approach employed in a three-year project entitled "Documentation of the severely endangered languages Makurap and Wayoro (Brazil): material and non-material traditional culture, and its associated knowledge," funded by the Endangered Language Documentation Program (ELDP).[2] The initial goal of the project is to provide systematic documentation through audio and video recordings of Makurap and Wayoro, two severely endangered languages spoken in the Brazilian state of Rondônia. The main goal of this article is, thus, to investigate the technical and theoretical issues involved in the planning of documentation projects, asking how these issues may make an impact on the outcome of the projects. Specifically, we would like to understand the relevance of this kind of documentation project for the Makurap and Wajuru communities. Another important question dealt with in this article is how linguistic documentation projects can be shaped to be useful for language revitalization and other issues related to language vitality. Hence, we exemplify this topic with some outcomes of the Makurap and Wajuru ethnolinguistic documentation project.

The planned results of the project include a collection of audio and video recordings of communicative events with a focus on traditional culture and its associated knowledge, a translated and transcribed annotated corpus, a lexical database, and a multimedia dictionary for each language. Examples of the topics that have been documented include traditional foods with information on their ingredients, preparation techniques and any consumption restrictions, traditional ways of fishing and hunting, musical genres and instruments, and attire used in musical performances.

Wayoro and Makurap are two severely endangered languages (Moseley 2010) spoken in the Brazilian state of Rondônia, near the Brazil-Bolivia border. The map below shows the Rio Guaporé Indigenous Land (*Terra Indigena Rio Guaporé*) circled in red, and the Indigenous villages that are located inside that territory (Fig 1.). The Wajuru and Makurap people live in several of these villages, especially in the Ricardo Franco village, which is the most populous of them.

[1] We have chosen to include the two spellings Wajuru/Wayoro in the title because both spellings are correct, but they are used to refer to different concepts. Wajuru is the ethnonym used to refer to the people, whereas Wayoro is the term used to denote the language, which is referred to as either the Wayoro language or the language of the Wajuru people. In addition, there is variation found in the spelling of the ethnonym Wajuru, which is sometimes spelled Ajuru, especially in proper names. We use the term Wajuru to refer to the people or community and the term Wayoro when referring to the language, but we will keep the spelling of proper names as they are registered in official documents. Makurap is the ethnonym used for both the people and their language. However, in official documents (birth certificates, etc.) the spelling Macurap is common.

[2] The project is coordinated by the linguists Ana Vilacy Galucio and Antonia Fernanda de Souza Nogueira in collaboration with Carla Costa. The other two coauthors, Jaqueline Wajuru and Jociclei Macurap, are two of the main researchers of the project. All five authors have equally contributed to the conception of the manuscript. However, we have chosen to transcribe the speeches of Jaqueline Wajuru and Jociclei Makurap to highlight their point of view as representatives of Wajuru and Makurap peoples, respectively.

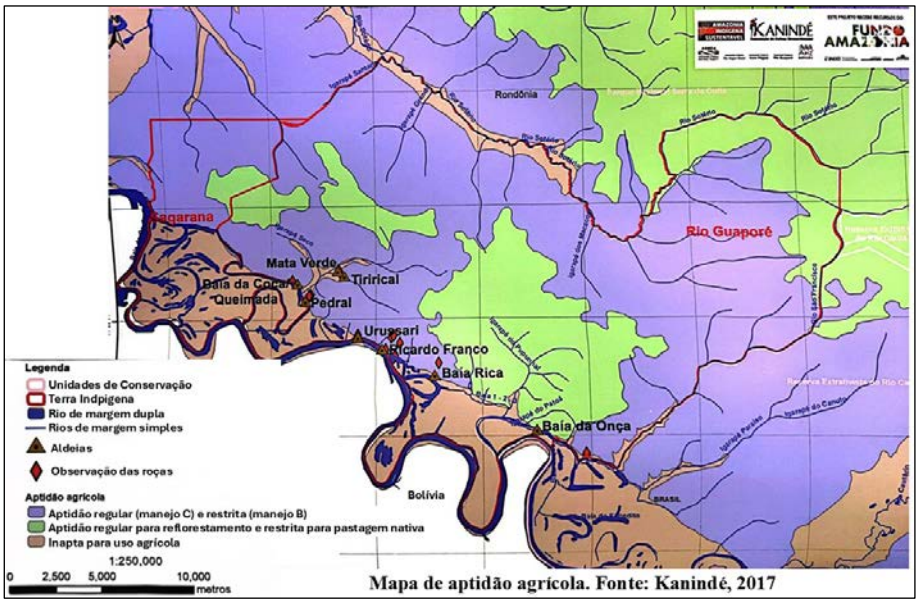

Fig. 1. The Rio Guaporé Indigenous land and its villages (Cardozo et al. 2019).

The Rio Guaporé Indigenous Land in the Brazilian state of Rondônia is inhabited by 10 different Indigenous nations, speakers of languages from distinct linguistic families, namely Arikapu and Djeoromitxi (Jabutian family, Macro-Jê), Kujubim and Wari' (Chapacuran family), Kanoê (language isolate), Aikanã (language isolate), Aruá (Mondé), and Tupari, Makurap and Wayoro (Tuparian family, Tupi). The total population there exceeds a thousand people and includes about 200 Makurap people and 100 Wajuru people. There is also a group of Makurap people living in another Indigenous Land (TI Rio Branco), and a group of Wajuru living in a non-demarcated area in the municipality of Alta Floresta d'Oeste. Before contact, the Makurap people inhabited a region above the headwaters of the Branco River (Rio Branco) and along both shores of the upper Colorado River. The Wajuru people were located at the headwaters of the Colorado and Terebinto rivers.

After contact with rubber companies at the beginning of the 20th century, the Makurap and Wajuru people were incorporated by force into the national workforce. They were thus exposed to a measles epidemic, which heavily reduced their population (Maldi 1991; Soares-Pinto 2009). Then, around the decades of 1940-1970, for economic reasons, the Brazilian government transferred part of the Makurap and Wajuru people (along with groups of other Indigenous nations) from their respective ancestral territories to the Rio Guaporé Indigenous Land at the Brazil-Bolivia border. The surviving Makurap and Wajuru population was forbidden by government representatives to speak their language under threats of punishment and humiliation. The Wajuru children and young people who were born in their ancestral territory but grew up in the Rio Guaporé Indigenous Land understand both the Indigenous language and Portuguese, but for the most part only speak Portuguese fluently. The children of this generation do not understand or speak the Indigenous languages. This current situation is in several ways a result of the violent process imposed upon those people. Wayoro has only one fluent speaker, Mrs Paulina

Macurap,[3] and some semi-speakers, such as her daughter, Mrs Maria Ajuru. Both are adults over fifty years old. In 2023, another elderly fluent Wayoro speaker passed away. Makurap has between 24 to 30 fluent speakers. However, 83% of the speakers are adults over fifty years old.[4] This critical situation is explained by Jaqueline Wajuru and Jociclei Macurap below, which helps us understand the socio-historical development that contributed to the low present-day vitality of these languages:

"Pare!" which means "good morning!" in the Wayoro language. My name is Jaqueline Wajuru. I'm 24 years old and I'm from Ricardo Franco village. The Wajuru people stopped speaking the language once their land was invaded by the non-Indigenous people. Many of them were divided into separate villages, the women, the men, the children (...). Because of that, some fled to other places, and some were imprisoned by the non-Indigenous men who caught them. Many were taken to work, for instance in the rubber tree industry, collecting rubber sap in the forest. During that time there they couldn't communicate with their children, their wives, or their grandchildren. Because they were threatened if they spoke their native language among themselves. Even if they knew how to speak the language, they couldn't speak it because they were threatened. They were told that if they continued to speak the language (...) If they spoke the language, they would be killed by their persecutor. Thus, they stopped talking, and many of them left, they split off to other villages, to build their own villages. Nowadays nobody speaks the Wayoro language anymore, we seek to learn how to speak the Wayoro language. (Jaqueline Wajuru, Ricardo Franco village, July 2024)

In my family I am the only one who speaks the Makurap language. Only me, well me and my mom. She speaks it a little bit. She doesn't really speak it, but she understands it. But you can say that she speaks the language a little bit. And, my grandpa João, he is one of few elders that are still around. It is important to record the language. To record the culture. Because the documentation helps us. It has the capacity to show how the language is (...) and to register the language, including the language and the culture. (Documentation) can show the culture (to other people) and it can keep it recorded for those who do not know it, so that they can watch, see, and hear how our language is spoken. (Jociclei Macurap, Tiririca village, July 2024.)

Wajuru's and Macurap's statements make it clear what the situation is for these two languages and provide a brief overview of the issues that have contributed to this scenario over the years. The sociolinguistic situation described for Makurap and Wayoro is currently shared by most native languages from the Brazilian state of Rondônia, as described by Galucio (2021). The state of Rondônia is one of the most linguistically diverse places in Brazil, housing twenty-six native Indigenous languages, distributed across five language families and three isolates. On the other hand, it is also a region where most of the native languages are currently severely endangered. Due to the intense predatory

[3] Paulina Macurap, together with her mother, started living among the Wajuru from the first year of her life (approximately), after her father died in a conflict between the Wajuru and the Makurap. She learned both the Wayoro and the Makurap languages in her childhood. As an adult, Paulina Macurap married Mr. Casimiro Wajuru and the couple's children are considered to belong to the Wajuru people. According to Nogueira et al. (2019, 48) and Soares-Pinto (2009), for the Tuparian family groups, it is possible to postulate a patrilineal type of social segmentation (see also Singerman, 2025). Later, Paulina Macurap separated from her husband and married a man from the Djeoromitxi people, Mr. José Brito Djeoromitxi, with whom she had five more children.

[4] This information is based on Moore and colleagues' 2012 sociolinguistic survey combined with our own fieldwork observation during our documentation project.

colonization process that has been established in the region, the Indigenous native languages have been losing ground to Portuguese and have ceased to be used as the vehicle of communication in their respective communities (Galucio 2021, 23). In the Rio Guaporé Indigenous Land, most of the population is currently monolingual in Portuguese, and the Indigenous languages are endangered due to both a shortage of speakers and lack of transmission.

Both Wajuru and Makurap community members show interest in learning their respective Indigenous languages. However, traditional methods of language acquisition, such as spending time with fluent speakers and using the language in daily life, are no longer common in either community. Unfortunately, language revitalization is not yet a well-established field in Brazil. Techniques, approaches, and methods are not widely implemented or discussed in Indigenous communities or even in teacher training programs for Indigenous educators. As a possible effect of this gap, there is a general misconception that the language can be taught solely in the formal school system. Thus, community members advocate for the presence of Indigenous teachers in the formal school system to teach their traditional languages and cultures. This strategy can be a good starting point for improving the social prestige of Indigenous languages, but it is not sufficient for language revitalization, especially given the structure of the formal school system. The way the schools in the Indigenous lands are currently organized allows for only a limited number of classes (approximately two hours per week) dedicated to the teaching of Indigenous language and culture.

In the final section of this article, after describing the methodology for engaging the Makurap and Wajuru people in this community-based collaborative documentation project and the effects of this initiative on political and linguistic awareness, we will briefly discuss how we have tried to address the need for and interest in language revitalization, within the scope of our documentation project, by providing guidance to individuals who have shown interest in initiating language revitalization efforts. In the next section, we describe the documentation methodology employed in our project.

Micro-projects approach for ethnolinguistic documentation

One of the pillars of documentary linguistics is the production of lasting, accessible, and multifunctional linguistic documentation (Himmelmann 2006) that can serve the diverse needs of linguistic communities, including language revitalization. According to Austin (2006, 89), language documentation consists of a series of stages, some of which occur in parallel. These stages are:

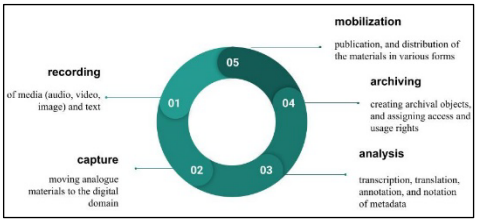

Fig. 2: The stages of language documentation (based on Austin 2006).

In this article, we discuss the first stage of documentation, recording of media (audio and video) and describe our approach to engaging the Wajuru and Makurap communities in collaborative documentation efforts. Our approach has been developed in close collaboration with community leaders, elders who are speakers and experts in the languages, and young people interested in learning both the technical aspects and the language and cultural aspects associated with it.

The capture stage was not necessary in our project, since we had already started working at the outset of the project using

digital recording technology. As for the analysis phase, we transcribe the recordings in Makurap and Wayoro and translate them into Portuguese. The transcriptions and translations are being carried out in ELAN (EUDICO Linguistic Annotator 2020). In addition, we have created a lexical database for each Indigenous language, as well as a database of interlinear texts, using the FieldWorks Language Explorer (FLEx) tool (FieldWorks Language Explorer 2019). In terms of archiving, the recordings and analyses are being stored in the ELAR-Endangered Languages Archive and ALIM-Arquivo de Línguas Indígenas do Museu Goeldi.[5] Copies of the recordings are given to the community members on request and a copy of the complete set of recordings will be left in the community after the conclusion of the project. In our experience, requests, especially for songs, are made personally via WhatsApp. As for mobilization, the project plans to deliver a multimedia dictionary in the Makurap and Wayoro languages and other products designed for language valuing and revitalization, such as thematically organized and digital encyclopedias.

One of the researcher's first and most important obligations before starting a project is obtaining the community's understanding and informed consent. Before applying for the Endangered Language Documentation Program, the project had been discussed with some members of both communities who expressed interest in having their languages documented. At the project's launch, a general meeting was held in the presence of the leaders of the two Indigenous groups and other community members at the Ricardo Franco village, which is the largest village in the TI Rio Guaporé, to discuss the project and plan its development, and its ethical and legal aspects (e.g. questions of authorship, access, informed consent, etc.). The leaders and other participants expressed their concerns about the status of their languages and manifested their interest in maintaining and documenting them.

Fig. 3. Informed consent meeting at Ricardo Franco Village. Image: Carla Costa 2023.

Our community-based approach includes technical training and capacity building in ethnolinguistic documentation associated with active documentation by the communities who have decision-making power over all stages of the process. In choosing the methodology, content, and organization of the documentation, we were inspired by the model that was successfully employed by the linguist Denny Moore in a recent documentation project entitled "Language documentation with a focus on traditional culture among the Gavião and Suruí of Rondônia," funded by the Endangered Languages Documentation Program (ELDP) and carried on from 2016 to 2019 among the Gavião and Paiter (Suruí) peoples from Rondônia, Brazil (Moore forthcoming). In this methodology, technical training for members of the community is essential. Moore (ibid.) reports that after receiving practical and theoretical training about documentation

[5] The Museu Paraense Emílio Goeldi (https://www.gov.br/museugoeldi/pt-br) is one of the Brazilian National Research Institutes linked to the Ministry of Science, Technology, and Innovation. Its linguistic department focuses on documentation, descriptive and theoretical research of the native languages of the Amazon, and it houses one of the few Indigenous language archives in the country, the ALIM-Arquivo de Línguas Indígenas do Museu Goeldi, which contains information on more than 80 Brazilian native languages (https://www.gov.br/museugoeldi/pt-br/a-instituicao/pesquisa/linguistica).

(equipment handling, basics of audio and video recordings, data management, basics of audio and video editing and video subtitling) and information about the documentation methodology, the young Gavião and Paiter (Suruí) documenters produced documentation of specific topics of their own choosing. The methodology applied in Moore's project to increase the scale of documentation was to create a digital encyclopedia of Gavião and Paiter (Suruí) traditional languages and culture by registering the knowledge and use of the language through digital audio and video recordings in the Indigenous language. Each topic recorded was developed as a micro-project. Thus, after receiving the technical training, the young Gavião and Suruí documenters chose the topic they wanted to record, then prepared the content of the documentation session or micro-project, invited an expert on that topic to explain it in the Indigenous language, prepared the setting, the set of equipment and the recording script, and carried out the recording. As a result, they were able to build an impressive collection of documentary material covering several aspects of traditional culture and language. Moore (forthcoming) reports that the topics they chose were those most interesting for the community, often topics that would be unexpected for someone outside the community, such as the traditional notions of Justice.[6] The ethnolinguistic collection produced by Moore's project using that approach comprises a rich list of topics encompassing several semantic fields. It can be seen on the ELAR website (Moore 2018).

Following that same approach, we began the Makurap and Wayoro documentation project with a week-long documentation workshop for members of the various Indigenous nations of the Rio Guaporé Indigenous Land. The workshop included theoretical and practical lessons on the entire documentation process, providing

Stage	**Description**
1. Initial planning and consent	Presentation of the project to the community (leaders and other members); informed consent and ethical discussions.
2. Training workshops	Practical and theoretical training in documentation techniques (recording, metadata, equipment handling, etc.).
3. Topic selection	Community members choose culturally significant topics to document.
4. Micro-project planning	Elaboration of a micro-project planning protocol specifying objectives, participants, locations, required equipment, and discourse genres to be documented.
5. Recording sessions	Audio/video recordings of communicative events and cultural practices, with explanation in the Indigenous language, and Portuguese translation. Sometimes the recordings were done in Portuguese and complemented with explanation in the Indigenous language afterwards.

Table 1: Main stages of the practical methodology applied in the project.

[6] Available at http://hdl.handle.net/2196/00-0000-0000-0012-8AAB-A. Accessed on March 7th, 2025.

participants with the necessary knowledge to record the cultural aspects and communicative events that they considered important to document. During the workshop, the community members learned about the principles of linguistic documentation, techniques for audio and video recording, how to handle the equipment, how to prepare recording sessions, and how to process and collect metadata.

Table 1 shows the main stages of the common methodology applied in Makurap and Wajuru communities, based on the approach developed by Moore (to appear):

The second stage consists of carrying out small documentation projects, called "micro-projects." To create these micro-projects, the community or each participant decides on the subject they want to document. After selecting the topic, they prepare the recording session from beginning to end, normally working in small teams of two to four people. Following the model applied by Moore in the Gavião and Paiter (Suruí) documentation project, the documenter team fills out a micro-project planning form (Moore forthcoming). The information requested on this form includes: identification (name of documenter, village, contacts and subject); objectives (what do we want to know and pass on to the next generation?); research on the subject (with whom? how? when?); micro-project plan (when will it be recorded? duration? with whom? where?); filming script (the stages of the process that will be recorded); equipment needed (camera, microphone, tripod, etc.); what language genre will be documented (interview, narration, conversation, etc.); who will translate it into Portuguese? The form also allowed participants to record any other information they found relevant.

Fig. 4. A student-led documentation session during the Documentation Workshop. Image: Ana Vilacy Galucio 2023.

While planning the micro-project, participants must consider why the topic is important to document and how preserving this knowledge can benefit future generations. They also need to identify the key knowledge holders who can properly teach the subject, determine where the session will be recorded, who will conduct the recording, how long it will last, what type of equipment will be needed, and other relevant details.

After planning the recording session, they carry out the recording in the native language, be it Makurap or Wayoro, and explain the subject being recorded in the lingua franca, Portuguese. Following the technical documentation workshop, Makurap and Wajuru community members were encouraged to organize and implement micro-projects based on the specific needs and interests of their respective communities.

In the next two sections, we will describe how this methodology was applied in the Wajuru and Makurap communities.

Wajuru/Wayoro documentation micro-projects

In the case of the Wajuru people, there is only one fluent speaker, Mrs Paulina Macurap, who is accompanied by a second speaker, her daughter Mrs Maria Ajuru, who is less fluent than her mother. Thus, in order to do a recording session or micro-project, the community puts together a documentary team that is responsible for a

so-called "recording expedition," for instance, a hunting expedition, an expedition to collect honey, or an expedition to search for and drill into the trunks of *aricuri* palm trees (*Syagrus coronata*)[7] to collect edible larvae (*gongo*).[8] The assembled team members, who are normally young people, go by themselves to record the selected event. Then, when they return, they meet with the two Wayoro speakers, Mrs. Maria Ajuru and Mrs. Paulina Macurap, and the women explain, in the Wayoro language, all the relevant information about the specific micro-project topic. Finally, they translate it into Portuguese.

An example of this methodology is the session "The origin of the *aricuri* larvae (*gongo*) owner," which can be seen at the Wayoro collection at the ELAR.[9] In order to do that recording, Mário Sérgio Wajuru invited his uncle, the chief Adão Wajuru, and his nephew to collect edible *aricuri* larvae *(gongo)*. We see the men go into the forest to find the *aricuri* palm trees where the larvae can be found. They then peel the trunk of the tree, pierce it, and look for the larvae *(gongo)*, collect them and store them in a banana leaf. Afterwards, the two young Wajuru documenters, Jaqueline Wajuru and Antônio Wajuru, record their grandmother Paulina Macurap explaining in Wayoro how to collect *aricuri* larvae *(gongo)*. Then, Mrs. Maria Ajuru translates it into Portuguese. Next, Paulina Macurap and Maria Ajuru explain about the spirit that owns[10] the insect that produces the larvae of the *aricuri* palm, called *ngurum* in Wayoro. They explain that the owner of the *ngurum* is "our grandfather, who lives up there in heaven." They also explain that when the shamans snort a hallucinogenic known locally as *rapé*, they invite the grandfather to come visit, because the people here in this world need to eat. Our grandfather comes down, full of *ngurum* all over his body. He comes to bring the animals (insects) that produce good things to eat. Our grandfather says to the *ngurum*: "go and pierce *aricuri*, because the bugs' nails are hurting my body."

It's worth noting that when young people record Paulina Macurap and Maria Ajuru's explanations in Wayoro and Portuguese they hear explanations that are typical of the Wajuru Indigenous worldview. In this way, the community-based micro-project provides spaces in which young people can learn aspects of Wajuru material culture, such as how to make a lamp or a baby sling. Often, during the execution of a micro-project, young people can come into contact, often for the first time, with the knowledge and worldview of their own Indigenous people.

In the case of the Wajuru community, they have collectively discussed and selected the topics they want to document, those they consider important to preserve and pass on to future generations. Another point worth highlighting is that some micro-projects involve the entire family, from the great-grandmother to the great-grandchildren. Examples of these entire family micro-projects are the one that documents the preparation of *pamonha*, a type of tamale made from fresh corn (see Fig. 5), the one that documents the manufacturing of lamps

[7] The *aricuri* palm (*Syagrus coronata*) is a culturally important tree for the Wajuru, Makurap and other Indigenous peoples in the Rio Guapore Indigenous Territory. The regional Portuguese name of this palm in the Guaporé region and in other parts of Brazil is *aricuri*, which is a term probably of Tupian origin [arikurí], cf. Ferreira (1986). Other popular names for this palm are *ouricuri, ouricury,oricuri, licuri.*

[8] The regional Portuguese name of the edible larvae that breed in trees such as the *aricuri* palm, is *gongo* or *goró* or *coró*. The aricuri palm's edible grub is called *ngõranẽ* in Wayoro and *ngot* in Makurap.

[9] https://www.elararchive.org/uncategorized/SO_d4f641b0-0323-4838-a42c-31df031fc65c/

[10] On the notion of ownership among the Wajuru see Soares-Pinto (Soares-Pinto 2009).

(see Fig. 6), and the one that explains the form and use of the traditional Wajuru sword (see Fig. 7).

Fig. 5. Antônio Neto Wajuru records Maria Ajuru preparing pamonha. Image: Antônia Fernanda Nogueira 2023.

Fig. 6. Paulina Macurap and Maria Ajuru prepare the cotton thread that will be used in the lamp. Image: Antônia Fernanda Nogueira 2023.

Fig. 7. Antônia Fernanda Nogueira, Antônio Neto Wajuru, Hélio Wajuru Djeoromitxi, Telivan Djeoromitxi record Paulina Macurap and Adão Wajuru explaining the traditional Wajuru sword. Image: Ana Vilacy Galucio 2023.

Makurap documentation micro-projects

In the case of the Makurap community, the choice of topics to document has generally been restricted to each family and not a general community decision. This may be related to their social dynamics or to the fact that there are more speakers of Makurap than of Wayoro, which gives a certain flexibility on who will record a session. In any case, the several micro-projects recorded for Makurap have been carried out in the same general manner described above.

Typically, the documentation sessions are carried out by the micro-project team in the following steps: first, they record a cultural event—for instance, a traditional fishing method. Next, they record an explanation of the event in the Makurap language, followed by its translation into Portuguese. Some of these micro-projects involve an entire village, such as the micro-project on the traditional fishing method using the *timbó* vine, which was carried out by the entire community of Baía da Coca village. The decision to record this specific topic was made collectively after a general meeting where the scope of the main documentation project was discussed with the community.

The *timbó* vine fishing method involves striking the water of a small lagoon with a vine, releasing a natural narcotic that causes the fish to suffocate and float to the surface, making them easy to catch, either with a bow and arrow or by hand. The recording of this communicative event begins with some adult men retrieving the *timbó* vine, after which the entire community gathers and heads to the lagoon. The event lasts an entire day and includes fishing, cleaning the fishes, and roasting them using traditional methods. During the event, Mr Francisco Odete Macurap Aruá described in the Makurap language the different species of fishes that were caught. The performance of this kind of event is highly valued,

especially because it creates an environment where people of different generations can interact and share knowledge.

Fig. 8. Men with bow and arrow in their hands during the *timbó* vine fishing micro-project. Image: Ana Vilacy Galucio 2023.

Another micro-project carried out by Makurap community members, following the methodology described in this study, was the micro-project on *Genipa Americana* body painting, which can be found in the Makurap collection at ELAR.[11] After the first documentation workshop at Ricardo Franco Village, two students, Denilson Macurap and Sofia Macurap, planned a micro-project to practice what they had learned in class. They followed all the steps taught in the workshop: selecting the topic (*Traditional Makurap Body Painting*), defining the objectives, assembling the team, and creating a film script. The script was particularly important in this case because they were both learning and documenting all the necessary steps for traditional Makurap body painting.

Before starting the recordings, they conducted research with Mrs. Isaura Macurap, asking her about the materials needed to prepare the *Genipa Americana* dye. After gathering this information, the micro-project team recorded several video clips, including of people collecting *Genipa Americana* fruits, gathering banana leaves and coconut straw, making a fire to cook the *Genipa Americana moqueca*,[12] preparing the *Genipa Americana moqueca* and applying traditional Makurap body art on community members.

The recording of the preparative stages of the micro-project was done by Sofia Macurap and explained in Portuguese by Denilson Macurap. The painting session was recorded by both Denilson and Sofia, while Mrs. Isaura Macurap demonstrated and explained the process in the Makurap language.

Fig. 9: Sofia Macurap records Mrs. Isaura Macurap teaching Aline Macurap how to do traditional Makurap body painting on Denilson Macurap. Mrs. Marina Macurap accompanies Mrs. Isaura Macurap in the explanation. Image: Ana Vilacy Galucio 2023.

A different approach to carrying out a micro-project is through face-to-face interviews. In the Makurap community, Jociclei Macurap is a young speaker who aims to expand his knowledge of language and culture through research with elders; he has been particularly motivated by this method of documentation.

Following the documentation methodology discussed in this paper, Jociclei conducted a micro-project on the "traditional ways of living at the *Maloca*"[13] with his grandfather, Mr. João Macurap. Jociclei filled out a micro-project planning form, defined his objectives, and selected his interviewee. Since his grandfather lived outside the village, the recording took place at his

[11] https://www.elararchive.org/uncategorized/SO_39c69f63-86ac-4715-96eb-e6c2468b98e7/
[12] *Moqueca* is a method of preparing food by using large leaves to wrap ingredients such as fish or game meat. In this case, the *moqueca* will help to cook the *Genipa Americana*.
[13] *Maloca* is the term used by community members to refer to the ancestral territory.

grandfather's house in the city of Guajará-Mirim, as shown in the image below.

Fig. 10: Jociclei Macurap and his grandfather, Mr. João Macurap, in a micro-project working session. Image: Ivan Rocha 2024.

Jociclei Macurap recorded both himself and his grandfather. He also conducted the interview, asking about traditional practices related to marriage, festivities, and ceremonial burials.[14] During the video session, he took notes and paid close attention to what Mr. João Macurap was saying. Jociclei Macurap's curiosity and well-planned interview helped Mr. João Macurap to recall old memories while teaching his grandson about Makurap's cultural heritage. In addition, Jociclei Macurap realized that this knowledge was not only being shared with him but also recorded to serve future generations, as he later stated when asked to explain the relevance of the ethnolinguistic documentation.

This micro-project is particularly special because the voice, memories, and worldview of Mr. João Macurap can no longer be accessed in real life, as he passed away in August 2024. This situation exemplifies the urgency of documenting endangered languages and cultures. Jociclei Macurap carried out this meaningful micro-project in March 2023, just a year and a half before losing his grandfather. In the recording session, Jociclei had the opportunity to highlight to his grandfather that their language and culture are valuable and worth preserving and to demonstrate to him his own understanding of and interest in those values.

The ethnolinguistic documentation done in the way that we have described above became so popular among the communities that we have accumulated more than one hundred hours of ethnolinguistic videos of several genres and have built a collection of video and audio recordings of communicative events involving the two languages. In the way described by Moore (forthcoming), we have built a digital encyclopedia of Wayoro and Makurap languages and cultures. Among the topics chosen for documentation are musical genres, aspects of cosmology, especially about the origin of beings and things, recent history and contact with non-Indigenous people, traditional foods, and production processes for specific items in both languages and cultures. Thus, as has been also pointed out by Moore (forthcoming) regarding the Gavião and Paiter (Suruí) documentation, this methodology not only allows for language and culture documentation but at the same time also focuses on topics that are considered relevant by the communities.

Another important issue to consider in the discussion of language documentation and revitalization is the need for permanent archiving of the documentary material, as discussed above. However, there are only a few institutional archives of Indigenous languages and cultures in Brazil, namely at the Museu Paraense Emílio Goeldi and at the Museu dos Povos Indígenas (Brandão et al. 2023). In accordance with the planned goals of our project, the analysis and archiving of documentary material are now being carried out, and we are creating digital databases with annotations (transcriptions and metadata about the primary data).

[14] https://www.elararchive.org/uncategorized/SO_a1d630ed-da80-4a34-a1d8-c8aba15ca89d/

Challenges	**Wajuru community strategies**	**Makurap community strategies**
Broken intergenerational transmission: Due to the intergenerational transmission breakdown, the recordings of everyday communicative events made by the young people are spoken in Portuguese, and not in the Indigenous languages	Organize meetings with the Indigenous speakers, Paulina Macurap and Maria Ajuru, after the recording sessions, asking them to talk about the events in the Wayoro language and explain all the relevant information covered in the topic (procedures, raw materials, worldview related to the topic etc.)	Organize meetings including participants of different age generations and suggest that the younger generations (children and grandchildren) take part in the micro-projects and participate in the communicative events of daily life with the elders who are the fluent speakers. This allows them to listen to the explanations in Portuguese and in Makurap.
Limited use of the Indigenous language in speakers' daily lives	Since the two Wayoro speakers (Paulina Macurap and Maria Ajuru) live in households where Portuguese is the language of communication, when they are interviewed without an interlocutor who speaks Wayoro, they generally produce only small or isolated sentences or very short texts. We prioritize having recording sessions when Paulina Macurap (mother) and Maria Ajuru (daughter) are together. In this recording format, the two speakers help each other to remember words and to recall facts from the people's history, proper names, narratives, and character names. It is also an opportunity for Maria Ajuru to learn about aspects of Wajuru culture, as she reports having learned, for instance, in the recording session where she made a traditional baby sling with her mother. On that occasion, she learned from her mother a sewing stitch technique that she had never mastered.	Whenever possible, it is important to record more than one speaker. We have observed that having as interlocutor someone who understands the Indigenous language and engages in minimal interaction helps the main speaker (the one explaining in the Indigenous language) stay more engaged in oral production.

Limited resources for financial remuneration and equipment: Due to the financial difficulties encountered in the communities, the project would benefit from having longer periods of remunerated participation in the project for the community members to guarantee the continuity of the micro-documentation projects.	Considering the limited resources, in order to ensure equitable access and efficient use of available resources, it was necessary to establish a defined amount of working time for the speakers, in accordance with the project's budget constraints. Additionally, equipment must be shared among community members, requiring careful coordination.	Considering the limited resources, in order to ensure equitable access and efficient use of available resources, it was necessary to establish a defined amount of working time for the speakers, in accordance with the project's budget constraints. Additionally, equipment must be shared among community members, requiring careful coordination.
Imbalance between community's needs, working conditions for the research team and expectation of financial sponsors.	The changes that occurred in the communities between project's submission/approval and its development are not adequately considered by the sponsors when evaluating the results. In our project, several aspects made working conditions more difficult. Budget reduction affected the planned methodology and reduced the time available to researchers in the communities. In the case of Wayoro, the passing of one of the speakers left just one fluent speaker (an elderly woman in poor health etc.). Although these variables are explained in the reports, the sponsors tend to stick to the initial agreement and maintain the expectation of products agreed at the beginning, which may have become unfeasible due to changes in context during the development of the project. In this area, we do not have a solution, but we highlight the value of explaining the difficulties and trying to negotiate the planned products with the financial sponsors.	(see the remarks in the Wajuru column)

Table 2: Difficulties and solutions during the project.

The recordings and analyses (data transcription and annotation) produced by our project are being stored at the ELAR-Endangered Languages Archive and at the ALIM-*Arquivo de Línguas Indígenas do Museu Goeldi*. A preview of the documentary collection built by the project can already be seen on the ELAR homepage (Galucio et al. 2023; Nogueira et al. 2023). We have discussed this arrangement collectively with both communities from the outset of the project and on an individual basis with each participant. Archiving the documentation data in well-established archives run by professional academic institutions is as necessary as doing the recordings since it guarantees the long-term integrity and accessibility of the material. Brandão and colleagues (2023, 6) state that the "key reasons to archive language data are to ensure their longevity and accessibility (...) digital repositories offer options for replicability and protection against the hazards of fire, flood, loss, mold, insects, etc. that threaten the conservation of physical materials."

Both archives chosen by our project fulfill the role of data conservation and accessibility. However, we are aware of the difficulties for community members to access such archives due to limited access to stable internet connections and the language barrier in the case of the ELAR archive, which is run in English. The question of the community's access to these archives has been discussed with both the Makurap and Wajuru communities, and we are working on ways to better handle this question and guarantee their full access to their material. For the moment, we are translating our metadata on the ELAR website into Portuguese and making copies of the recordings given to the community members on request. A copy of the complete set of recordings will be left in the community after the conclusion of the project.

Materials that can be used for language revitalization, such as multimedia dictionaries, are also direct results of the documentation project and they are under development.

As a last topic in this section, we would like to briefly list some of the challenges encountered during the Wayoro and Makurap language documentation projects and how we have attempted to address them.

Teaching another generation: the relevance of ethnolinguistic documentation for the communities

The technical and theoretical issues involved in the planning of the ethnolinguistic documentation project with the Makurap and Wajru Indigenous peoples had a positive impact on the outcome of the project. Hence, what has been the relevance of this kind of documentation project for the Makurap and Wajuru communities? From one point of view, the elders want to document their language and their knowledge to create a permanent record for their children and grandchildren. On the other hand, by getting in touch with dormant practices and knowledge in the community, the young people strengthen their Indigenous identity. In the case of the Wayoro language, we would like to highlight the comprehensive community-based approach that involves collective decision-making. For example, in her description of the micro-project about the production of a special type of sling that used to be made for the mothers of newborns to carry their babies, but that is not regularly made anymore, Jaqueline Wajuru states her concern for the Wajuru community: "[the aim is] to teach another generation step by step how to produce a sling." This statement illustrates the importance of this holistic approach to language and culture documentation and shows the balance between the goals of the different community members. After the

completion of this micro-project about the production of the traditional baby sling, the specifics of how to produce such objects had become a topic of conversation circulating among the Wajuru community and many Wajuru women were interested in producing their baby slings by following the traditional method step by step.

This specific example illustrates the relationship between documentation and revitalization of traditional practices showing that this intersection is not only possible but also necessary, especially in the context of language obsolescence. The interest created by the documentation project motivates the practice of the culturally relevant topics and by doing it the community creates the opportunity to generate more contexts for the use of the traditional language. This synergetic relationship between documentation and revitalization is explored, for example, by Fitzgerald (2020), who states that linguistic documentation and revitalization should be understood as a feedback loop, so that one process continuously feeds the other.

When reflecting on the relevance of the documentation project for language vitality and use and for the strengthening of traditional culture, it is important to take note of the close interconnection between language and culture. Hinton (2001) points out that the two are connected in such a way that in the case of language revitalization many people want to learn their ancestral language to gain access to traditional cultural practices. In the context of the Makurap and Wajuru ethnolinguistic documentation, the results of our project show that the approach we employed was very effective in raising awareness among the members of both communities about their languages and cultures and the need for linguistic and cultural documentation. The elderly and some young people from both nations (Makurap and Wajuru) have been particularly motivated to carry out language documentation and at the same time to revive traditional cultural practices. An example of how this awareness can be perceived is the series of cultural workshops organized by members of the Indigenous groups from the Rio Guaporé Indigenous Land, in which they choose one specific cultural activity, prepare the event, invite the experts in the subject, and gather to practice and learn from the experts. One such workshop was held in the second half of 2024 in the Ricardo Franco village, and it was dedicated to teaching/learning how to produce the traditional sling to carry newborn babies that we have described above. Hence, we see those activities as positive effects of the ethnolinguistic documentation project. A glimpse of such activities can be seen online, as some members of both Makurap and Wajuru communities have publicized those culturally driven workshops on their social media channels.[15]

As has been described in several of the case studies discussed in the Routledge handbook of language revitalization (Hinton et al. 2018), in addition to promoting intergenerational interactions, ethnolinguistic documentation can motivate the younger generations to want to know more about their own culture, and that is a motivating key for language and culture revitalization. In the case of the Makurap and Wayoro documentation project, it has been made clear to us that the elders want to document their knowledge for their children and grandchildren, and the young people are learning about their culture as they document it. In this sense, we would like to highlight how Jociclei Macurap states his interest in participating in the project. For him, there are two goals: to record and document his language and culture for the

[15] See, for instance, the following profiles: Dariete Makurap (@dary_makurap); Jefferson Macurap (@jefferson_macurap); Associação Awanda (@awan_da23); Railane Wajuru (@eu_ray_slizx_wyr__10_); Antônio Neto Wajuru (@eu_tonny_wyr).

future, be it for his children to learn and for other people to know about it, and for himself to learn more about his own language and culture, because when he prepares for and records communicative events with his uncles and grandfather, he learns more about his own language.

"It is important to document and record the language and the culture, because the recordings help us a lot. By recording we can show what the language is like, we can register our language and our culture, and we can leave it recorded to show to those who do not know it, so that they can watch and listen to it and perceive how our language is spoken." (Jociclei Macurap, the Tirirical village in July 2024.)

Jaqueline Wajuru considers the recordings to be a fundamental tool for new generations to learn about their history and culture.

"Recordings are fundamental tools for the new generations to learn [about our language and culture]. I want the project recordings to be stored [at the language archives] and kept so that when people want to know about the history of the Wajuru people, they can learn from these recordings. They can learn more about our Indigenous group, the Wajuru people. In this sense, the recordings will mainly serve to ensure that our culture is not forgotten by the new generations. And so, with these recordings, I hope that the new generations can learn even more about their own culture, which is arising even more and becoming more evident with our work [on the project]." (Jaqueline Wajuru, statement recorded in the Ricardo Franco village in July 2024.)

Jociclei Macurap and Jaqueline Wajuru's statements highlight how they see the relevance of ethnolinguistic documentation and emphasize their expectation for the use and safeguarding of the information being documented. Their point of view is very important because they have authority both as community members and as active participants in the documentation project.

Language documentation is one of the priorities listed by the Indigenous peoples in the state of Rondônia (Galucio et al. 2018), but the Indigenous peoples lack technical capacity to carry on autonomous documentation projects. Other Indigenous groups in the Rio Guaporé Indigenous Land are also becoming increasingly interested in language documentation, since all the languages in the territory are under threat in some way. As chief Adão Wajuru reported in 2024, in the Ricardo Franco village, the threat of the Wayoro language disappearing is "the most serious problem facing the Indigenous groups at the moment." However, in Brazil, there are no specific funding calls for language documentation projects. Contributions are made on a one-to-one basis. A constant request from the communities, especially the Wajuru youth, is the acquisition of professional equipment for recording on cell phones. For instance, a kit of equipment for ethnolinguistic documentation (consisting of a camera, tripod, microphones, headphones, and computer) was donated by our project to the Wayoro and Makurap Indigenous groups so that documentation can be done whenever the community deems it important. Young Wajuru and Makurap have been documenting annual community celebrations, for example, motivated by our documentation project which is reported by the communities as effective in building technical capacity for the community to document their own languages and cultures.

One of the perceived outcomes of the Makurap and Wajuru documentation project is that it has been functioning as a motivating key for language and culture revitalization. To illustrate this, we present a couple of initiatives related to language revitalization among Wajuru and Makurap communities that have started after the development of the ethnolinguistic documentation project. The Makurap people have started an autonomous project

to revitalize the Makurap language, with Jociclei Macurap as the language teacher. Within the scope of our documentation project, we have supported this initiative by providing Jociclei Macurap with technical guidance for his teaching of the Makurap language as a second language to community members. He is a native speaker of Makurap and a connoisseur of their traditional culture and cosmology, but he has no formal training as a teacher. Thus, we discussed with him the application of a culturally oriented and communicative approach, focusing on dialogues, and teaching traditional craftsmanship—such as making baskets and fans—using the Makurap language. The Makurap community organized meetings in which they studied the language from June to November 2024. The classes include children, adolescents, young people, and adults. This initiative is very incipient, and it may not result in new fluent speakers of the language in all its contexts, but it shows how community-based documentary projects can raise awareness among the younger generations about their traditional culture and how well-planned documentation projects can have a positive impact and function as a motivating factor for language revitalization.

The Wajuru community held a general assembly meeting in August 2023 in which they discussed the language situation. As a strategy to improve the language vitality, they planned to create a space for teaching and learning the Wajuru language and culture. In order to implement this idea, they decided to request that the Rondônia state education department hire a Wayoro language teacher. The space to be built would be dedicated to the Wayoro language and the people's cultural practices, such as making the *marico*, a traditional bag woven from tucum fibers, and mats. Weekly meetings were suggested, especially with young children.

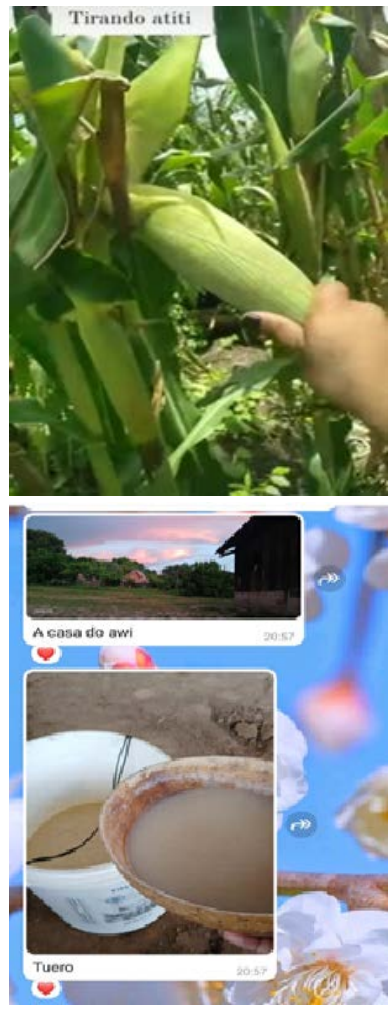

Fig. 11. Screenshots show the use of the Wayoro words *awi* “daddy,” *tuero* “chicha” and *atiti* “corn” by young people on the Whatsapp (top) and Instagram (bottom) social networks.

Another initiative was reported by Jaqueline Wajuru who plans to teach Wayoro language at her own home to her younger relatives. Other young people like Railane Wajuru and Antônio Neto Wajuru use social media to feature words they have learned in Wayoro, relating them to daily activities in the community, such as making bowls, harvesting corn, and drinking

chicha.[16] Note in the included screenshots (Fig.11) the use of the words *awi* "daddy" and *tuero* "chicha" in a Whatsapp conversation with Antônio Wajuru and the word *atiti* "corn" in a reel about the corn harvest on Railane Wajuru's Instagram profile.

These Makurap and Wajuru initiatives illustrate a more general movement that has been growing in Brazil and which involves the revitalization of traditional culture practices associated with language revitalization, at different levels.

Wrapping up, we can say that the training workshops and the development of the project following the collaborative approach have had a positive impact on the community in general, not only for the Makurap and Wajuru, but also for the other Indigenous groups that live on the Rio Guaporé Indigenous land. There is a greater understanding of the importance and urgency of the documentation of traditional knowledge for future generations and there is a greater willingness to carry out that documentation. As we have shown in the previous sections, the selection of topics to be recorded reflects the view of the communities about what is or is not relevant for documentation. The documentation, in this sense, is used by the community as a tool to reinforce the use and the learning of cultural practices, and the data produced can be used to support any community-oriented activity. Significant products of the documentation conducted by the members of the language communities, in partnership with the team of non-Indigenous researchers, are the multimedia language dictionaries. These will be delivered to the communities in a digital format that can be used on smartphones, laptops, and computers by all community members who have such devices and can also be used in schools.[17]

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[16] *Chicha* is the Portuguese name for a fermented beverage that is central to Wajuru and other Indigenous peoples from Rondônia and that can be made from manioc, corn, sweet potato, and other tubers.

[17] These dictionaries will be produced using the methodology used to create multimedia dictionaries at the Museu Paraense Emílio Goeldi (Brito et al. 2023) (see sample products at https://dicionarios.museu-goeldi.br/index.php).

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Smell and smoke of ceremonial tobacco: Articulating and disarticulating the actions of cosmic beings

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Abstract

This article addresses the ceremonial use of tobacco among the Ʉtãpinopona (Tuyuka) people of the Upper Rio Negro region, in northwest Amazonia. In the Tuyuka ceremonials, the kumua (specialists) manage their mental powers with mʉrorõ (tobacco), patu (coca leaves powder, ipadu), uhpé (rosin), and pérusiti (a fermented manioc drink called caxiri), which are the foods of cosmic beings: the Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã. Through the smells and tastes of ceremonial materials, as well as ancestral words and codes, the kumua negotiate with cosmic beings to ensure their well-being, well-feeling, well-acting, protection, and reassurance from aggression. Ceremonial materials exist in their smells and tastes, which connect the beings that form the central parts of their existence and their powers to act in the world.

Keywords:
Cosmic beings, Tuyuka, cosmo-experience, ceremonial plants, senses, communication

Mʉnoro wanoãriro mena puhti bahtoko, diarigere koã diyoko, añurepere nekame monekore

Justino Sarmento Rezende Tuyuka Dʉpó
Universidade Federal do Amazonas

Wede kahsore

Ʉtãpinopona, Ahkõ Ñiriya dihta wahtoa nirã, kʉã mʉnó, bahsa bʉrekorire hu tirere wedea anó hoaturige. Bahsa bʉrekorire Kumua bayiro birere wedesera, mʉnó hu, pátu yá, uhpé buhsé, peyuru sihtire bahsé tiya añuro peyuru pamʉarõ hirã. Tiera nirõ tia ahti páti mahkãra kʉã yaré, kʉã niya aniã Pamʉribahsoka, Waibahsoka, Yukʉbahsoka, Omebahsoka, Bʉhpoábahsoka. Atiyé sʉhtiañure mena, ʉhsare mena, wedesere mena, bahsere mena, wedese tihirã añurere bʉaya, añuro tʉgeñare, añuro padeware, añuro tʉgeña ware, añuro diarige wanoã tiya. Atiyé añuro suhsure wahtoa, añuro ʉhsare wahtoa nirõtia tuhtuare kʉã mahsirã bahse sãrige, tebire nihirõ mari dohka niri pátipʉ, mari sohtoa niri pátipʉ, mari niri pátipʉ sodewaku tie, bahsesãrige.

Bayiro-wedesere:
ahtiye pátiri kahtiribahsoka, Ʉtãpinopona, ahtibʉreko niretire, pátu, mʉno bahsawi makañe, tʉgeñare, wedesere

Introduction

Tuyuka knowledge is transmitted orally and practically, and as a Tuyuka (Ʉtãpinopona), I have learned by seeing and listening. I have learned by practicing in everyday life with my grandparents, parents, and relatives. The beginning of my learning took place in the village of Yai-ñiriya (Jaguar River), in northwest Amazonia. Throughout my life, I lived with other Indigenous peoples of the eastern Tukano linguistic family. The first stages of my learning were enriched and expanded by my participation in everyday ceremonies and festivities. The documentation of such knowledge gives continuity to the lives of my oldest relatives, who have already crossed over to the other levels of existence because academic writing can help secure the continuity, visibility, and validity of diverse ancestral knowledge. For me, my academic method is based on our cosmo-experience, and as Indigenous academics we use this method to describe what we learn by listening, seeing, and participating in the daily and festive cultural practices of our relatives. Tuyuka children and grandchildren, as well as other people, acquire knowledge through coexistence. Eduardo, my father, who died in 1996, explained to me that lived knowledge must be transmitted, listened to, memorized, and practiced.

From the age of five years old, my grandfather, Higino, used to take me to the fields to collect coca leaves to prepare *patu* (*ipadu*, or coca powder), and I also saw his small plantations of tobacco. My grandfather and other elders managed the plants with great care, clearing them of weeds, which would have prevented them from growing properly, removing caterpillars from the ground, which would eat the tobacco plants and kill them, and killing any grasshoppers or bees that had landed on the tobacco leaves to feed on them.

Brüzzi (1977, 207–208) described what he saw among the Indigenous people of the eastern Tukano linguistic family in the 1970s: "*ipadú* is the product of *coca*, from the *Erythroxylaceae family* (*Eritbróxilon coca, Lin.*), which is easily picked up from a branch." He continued: "currently, the plantations of *mő̃ rõ tobacco* (*Uaupés mő̃ nõ*) (N*icotiana tabácum*) are small and rare, and almost only in villages and longhouses with little or no relationship with the outsiders" (Brüzzi 1977, 204). Today, the tobacco is planted by the Indigenous people themselves in some villages but also purchased to prepare cigars. The use of tobacco is not specific only to the Tuyuka people, but to all Indigenous peoples of the Eastern Tukano linguistic family in the northwestern Amazon region. Tobacco is used as snuff and in other ways, depending on the practices of each Indigenous people.

When my grandfather saw that the tobacco leaves were ripe, he would place them in a small *aturá* (basket made of vines), and I would carry them myself since they were light. After resting at home, my grandfather would make a fire and place the tobacco in a ceramic bowl to dry. Since the leaves were green, it would take time for them to dry. They gradually softened, and a liquid came out of the leaves, which then became a wet mass. Inside the house, we could feel the smell of the tobacco. After this process, my grandfather would place the tobacco in another larger bowl. Finally, he would take a piece of wood and prepare slices of the tobacco leaves; he would place the softened tobacco leaves on the wood and place them to dry in the sun. Then, he would bring them home and hang them over a fire. In this way, the tobacco would become very dry and could be used as cigars for everyday and ceremonial consumption purposes. Brüzzi (1977, 204) also described what he observed:

"They [the Tukano] prepare it in the following way: the men collect the leaves with the stem, reduce everything to small pieces and put them on the fire in a very hot

pan, stirring the contents until it becomes a dark mass, then compress the dough into small, rounded shapes. Under the action of the sun and smoke, these tobacco loaves harden. When they want to prepare the traditional festive cigar, they crumble the tobacco and roll it in thin sheets of tauari or banana leaves, resulting in the large utikaro cigar, 15 to 20 cm long."

I saw this type of preparation in the village where I was born, so I am writing about what I saw because I am the son of a Tuyuka father and a Tukano mother. This article addresses the ceremonial use of tobacco among the Ʉtãpinopona (Tuyuka) people of the Upper Rio Negro region, in northwest Amazonia.

Tobacco ceremony

The tobacco ceremony serves to protect people, reassure them, and cure illnesses. In tobacco ceremonies, such positive effects are introduced by a tobacco specialist, who blows the tobacco smoke at them, which the ceremony participants, human people, and cosmic people, all receive by inhaling the smell of the tobacco smoke. The circulation of smoke with the smell does not remain hostage to the ceremonial space: it spreads outwards, transmitting good effects to all cosmic beings. In some places, tobacco powder is also used, which is also known as *rapé* snuff; it is mostly blown into men's nostrils so that they can assimilate the revitalizing forces that the *kumu* (shaman) or another specialist has inserted into the snuff. In the most basic understanding of the practice, it is done so the person remains awake and does not fall asleep.

Since I was a child, I saw my grandfather Higino singing and dancing to the rhythms of the ceremonial songs at the ritual festivities held in our village. My oldest brother, Henrique, and youngest brother, Francisco, accompanied my grandfather from the first moments of the protection ceremonies, which were carried out by using *mʉrorõ* (tobacco), *patu* (coca leaves powder), *uhpé* (rosin), and a drink called *pérusiti* (*caxiri*, a fermented manioc substance, or *péru*). All the separate materials have specific smells and flavors. *Ipadu* has a flavor that is a mixture of sweet and bitter, while tobacco has bitter flavor and has a strong smell, white rosin is an enzyme that comes out of a certain tree, forming a hardened mass that is used because of its very pleasant odor, and caxiri has a soft, citrusy, sweet smell. Each material has an important meaning in the lives of our people, but it relates particularly to the person who knows each plantation. Ipadu and tobacco are planted by men in the fields. It is the same space where the women plant the cassava that will be used to make white and yellow flour. The caxiri drink is made from the cassava product; it is the women's specialty.

Regarding the planting of patu (coca), Azevedo (2021, 198) has said the following about the relationship between plants and the types of land:

"The soil needs to be well known when choosing its type in order to prevent future damage. For the purpose of paâtu añuse piriãto (to grow and develop well), it is necessary to know how to choose the types of di´ita (land/soil). It grows añusepʉta (well), ñata añusepʉta (beautifully), añuse põri buhuse (with branches full of leaves), añuro dobese (solid stems), añuro põri yasase (green leaves) in di´ta ñiro (black earth), and in di´ta soãro (red earth). In addition to knowing how to choose the type of land, the patu ba'agʉ has the responsibility of taking care of his plantation to avoid its decline and not be at a disadvantage when collecting."

Diakara (2021, 233) has described the caxiri drink as follows:

"Desana women have the power of wehta niãrõpeosis, to inject the effect into drinks, and also of wehta kũodiose, to neutralize the effect of fermented drinks. Kumua men (shaman specialists) use another language,

which is often functional, and which we call pehru numipohse (drink manager). That's why nowadays the rosin and cigar smoke ceremonies are done before planting cassava trees in the fields, in order to perform the rite of connection between Abe (the Sun) and Yeba (the Earth) so that the fields bring the abundance of plantations. The women are experts and knowledgeable about the plants cultivated in cassava, they follow a specific calendar to control the cassava planting season, selecting each type of plant, which can be cultivated in each type of land: dihta ñirõ (terra preta), dihta wahro (sandy), and dihta wiitãrõ (clay)."

Through inhaling the smell of rosin, the taste of the tobacco, and caxiri, cosmic beings become connected to each other. Before the dances started and during the breaks, the men gave speeches and crafted narratives based on the stories of our origins and the current situations they were experiencing. Their wives, grandmothers, and daughters formed dancing pairs during ceremonial feasts. Today, I see my older brothers and my younger brother, from the Upper Tiquié River region in the municipality of São Gabriel da Cachoeira, narrating the origin stories, carrying out ceremonial dialogues with their own intonations, moving their arms up and down, to the right and to the left, and moving their head forward while lifting it. The kumua settled within the *basawi* (community house or ceremonial house), protecting their relatives against diseases and introducing protective effects via ipadu, tobacco (cigars), and rosin. Whoever eats the ipadu and smells the smoke from the ceremonial elements acquires a sense of well-being.

My kumu specialist relatives continue to conduct ceremonies of protection, healing, defense and appeasement even today, to rid people of dangers, among other things, inside the basawi. Each of them sits on a bench in the ceremonial house, where they call upon three different powers: kumu, who is the ceremonial master, bayá, who is master of songs/dances, and yaí, who is a master at diagnosing illnesses. Armed with these powers, they sit for several hours, producing reflections, as they are confronted by the countless illnesses that arise and affect all cosmic beings, not just those considered "people." According to Tuyuka understanding, cosmic beings are *mahsã* – people. The kumua perform the ceremony to protect people by activating the protective powers in the mũnó (tobacco), patu (coca), beeswax (or rosin), and fermented manioc drink. Mũno and ipadu form important pairs in the fruit festival and other ceremonial festivals. They are necessary instruments for the specialties of kumu and bayá to function; for songs and dances; and for speeches and rest. They are elements that originate in music, songs, dances, and ceremonial repertoires. Therefore, these elements will appear several times in this study, and their explanations are found in the narratives themselves.

Tobacco makes up the core set of ceremonial materials, appearing, for example, in the ipadu, the caxiri, the rosin, the *kapi* (ayahuasca), the maraca, the water, the rhythm sticks, and the rattles that the kumu and the bayá use. But the materials are more than that: they are in fact, and deep down, activators of the very particles or molecules that protect the house, the village, the countryside, the forest, the birds, the rivers, and the constellations (Rezende 2021, 42–43).

Ceremonial protection deeply affects the cosmic beings as well, for instance when they eat ipadu with its sweet and bitter flavor, when they smoke tobacco, when they swallow the smoke, when they inhale the smoke during the smoking with beeswax process, and when they drink the caxiri drink. The kumua are people who can activate effects through the power of their mind; they can navigate their way through many places on three levels (underground, our level, and the level above), where they

look for the good things that have escaped from each person, the village, and each people. He brings it back to this level to give back to people so that they feel calm, in tune, and focused on their life projects: caring for the family, working in the fields, fishing, hunting, and getting along with relatives. He can detect/diagnose what might harm the lives of people, villages, and other groups through the strength of his mind, preventing these harmful realities from affecting people and their daily and festive surroundings.

Reached by the good energies activated by the kumu in the tobacco, ipadu, rosin, caxiri inside the ceremonial house (maloca), the beautiful headdresses adorned with appealing plumes and feathers of macaws, herons, japus, toucans, parrots, and harpy hawks are placed on the heads of the *bayaroá* (dance masters and singers). The headdresses sway with the movement of the dance masters, and as they move their heads forward and upwards, the headdresses embellish the dance rhythms. The positive forces activated by the tobacco spread among the people participating in the party, as well as people who are far away and beings who live on other cosmic levels. As I noted earlier, the tobacco has a ritualistic or shamanistic use (Rezende 2021, 63):

"Generally, they smoke, expel the air with their mouth and release a puff of tobacco on the part of the body affected by the pain. Gesturing with both arms, with their left hand holding the cigar lighter, with their mouth they release the puff, and with their right arm they are making a gesture and throwing the causers of the disease very far away."

My relatives have always incorporated birds from the northwestern Amazon into the ceremonies, and these birds move through the Tuyuka body and the Tuyuka fly according to the movement of the feathers: the brightly colored yellow, red, green, and white feathers. Ropes of rattles are tied to the dancers' right ankles; with strong steps, the rattles emit both heavy and light sounds, making the dances very rhythmic. In some dances, dance masters use appropriate hollow sticks (*bastões*), hold them with their right hand, and hit the ground according to the melody of the music, sometimes hitting the ground with more force and other times more lightly, as percussion instruments. In this way, the tree people dance with the Pamʉrimahsã (people from the Eastern Tukano linguistic family); their rhythms, beats, and rattle noises are the way they sing and dance with humans. The Waimahsã (people of water, land, fish, insects, and so forth), Yukʉmahsã (people-forests), Omemahsã (people-clouds, air, wind), and Bʉpoamahsã (people-thunder, constellations) are beings that dance to the same rhythms as the Pamʉrimahsã, with their voices and sounds occupying the space of basawi and beyond, resonating through the forests, in the depths of the underground spaces, and in the homes of the constellations.

From generation to generation, my bayaroá brothers and relatives have continued narrating their ancestral stories about the places of emergence and transformation, places where protection ceremonies take place, where they can dialogue with other cosmic people, places to transmit and implement singing practices and dances. It is those stories and places that guarantee sustainability and provide motivation and inspiration for the current dance masters singing and dancing on the basawi's dance floor. The dance floor represents the Ʉtãpino –Stone serpentine route. Like the Stone serpentine movement, the women-mothers-grandmothers line up, offer péru (caxiri, fermented drink) to the participants, and dance in pairs with the bayaroá.

The Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã interact in time and space

The Ʉtãpinopona (Tuyuka) consider themselves to be the Pamʉrimahsã, which literally means the "people who emerged from the waters" (people of fermentation). It corresponds to the term "human." The Pamʉrimahsã are beings that were led by Ʉtãpino, the Stone Serpent. Ʉtãpino is also known as Pino yokosoro (Canoe Serpent). Before its arrival, the territories of northwestern Amazon were already inhabited by the Waimahsã (aquatic beings: e.g., serpents, dolphins, fish, ants, worms, mineral resources); the Yukʉmahsã (diversity of plants, vegetation, bird animals, those who live in the forest); the Omemahsã (wind beings, clouds, fights, air, oxygen); and the Bʉpoamasa (e.g., thunder, lightning, clouds, rain, stars, moon, sun). Traditionally, they have been understood in the following way:

The starting point of kihti ukũse is the existence of two primordial worlds, ʉmʉse (upper) and wamʉdiá pati (lower). Between them, there is an empty space, where a central column (yaigu) was erected, separating the two worlds. In the center of this column a small disc was supported, from which the terrestrial platform (ati pati) originated. In it the earth, the forest, the springs and watercourses and all their inhabitants were except for the human beings, who appeared later, although this world had been the main objective of the creators of the cosmos. All this was done through the Bahsese by the demiurges Yepaoãkʉ and Yepalio, direct descendants of Bʉhpó. (...). Bʉhpó is the first and most important character in the Tukano pantheon. Also known as Ʉmʉko Ñekʉ, "Grandfather of the Universe," he is an uncreated being and has always been a resident of Ʉmʉko wi, the "primordial world." (Barreto 2018, 26–27)

The relationship between the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã is vertical and horizontal. I say this because I lead the Waimahsã at the underground level, the Yukʉmahsã at the middle level, and the Omemahsã and Bʉpoamahsã at the upper level. The Pamʉrimahsã are beings that came from far away and entered the territories of the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã. Ʉtãpino, who led the Pamʉrimahsã, knew that the territories were inhabited by the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã. The Pamʉrimahsã introduced themselves to the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã as follows: *nikʉ paramerã* ("grandchildren of the same ancestral grandfather") and *nikʉporã nisa mari* ("we are children of the same ancestral father"). By understanding these discourses, we Pamʉrimahsã begin to enter the family of Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã. The request to be recognized as a grandson and son of the same grandfather/grandmother and ancestral father/mother is not an easy task. It needs specialized interlocutors to achieve for us our belonging within the cosmic family.

The kumua use tobacco to activate the powers necessary to engage in dialogue with people from other levels and gain us access to the good things they have on those levels: health, joy, enthusiasm, concentration, tranquility, and balance in the face of life's challenges. The kumua transform the levels into a single *maloca* (community house) and people from all levels into residents of the same maloca. Tobacco thus not only represents visible and sensitive materiality. The tobacco used by Indigenous peoples activates the invisible but existential immaterial powers, affecting humans and other beings through its smell and flavor. Its smoke does not just reside in the immediate space: it reaches various cosmic levels and their inhabitants.

The great ambassador responsible for negotiating good relations among all the cosmic beings is the Ʉtãpino himself.

Although he comes from far away in the northwestern Amazon, he is part of the Waimahsã, as he is a serpent. Therefore, he is a distant relative of the Waimahsã in the northwestern Amazon territories. They are endowed with similar capabilities as the Pamʉrimahsã: for instance, knowledge, intelligence, emotion, will. The Ʉtãpino transmitted this understanding to his children and grandchildren, Ʉtãpinopona (Tuyuka), kumua, bayaroá, and yaiá. These specialists promote good relations through ceremonies: respectful dialogues between the Pamʉrimahsã themselves and with the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã. When the Pamʉrimahsã disrespect the spaces (houses/agencies) and times of the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã, their agents initiate attacks with their weapons and cause illnesses and deaths among the Pamʉrimahsã. This understanding shows that they do not tolerate disrespect, they become angry, even revolted by the invasion of their territories, but they allow entry into the territory when people manage to communicate well with them. When the climate of coexistence is not good, though, Pamʉrimahsã specialists conduct ceremonies to re-establish a healthy coexistence between people and other cosmic people. The request for permission to enter the territories of the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã is made through kumua ceremonies using tobacco, patu (ipadu), and uhpé (rosin). They are materials that have specific smells and flavors, and people and all cosmic people feed on them: people in a visible way and other people on an immaterial level. This understanding is ancestral to the Indigenous peoples of the eastern Tukano linguistic family, as reported by Barreto (2018, 46):

Once the terrestrial world was completed, Yepaoãkʉ and Yepalio lived a long period of concentration, eating only ipadu and smoking tobacco to discover the most appropriate way to make humans appear on the terrestrial platform.

This understanding began with the emergence of the Pamʉrimahsã. However, no chronological estimate exists for when it happened. It was only with the arrival of Europeans in this region that time has been marked according to months and years. The life of the Pamʉrimahsã also went through a gestation period, from biological development in the womb of the Ʉtãpino (Stone Serpent) to feeding on Opekõ (Milk) and water from the rivers through which the Ʉtãpino moved (Atlantic Ocean, Amazon River, Rio Negro, Uaupés River and its tributaries). The Pamʉrimahsã do not tell how long the Ʉtãpino's journey lasted. The tobacco, ipadu, and other ceremonial materials were inside them already. Tobacco is the most commonly used material in all ceremonies, as it is easier to make use of all its resources: lighting it, producing smoke, releasing the forces of reassurance and protection, requesting permission, and leaving and spreading the tobacco smoke.

Each river along which the Ʉtãpino traveled is known as Opekõdia – Rivers of Milk. Different colored water (transparent, reddish, dark, muddy, greenish) was drunk by the Pamʉrimahsã in the process of their transformation and growth. The Ʉtãpino's journey alternates between traveling along the bottom of the river, stopping to emerge from the water, and ultimately heading towards land. While staying on Earth, he performed a specific ceremony. It is also not possible to say how long they remained out of the water. In the history of the Pamʉrimahsã, the original stops are part of the ceremonial narratives. The basawi represents the Ʉtãpino and the stop he made in different places.

The dance movement with singing is an expression of the trajectory of the Ʉtãpino together with the Pamʉrimahsã. The bayaroá sing and dance while moving around the dance floor, mimicking the

movements of the Ʉtãpino at the bottom of the river. The dancers move like a large serpent, moving to the left and turning around at the door to mark the setting sun and then dancing on the right side of the ceremonial space. More dancers participate, with the scene looking much like a large serpent moving around. The bayaroá go three times around the dance floor and then they stop. This moment means it is time for the women and men to serve caxiri and kapi to the bayaroá. The kumua give mʉnoro (tobacco) and patu waga (coca bowl) to them. They take the opportunity to rest and joke with each other. The smell of tobacco circulating inside the *basawi* gives focus to the rhythm of the dance, inspiring the men and women to sing and energizing the various musicians to begin blowing on wind instruments (e.g., cariçu, jaguar bone, snail shell) during the dances. At each bayaroá stop, the kumua approach them to offer tobacco and ipadu. A ceremony cannot take place without the use of tobacco and ipadu, as they carry with them the motivation to dance, energy to move the body, inspiration to remember the songs, and joy to find grace in the effort.

The narratives that the kumua and bayaroá tell about the history of the journey help us to understand that at each stage of the transformation, the Pamʉrimahsã listened to and memorized the teachings of the Ʉtãpino. He taught them by showing them through ceremonial practice. Each stopping place is called Pamʉriwi (House of Transformation) – the place where we emerged from the water. When the sons and daughters of the Pamʉrimahsã are born, they receive names related to those places: the names of fish, birds, and fruits from each basawi. Birthplaces (where the names are given) are filled with smoke and the smell of tobacco to make them a good space, helping to calm beings that could harm the health of the child being born and the mother giving birth.

The kumu then guarantees the health and well-being of the child (boy or girl), the well-being of their speech, and the well-being of the Pamʉrimahsã. The place of birth is related to the ceremonial place *pamʉri wi* – the primordial place of emergence. When children and adults become ill, the kumu returns to that place to diagnose the cause and type of illness and selects a formula to cure it. Once again, tobacco comes into play in the shamanic actions taken to promote healing powers on behalf of the sick person. When the ceremony deals with a child or a seriously ill adult, someone else smokes the cigar and blows smoke onto the person's body: this act can occur more than once. Therefore, a kumu must master knowledge about the origin stories of the Pamʉrimahsã.

The Ʉtãpino was aware of the existence of the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã in the northwestern Amazonian territories. By entering the rivers running through other people's territories, he ran the risk of being attacked and killed. The narratives of the Ʉtãpino's journey show the persecution that he suffered as he sought to continue his journey upriver. He adopted the strategy of entering other river channels (Paranás), holes, and paths. With ceremony, using tobacco and blowing its smoke or breath over the river and the forest, he calmed the anger of the owners of the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã territories. When he sensed a risk to his life and that of his children, he stopped, moved onto land, and performed more ceremonies to protect his journey, himself, and his children. While the tobacco activated protective powers, it also remained inside the Transformation Canoe and released a puff of smoke that travelled from people's heads to their feet. The same smoke reached other beings, who were also affected by its tranquilizing powers.

He took good care of the Pamʉrimahsã in this way, preventing them from becoming victims of diseases and dying before reaching their place of origin. As stated before, the ceremonial materials are mʉno

(tobacco), patu (coca), kapi (ayahuasca), and uhpé (rosin). By performing the ceremonies, the Ʉtãpino would persuade other beings to join him, telling them that we are all brothers, sisters, grandparents, aunts, uncles, in-laws, sons-in-law, cousins, sisters-in-law, and brothers-in-law. The mʉno (tobacco) is smoked by all cosmic beings, making them grandchildren of the same ancestral father. Through smelling the rosin smoke/beeswax, all cosmic people became members of the same cosmic family. Nowadays, the ceremonies have the same original meaning, therefore it is very important that in many basawi houses, these ceremonies are held to guarantee the balance of the cosmos and its people.

Smell and tobacco smoke articulate and disarticulate the actions of the Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã

The current anthropological approach of the Tuyuka is shared with the Arapaso, Barasana (Bará), Desana, Hupda, Kubeu, Makuna, Miritítapuia, Piratapuia, Tariana, Tukano, Wanana, and others. The specialists (kumua, bayaroá, yuamʉa and yaiwa) ensure well-being and coexistence among different peoples and different cosmic people. They include the "Waimahsã, superhuman beings, owners and protectors of places and their 'pets,' the Nʉkʉrimahsã, creatures that move in the forest, and the *Yokʉmahsã*, animals that live in different spaces, on the ground, underground, in the trees and in the air" (Barreto 2018, 73).

The ceremonies performed by them activate the powers of healing, protection, reassurance, dialogue and consensus among all cosmic people. Their ceremonial materials include tobacco, ipadu, and rosin/beeswax. Specialists use both ancestral and contemporary words to discuss the Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã. To talk about these people, I distinguish between humans and non-humans and humans and cosmic beings. In this article, I use the concepts Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã, which are located on their levels and influence the existence of all beings on other levels. Faced with this complex world, the Tuyuka ancestors understood that ceremonial powers are transmitted and received through the smell and taste of tobacco. Immateriality is the diverse knowledge that is incorporated into materiality. There are visible and tangible people and invisible people who support such visible people. They are connected to one another through shared interests. Experts communicate through ceremonies. Tobacco, its smell and flavor, is an instrument of communication recognized by cosmic beings, which creates a connection between the worldview, cosmo-politics, and cosmo-techniques of various specialists.

The Tuyuka use *bʉreko watotire* (the year's seasons) to refer to the cosmic calendar, based on categories they have all agreed upon. One of the perspectives is about certain positions of the constellations, which cause rain, floods, and the ebb and flow of rivers, the appearance of certain types of fish, insects, and various caterpillars, termites, ants, tanajuras, leafhoppers, and hunting animals, and the flowering and growth of fruits. My relatives carried out their research based on their understanding of traditional Tuyuka knowledge.

The Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã know about the functioning of different life cycles. There are internal risks related to the group itself and with people from other groups. The original peoples that make up the Pamʉrimahsã are afraid of some groups and feel more comfortable with other groups. All Pamʉrimahsã groups express their fears regarding the Waimahsã, Yukʉmahsã,

Omemahsã, and Bʉpoamahsã. Such a situation also includes the *bahsesé* (activation of healing powers, appeasement) of the kumua and the bahsase of the bayaroá and the kamotase of the yaiwa. Barreto (2018, 63) says the following about the specialist's knowledge:

"Bahsero is the ability of a specialist to evoke and put into action the sensitive qualities (e.g., bitterness, sweetness, acidity) that produce a soothing effect on pain or illness, the elements, and the healing principles of different types of plants and animals."

The Pamʉrimahsã call the constellations of diverse animals and rivers by the same names. Rainy weather and floods also have the same names. The Pamʉrimahsã understand that there is a connection between the Omemahsã and Bʉpoamahsã (the higher level) and the Waimahsã and Yukʉmahsã. This interconnection comprises many good and dangerous realities (see Cabalzar 2016, 31–34).

For the Pamaʉrimahsã, understanding the life cycles of the cosmic beings is a fundamental condition for establishing a good cosmic coexistence. For the Pamʉrimahsã's part, the kumua, bayaroá, and yaiwa become the main interlocutors at all levels with the people who form the Pamʉrimahsã and with the individuals and groups that form the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã. Pamʉrimahsã specialists seek to transmit the knowledge organized by their ancestors in everyday life and at festivals, and they use it in ceremonies as well.

Nowadays, amidst rapid and profound transformations, Pamʉrimahsã specialists are amazed at the disorder of the life cycle. Although observing continuous climate change, which affects the Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã, experts use the formulas for dialogue between the Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã beings. The Pamʉrimahsã assimilated the knowledge of other peoples, and it generated new ways of thinking about the constitution of the cosmos and its inhabitants. Western sciences have motivated Pamʉrimahsã specialists to expand the various codes for activating the shamanic powers of the Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã.

Understandings of the interconnection between the constellations and different realities of the Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã beings cannot be separated from Western science, as each presents knowledge resulting from reflection, research, and verification. The work of the kumua, bayaroá, and yaiwa is valuable, as they seek to order and ensure the well-being of all cosmic people, not by using great technologies but with their immaterial codes to establish the functioning order of cosmic lives. Specialist ceremonies do not take place peacefully; they take place amidst heated disputes, negotiations, forms of persuasion, dialogue, disagreements, and strategies until a basic consensus is reached between the cosmic beings to establish a positive coexistence. The kumua reassure everyone of such a peaceful coexistence, as Cayón (2013, 425), who lived with the Makuna people in Colombia, says:

"The healing of the world is an agreement of reciprocity between humans and other beings that inhabit the universe. This occurs because it guarantees fertile processes and the continuity of wild fruits, pecans and animals, which in turn will become the food that humans depend on. This is to guarantee the survival of all forms of life and reflect on their interdependence."

Many Anthropology researchers working among the people of the eastern Tukano linguistic family, in the northwest Amazon, wrote about the ceremonies they had performed and continued to perform in many communities.

My kumua and bayaroá relatives speak of *diarige wanoarẽ*, and I best translate this expression as the "cleaning of all beings from diseases." When the kumua deal with *diarige wanoarẽ*, their ceremony provides protection against diseases and the cleaning of all that can be bad for a festival (e.g., fights, poisoning, death); calming the beings of the cosmos so that they do not become angry with the participants at the party; making all beings in the cosmos, including humans, participate in the same party, drink the same caxiri, smoke the same tobacco, drink the same kapi, and sing and dance to the same songs. Tenório (2009, 17), a relative of mine, has referred to *Diarige wanoarẽ* as follows:

"For protection, they use tobacco/cigars, ipadu, genipap paint and white rosin. With the pepper ceremony, they protect the kapi, the peyuru [caxiri], the people who drank the kapi, those who sang and danced using the feathers. They kill the bacteria of the basawi when the construction is finished. Protection ceremonies are linked to the cycles of human life and the constellations. Our ancestors sang and danced after the construction of basawi. They protected people, eliminated sadness, and prevented diseases caused by beings that appear in all cycles of life. Protection ceremonies accompany the cycles of life."

At the time of their ceremonies, the kumua concentrate deeply, in such a way that, if someone passes in front of them, they do not lose concentration but instead remain focused on their ceremony and ensuring a healthy coexistence. They keep their eyes fixed on other places, other levels, and their own people. They speak softly. They talk to themselves, they are dialoguing, tranquilizing, appeasing, and calming the bravery of other beings in favor of basawi and in favor of all participants in the ritual ceremony. All the benefits achieved through the agreements and negotiations with other cosmic beings benefit everyone, especially the Pamʉrimahsã, who are the main participants in the ceremony. The kumua blow protective effects onto the ceremonial materials: tobacco, ipadu, bees wax (wete), kapi, and caxiri. Then, the kumua give the ceremonial materials to the person in charge of that part of the ceremony so that he can pass them on to the participants, inviting them to smoke tobacco and blow the smoke onto their bodies and other adults, including men, women, young people, teenagers, and the children of the mothers who are smoking and blowing out the tobacco smoke.

In the case of beeswax, the kumu prepares the embers and puts rosin on top of the embers, which produces smoke. Then, he passes by the participants, waving the fan to spread the smoke to them and the basawi space. After another hour, the offers the ceremonial tobacco (cigar) and lights up a cigar; he smokes it and blows the smoke onto his own body. Then, he invites everyone to do the same thing, blowing smoking onto their own bodies. All the participants must smoke from the same cigar and blow the smoke onto their bodies. After another hour, the ipadu gourd is given to the participants in the ceremony, and they must eat (lick) some of it. There is also a moment when the caxiri dough, made to add ceremonial effects to the drink, is handed over to the ceremonial party. The person in charge of the ceremony gives women a handful of caxiri dough to place in a trough or caxiri pot. To understand their meanings, it is necessary to directly participate in ritual ceremonies and feel how it affects the entirety of our being: rational, emotional, and behavioral.

The food and drinks of the Pamʉrimahsã become the food and drinks of the Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã. In this way, the kumua make the beings much like members of the same family. Therefore, in a traditional ritual, all Pamʉrimahsã, Waimahsã, Yukʉmahsã, Omemahsã, and Bʉpoamahsã are participants – some are the hosts and others are the visitors. Inside the ceremonial house, everyone participates in the same

ritual ceremony, smokes from the same cigar, takes ipadu from the same gourd, drinks caxiri from the same bowls, and drinks the same kapi (ayahuasca). They sing the same song and dance together. In this way, due to the positive ceremonial effects, everyone feels happy, talks, sings, and dialogues with each other. The kumua experts can eliminate feelings of envy, anger, and foolish bravery; they instead activate the ability to establish good dialogue and create esteem, affinity, respect, and cordiality. These benefits result from the ceremonial forces of the kumua, as they dialogue and negotiate with and seek to convince the Waimahsã, Yukᵾmahsã, and Bᵾpoamahsã of the goods that the Pamᵾrimahsã need. The benefits they obtain also return to the Waimahsã, Yukᵾmahsã, Omemahsã, and Bᵾpoamahsã.

According to my Tuyuka relatives, the ceremonial materials (tobacco, ipadu, beeswax, caxiri, and ayahuasca) are considered the pillars, bases, foundations, and beams of the cosmos. They are considered by the Tuyuka to form the entirety of Waikõari, the supporting bone structure of the cosmos. The kumu protects people from various situations and actors that can cause illness to the Pamᵾrimahsã, Waimahsã, Yukᵾmahsã, Omemahsã, and Bᵾpoamahsã through ceremonies. He desires the Pamᵾrimahsã women and wishes for everything connected with them (e.g., music, dance, work). He calms the ferocity, annoyance, and anger of the Pamᵾrimahsã, Waimahsã, Yukᵾmahsã, Omemahsã, and Bᵾpoamahsã, which can arise among and towards other beings. *Waikõari* is a word that describes the motivation of someone who is about to eat or drink something to acquire health, strength, energy, joy, or enthusiasm. Only those who know how to conduct a proper blessing likewise know its meaning and effects. To describe it would be to reduce what the word means to the kumua and the healers.

The kumu, in the ceremony, leaves the *jararaca* snakes calm and peaceful in their houses, but he does not leave them unattended, offering them food for sustenance and to give rise to positive feelings. The foods include frogs, such as *omã*, *turoa*, *sukukua*, *yukorã*, *tarokᵾa*, and rats. The kumu guarantees them the fertility to have many offspring, but he leaves them inside their houses to feed on the ceremonial materials: tobacco, ipadu, caxiri, and ayahuasca. The kumu, through the ceremony, incorporates the bodies of the Pamᵾrimahsã within the bodies of the Waimahsã, Yukᵾmahsã, Omemahsã, and Bᵾpoamahsã and, vice versa. The bodies of the Pamᵾrimahsã (men and women), among others, are incorporated within Bᵾpoamasa: the body of clouds, wind and air, sunlight and moonlight, cold and heat.

Opening perspectives

For the Indigenous peoples of the Upper Rio Negro region, where the Tuyuka people live, the theme that I have presented here carries with it several practical and shamanic meanings. When dealing with the smell and smoke of tobacco, I wanted to think about myself and the trajectory of my life, which began in following the footsteps of my grandparents, in learning how to activate the powers that promote good living and well-being among all people and the cosmic beings. The ceremonial forces activated by the experts of the past and of today continue to exist but complemented with contemporary observations about such transformations. In this way, in my academic work with song and dance ceremonies, I have also placed tobacco, ipadu, rosin, and ceremonial drinks at the center. They are derived from plants that contain bitter, unpleasant, sweet, and sour flavors, from the specific smells of tobacco and white rosin. They are ceremonial forces of protection, appeasement, and tranquilization, healing the physical and psychological pain (e.g., sadness,

discouragement) that penetrate us (humans) and other people (e.g., plants, birds, animals, water, air, wind, stone, clay, insects, fish) through their smells and flavors. ♦

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The forests standing, life for the world

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Abstract

This article focuses on specialists from the Upper Rio Negro, northwestern Amazon/ Brazil. Kumuá (shamans) sitting on the bench thinking, the forests with their feet, life for the world, with the rainwater that comes from indigenous lands. The original people of this Amazon, with its lush and primary forests, create a kinship system with other humans in human life. Currently, indigenous scientists themselves adopt the Kumuánic (shamanic) language, cosmopolitical management with other humans and using indigenous sciences to think and rethink the sustainable Amazon. Indigenous sciences are not the only paths to solutions, but they can contribute, based on a collective understanding of indigenous ecologies, sciences and public policies.

Keywords:
Knowledge-holders, Kumuánic (shamanic) language, other humans, indigenous sciences, sustainable Amazon

Introduction

This article offers an Indigenous anthropological reflection, starting from a *Kumuánic* language, so that the forests may remain standing. *Kumuánic* is an expression derived from the term *kumû*, who is our guardian of ancestral knowledge. By Kumuánic I refer to the shamanic actions of a kumû. The word *kumû*, in turn, comes from the word *kumûro*, which refers to a stool. The *kumû pa'taro* in Tukanoan culture is a stool made of wood from the sorb tree, sculpted into a parallelepiped form. Thus, the kumû is associated with the "stool of life". He is one of the specialists that treat diseases. As part of his training, the kumû sits on this stool so as to make himself the guardian of ancestral knowledge. The root of the word kumû is linked to the stool as the place of "planetary curing and care".

This article focuses on the importance of Kumuánic language, so that forests remain standing, and, along with the forests, so that life in the word persists. In the language of human ecology, the kumû (shaman)[1], although human, he uses another vegetal language with the owners of the forest. He is a cosmopolitical manager of other humans in his territory. Kumuánic language comes from the *Ye'pâ-masa* (Tukano) language, and it is used in the performance of various metaphysical activities with more-than-humans, and in interactions with other humans in human life.

First, I will draw on a very painful affective memory, about the extinction of the Miriti Tapuia Indigenous language, which was spoken on the lower Tiquié, in the region known as Cabeça de Cachorro (Dog's Head), in the municipality of São Gabriel da Cachoeira, in the Brazilian state of Amazonas. I will also reveal other academic spaces, reflections on other languages of the Eastern Tukanoan language family. In the Upper Rio Negro region, we are 23 peoples speaking our mother tongues. I start with a sample. My father's death afforded me the chance to learn other languages so at operate in the *a'mêri akâ sɨ'ose* system through kinship considerations. On the other hand, the death of a language. In the historical context of the lower Tiquié River, the territory of the Miriti Tapuia, the *regãtoes* (river merchants) and rubber tappers who travelled through the region said that Miriti Tapuia was a "very ugly language". The Miriti Tapuia people, hearing this insult, stopped speaking their maternal language in their territory, in the lower Tiquié, a tributary of the Vaupés River, in the municipality of São Gabriel da Cachoeira, Amazonas state, Brazil. For this reason, none of the Miriti Tapuia Indigenous people speak their maternal language at the moment. Yet there are no ugly languages; they merely differ in their linguistic structure.

Second, I will show the importance of the shamanic language used by the category of the specialist/shaman. It is precisely this category of person that makes most use of the Kumuánic language for cosmopolitical

[1] It is our *kumû* (shaman) who mostly uses the language of human ecology in his daily affairs. It is a language of diplomacy, of negotiation, of offering and retributions to and from other humans so as to live well; a language which other humans, or more-than-humans, understand and can communicate with, within the environment in which they co-exist. *Kumuá* (plural for shaman) are fluent in this language of communication with other more-than-humans, involving interactions and interdisciplinarities, or, more precisely, *kumuánic* (kumuánica) language establishes connections with other humans in human life in their territory as well as in the natural, social and cultural environment. The *Kumuánic* language has the same meaning as the language of human ecology, since it concerns human being, other humans, and the environment of relationality to live well, to be healthy. It is another language of human ecology that speaks about life in these layers. To this end, there is the language of human ecology to live well.

management along with other humans in human life. I will therefore show that there is a proper place to access the conceptual maps of specialists: the conversation circles of the elderly. It is here that much contemporary reflexivity flows. More specifically, the proper place of listening is created when the kumû (shaman) sits on the stool of thought. This is not any isolated place, disconnected from the Anthropocene. To sit in this place, there are rules which must be observed to ensure the equilibrium of the shaman, particularly concerning his way of being with his kinspeople. At present, the children of Tukanoans, who are researchers and scientists in universities, use the Kumuánic language as an exercise in anthropological reflexivity, when they return to their people's linguistic territories. The Kumuánic language is, precisely, anthropological reflexivity. Kumuánic language is used by the shaman to live well in a secure place. Women, too, use their own wise language, but in tune with the discourse of her husband. It is these Kumuánic languages that create cosmopolitical relational networks.

Third, I want to speak of the rain that falls in Indigenous territories and how it may save planetary life. Rain falls on Indigenous territories because the shaman constantly negotiates with the *yukí masa*/tree peoples, so that there may be rain in their territories and that trees remain standing. I will provide a technical note, not in order to make evident non-Indigenous science, but to make evident the Indigenous science of basese (shamanic actions) in the form of Kumuánic language. It is one of the very restricted languages of communication that keep forests standing in Indigenous Amazonia. The Upper Rio Negro specialist is chosen, from the maternal womb, to be the guardian of ancestral sciences, to be respected and to provide care and to walk these lands/forests in silence. The forest is a house of other humans. Thus, the specialists, sitting down, represent the forests standing, and life for the world. Without asking for permission, negotiating and offering, the territories of other humans will ultimately be reduced. When these other humans of the forest go away, they will take everything with them to other places. The lands/forests destroyed by humans, in the form of degradation and deforestation, also destroys the house of other humans of the forests, thus preventing the feast of the forests from taking place.

Finally, the forests standing, life for the world, depends on the existence of a guardian of ancestral sciences so that these forests remain standing. The kumû has a vitally important role in the use of Kumuánic language, so that Indigenous territories continue to be the main sources of water, by way of rain, soaking all of Amazonia.

Multilingual Eastern Tukanoan Branch

Tuyuka Context

I was born in the context of the aboriginal peoples of the Upper Tiquié River. In a wider context, it is a place where people speak the Tuyuka language, one of the languages of the Eastern Tukanoan family in Colombian Amazonia. Even though I was the one of *Wa'î pino maha* (Sons of the Fish-Snake), I was fluent in Tuyuka, the language of my mother. The Bará people are a minority in this region. After my father passed away, our family became disoriented. My grandfather, who is also Tuyuka, visited us with his Tukano wife, in the Trindade Community, and my family then moved to the Mercês Community, on the Cabari stream, a tributary of the Tiquié River, in Brazil.

To this day, the Trindade Community in Colombia and Pari-Cachoeira Community in Brazil practice marriage exogamy, the ancient form of marriage, in which the Tuyuka men of the Trindade Community go ask the Tukano women in marriage, and, reciprocally, Tukano men ask Tuyuka

women in marriage. It is one of the territories of *basúkarã* (cross-cousins) and *pẽ'yarã* (brothers-in-law). Despite the distances, and the waterfalls which make navigation difficult, they go get women to marry. The territory of the cross-cousins and the brothers-in-law, like the Pari-Cachoeira Community and the Trindade Community, maintain, to this day, the practice of marriage between cross-cousins and siblings-in-law among the basúkarã.

My family spoke the Tuyuka language because it was the predominant language in these regions. I was born and grew up amongst people who spoke the Tuyuka language. It was the first language I learned because it was the language spoken by my mother. The mother's tongue is always learned first. In my case, I learned the language of my Tuyuka mother. The Bará family environment became as if we were children of a Tuyuka. From one angle, it makes sense, because our maternal grandfather was of the *Ɨtãpinopona* people. It would have been correct for us to speak the language of our father, *Wa'î pino maha*, because of the patrilineage. Unfortunately, my family was not able to learn this language from our father. His death led to other opportunities in life. However, I am, at present, learning the language of my father, *wa'î pino pona maha*.

Tukanoan Context

From an early age I learned to speak the language of my mother. We should have also learned the language of our father, by inheritance and the linguistic legacy of the *Wa'î pino pona*, the Sons of the Fish-Snake. This has to do with a long history of our father. He grew up an orphan. During my teenage years, I had to learn another language to widen my vocabulary. My family lived in a place where two languages were spoken: Tukano and Tuyuka. In this process of constructing language knowledge, I was able to learn the Tukano language. The Tuyuka language was not a problem, but there were more speakers of *Ye'pâ-masa* (Tukano) in the context. Furthermore, we are the grandchildren of Tukano maternal grandmothers. In a way, then, we learned the language of our grandmother.

For a time, my family and I remained in the Mercês Community, in the Cabari stream. We then had to move to the Pari-Cachoeira Community. This community belongs to the Tukano people. It is predominantly Ye'pâ masa. In this wider context, I was able to learn the Ye'pâ masa language. I mostly learned by playing with my peers, bathing in the river, and shooting arrows at lizards. I sometimes spoke the Tuyuka language; we do this while we are learning another language. It was this social context that enabled me to learn the language of my Tukano grandmother.

The Ye'pâ masa language, Tukano, is one of the co-official languages of the municipality of São Gabriel da Cachoeira, in the Brazilian state of Amazonas. The Bará people are a part of the Eastern Tukanoan group. It is by no means exceptional to speak another language. I am the grandson of a Tuyuka grandfather, but I am also grandson of a Tukano grandmother. Sadly, I know nothing of my paternal grandparents, but it is believed that they spoke the Tukano language. Bará, Tuyuka and Tukano share word roots. Their linguistic etymology is similar, and meaning is similar when the languages are spoken. Tukano is a *lingua franca*. It is a tonal language, spoken by the Eastern Tukanoan group, particularly by inhabitants of the Tukanoan Triangle, in the Dog's Head region of Northwestern Amazonia.

Miriti Tapuia Contexts

After a few years living with Tukano families in Pari Cachoeira, where we even lived in the houses of some Tukano families (first with the Costa family, then with the Brandão family, and finally with the Gentil family). Our mother remarried, this time to Mr. Benedito Meireles Dias (in memoriam), a Miriti Tapuia man, in the Vila Nova

Community in the lower Tiquié River. The community was composed of three peoples: Miriti Tapuia, Tukano, and Tuyuka, and, with us, the Bará. In this community we were speakers of the Tukano language; although we were another people, from other territories, we spoke Ye'pâ masa.

The Miriti Tapuia context is sad with the extinction of their language. During my research with my later stepfather, Mr. Bené, I would ask him about the Miriti Tapuia language. He became deeply emotional and remembered the value of the Miriti Tapuia language for his people. The Miriti Tapuia are one of the people who live in the lower Tiquié River. According to Bené, his parents and grandparents were left by their ancestor the Oropendola Snake as guardians of the rivers. The territory of the sons of the Oropendola Snake extend from the Taiçu to Iraiti, on the Tiquié River. As a researcher, I was able to reach this conclusion through names received by the *baserã*. Sons of the Oropendola Snake, and not *Buya* Tapuia, was their correct name. Miriti Tapuia is a nickname, conferred by other people in the region, and there is no evidence as to its origin. Buya Tapuia is Nheengatu, but it is unknown what type of snake it refers to.

According to Bené, the Sons of the Oropendola Snake were *surára* (soldiers) in the lower Tiquié River. Guardians in the lower Tiquié River. These people are specialists in this river. They know when the waters rise by the level of the water. The Sons of the Oropendola Snake, since the start of the Canoe of human transformation, already had this role, staying on the bow of the canoe, acting as guides along the journey. Thus, the ancestor of these Sons of the Oropendola Snake left them as guardians of the rivers. In almost all of the lower Tiquié, they were owners of their Miriti Tapuia territory. From the beginning, they were left to protect the territory from foreigners along this river. There are other versions of the origin of the Sons of the Oropendola Snake which diverge, but also converge, with this origin.

Historically, the Sons of the Oropendola Snake were great warriors! These people had direct contact with the river traders, rubber tappers, and missionaries. They had very direct contact, which is why they had to deny their own language and were forced to only speak Portuguese. I remember well Mr. Bené's words and how he said that Miriti Tapuia language was considered as ugly by other people, because people did not understand it.

I thus came to understand that, because the language is "ugly", it ended up being caused to go extinct by others. People were forced to deny their own language. At present, they also speak the Tukano language. It is regrettable to have to remember this, but history brings us back to our linguistic territories.

In this way, in this subitem, I specifically wanted to show how the historical process had a severe effect on Indigenous languages. The linguistic context, the language of a people, endures, resists, or goes extinct. Language is not only a vehicle for communication! Language is the identity of a people in a specific territory. Linguistic identity within a specific territory provides self-esteem for a people to live well with their *basukarã* (cross-cousins) and their *peyãra* (brothers-in-law).

Types of constructed languages, Upper Rio Negro, Amazonas State

In this section I will write about the linguistic turn, or, better still, about the reclamation of the wise languages. In 2017 I entered the Graduate Programme in Social Anthropology of the Federal University of Amazonas (PPGAS-UFAM). In the university, I have tried to create a new territory of learning. I believe this happens to all Indigenous academics. It was no different with me. This memory of an academic career will help us better understand what I will focus on in this reflexivity space. Language circulates in

our being. That is why we are always attentive to changes that occur in our being. Because of the context into which we are inserted, we learn in integral time. What I am trying to say is that I knew who I was, but I did not know anything of another language; the language of the wise elders, the Kumuánic language, used by Justino Sarmento, a Tuyuka: "The kumua are specialists for activating powers of protection, calming, pacifying, tranquilizing, hiding, ridding… the cosmic beings (…) so that people can live well, so that they will not be stricken by the powers that harm the health of beings" (Resende 2024, 110).

Anthropology made me go back to my linguistic territory. I was aware that my father spoke his language, as claimed by Dagoberto Lima (in memoriam), the *yemeka*/language (Azevedo 2022). However, although the son of *kumû*, I was not a keeper of this language of the kumua, a Kumuánic language. Today I say this: One day I had a father, *wa'î pino mahɨ̂*, *kumû*, *bayá*. One day I had a stepfather, *Umú põrô masɨ́*, a *basegɨ̀* (similar to a kumû), and I still have a father-in-law, a Tukano, *basegɨ̀* and *bayá* (also similar to a kumû).

During the first two years of my MPhil research, nothing flowed in me. The academic language is learned while doing the anthropological exercise. As we learn in the university, I transported this learning to shamanic language. When I sat next to my parents, they told me: "These are difficult things. Dangerous things! They demand certain prescriptions and restrictions so as to have the qualities of science. These knowledges have their life, and they are not playthings."

Amazonian anthropology is an overflowing trough of Indigenous sciences. My first attitude was to maintain the security and firmness of what I heard from my parents. For my parents, narratives are indeed science, and they are well-articulated systems of knowledge that can speak to western science. Indigenous science has its own methodology; it has a proper setting in which it must be learnt, in which its knowledge is to be transformed and produced in company of its language so that new thoughts may flow.

Finally, these Amazonian sciences are theories and practices in the lives of men and women, and they should never be contested, because their importance lies in their potentiality. These knowledges are always being updated and are transmitted from generation to generation for contemporary life.

Bɨ́kɨ́rã úkũ̃ duhîri be'to - the specialist's circle of conversation

In the specialists' circle of conversation, held at night, the elders gather together to eat *ipadú* (coca), smoke tobacco and to sit on the conversation stools. Since they are sitting in the stool, it is the stool of thought. I myself have never described ethics in the stool of thoughts. Perhaps 'ethics' is not exactly the right term. But, for the Indigenous people, there is a word, *wió pesaro*, which means "place of danger" or "place that demands respect", let us say a type of 'ethics', a principal element that man or woman must follow in the place of listening on the stool of contemporary thought or reflexivity (Barreto 2023), as I have presented in my academic work. If one does not respect, one is not deemed to be a *masá ayugɨ̀* (a good person). I can also contribute to what 'respect' means for the Indigenous person. It seems that every society possesses a guiding principle of listening to the sciences, and respect must be shown to the (male or female) guardians. Respect can be associated with ethics for aboriginal peoples, because this "respect" involves other human dimensions in collective life, such as social organization within one's territory.

A listening ethics requires that the listener "listen well to correctly apply what he hears to people, in what concerns the human dimension, territories, forests, rivers or

lakes, etc." Thus, our parents demand that we take care, that we follow the prescriptions and restrictions, that is, that we have the qualities to flow in the sciences. In this sense, specialists take on the prescriptions and restrictions that must be observed. This is necessary for their health. It is an effort towards an integral respect, since it involves human people, other humans, places that have names, houses that have names (the environment), etc. Respect among peers is the main element of the collective life of the Eastern Tukanoan Group.

So, I started to sit next to my parents in the city of São Gabriel da Cachoeira, and later in our ranch at Taiaçu, in the Tiquié River. My parents never told me: "OK, you will study everything! You are our son and so all of our sciences will be transmitted to you." They did not say that. The first thing that Mr. Bené told me was: "You want this! The sciences of our parents require a certain care. The sciences have life, because they are knowledges of the guardians, and, in this sense, they demand people's respect". To respect means to be careful. Respect operates in the kinship system. It also involves care with one's health, one must never doubt it, lest one fall ill. Mr Bené (in memoriam) told me: "These knowledges are difficult, dangerous things, and you must be very careful with your health."

I would like to highlight here the essential elements that need to be considered by those who speak and those who listen in the elders' circle of conversation:

a) *T~~ɨ~~'ó niî yã'a*/To listen first
b) *Úkũ masotika yã'a*/ There can be no interventions
c) *Masimig~~ɨ~~ t~~ɨ~~'ó ya*/Even if you possess expertise, listen
d) *Ayuró t~~ɨ~~'ó ya*/Listen correctly
e) *Ayuró t~~ɨ~~'ó yẽ'e yã'a*/To grasp precisely the constructed concepts
f) *Ayuró weeg~~ɨ~~sami*/Do activities correctly

These six elements (there may be more or fewer elements) are part of the life of a specialist.

The Indigenous child starts to listen first, from within his or her mother's womb. We are prepared to listen to the guiding principles of sciences. This is why we are offered the stool in our mother's placenta. It is the first stool offered by the specialist so that we may sit in the stool of thoughts. From the mother's womb, a child first starts to listen by means of *bahsesé*. In the Tukano language there is an expression: "K*ɨ̃ɨ̃re ou koore kumûro ẽhotu d~~ɨ~~pó ya!* (Offer him or her to sit on the stool!".

I am claiming that the Indigenous child sits on the stool to listen, or, more accurately, on the metaphysical stool offered by the kumû. The man or woman who was not offered the stool is a restless person, one who seems to have no place to sit. In the specialist language, "*duhîri u'tû moog~~ɨ~~ ou moogó* (the man or woman who has no place to sit)". This refers to people who were not offered the stool of equilibrium to sit on. Specialists must have their place, the place of listening, the place of equilibrium, of sensibility and relationality. The first place of listening is the body itself. The body is itself a stool, for it is the very being of a man or a woman.

There can be no interventions at the moment of transmission by those who listen in the circle of conversation. Our specialist parents, grandparents, uncles or brothers do not like it when there are interventions at the moment of transmission, such as conversations occurring in tandem, people who are not paying attention or who are disconnected to the formulas contained in the narratives. The elders do not repeat versions. When the specialist sees that a person is not interested in his speech, he just stops. The secret is being highly attentive because, in that unique moment, the sciences are flowing through *omerõ*, as stated by João Paulo Lima: Omerõ (strength or potency) is a constitution of the circulation of Yepamahsã (Tukano)

knowledges. […] a potency that inhabits and circulates in his body, and which thus connects him to the movement of the universe and its creators (Barreto et al. 2018).

Even if you possess expertise, listen. This part gives rise to conflict. Some people do not have the patience to listen to another person's version. Only one's own version is deemed correct. Specialists always ask that we listen to versions by other peoples, other groups. During activity, this knowledge provides another option. Even a specialist will sometimes lack some part, which will remain incomplete or which he does not know with precision. When I started studying his knowledge, my stepfather Benedito (2017) told me:

"I know very little. The little I know is a part of the wealth of knowledge that I heard from colleagues during the time in which I tapped rubber, and which I also had to adjust and update with my Tuyuka brothers-in-law. Even if one is a specialist, one has to learn new things, new formulas, new versions, and a new technology. It is an opportunity for adjusting and updating my knowledges with my kinspeople in my region."

Listen correctly. In the circle of conversation, one must listen correctly in order to prevent mistakes when executing the activity. Listening is a construction of the logic of thought. The method of listening is technique that aids in the exercise and execution of a kumû's activity. In this specific case, the kumû uses elements of bahsesé through matter such as fruits, liquids or foodstuffs. Bahsesé é a chemo-mathematical conjunction. The efficacy of bahsesé is a combination of matter, formula, and chemistry. The mathematical formula of bahsesé is a potentiality. The formula must be evoked precisely to avoid errors or failures. It is therefore the exercise of the reflexivity of thought. It thus requires certain evidence.

To grasp precisely the constructed concepts: This item pertains to the above. To listen correctly is not necessarily to listen to sounds, noise, clatter, melodies, etc., though this is a part of listening. The meaning of grasping constructed concepts is founded on a combination of factors which afford a new conceptual confluence. I am referring here to the set of bahsesé. It can be associated, perhaps, to grasping an ability, an assimilationality, an assiduity, or, better still, grasping a conceptual map. An appropriation of thought, in the right measure, behind which there exists a logical mathematics, a technological engineering. Our specialists are renowned scientists of the systems of knowledge that possess life. These sciences have their potentiality by the force of *omerõ*. Omerõ is a vital force that leaves the mouth of the kumû. This is not all, there are other activities.

Do activities correctly: This is the most crucial part for the man or woman. From the maternal womb, the Indigenous man or woman is offered, attributed, and also, from childhood, prepared for certain dimensions of human life. Throughout life, he or she is re-strengthened or updated with technologies constructed with his or her father or mother. The attributed human acts are well-elaborated activities.

Thus, the aboriginal peoples of the Eastern Tukanoan Group have adopted guiding methodological principles, which are: listening, identification, observation, accompaniment, experiment, approval, and production. These are elements to think through a sustainable Amazon. The elements used by the Eastern Tukanoan Group have a methodological tenor. The Indigenous cosmotechnical word is complemented by prescriptions and restrictions. Our parents ask us to do these correctly, during our activities, to live well in our territory.

Finally, Indigenous researchers do activities correctly because they listened well to their parents, to this knowledge which compose the Indigenous cosmotechnical sciences. The method of listening is synonymous

with potentiality, ability, quickness in well-executed daily activities, and also with narrating, speaking, and doing bahsesé correctly. These are millenary dimensions among specialists, in the Upper Rio Negro, Northwest Amazonia.

Bik̶irã úkũse - the language of the elders

Researchers of the Bará, Tuyuka, Tukano, Dessana, Piratapuia, Kotiria, etc., aboriginal peoples of the Eastern Tukanoan Group are focused on the languages of the specialists. Literally translated, this would be the 'language of the elders'. I strive to say that it is the language of wise elders, specialists or guardians. I am also inspired by the word Kumuánic, used by Justino Sarmento, Tuyuka (Rezende 2024). The term Kumuánic is applicable to men, as well as to women who are keepers or guardians of the knowledge of their husband, father, or grandfather. Inter-crossed knowledge can beknown as a vertical interface of interdisciplinarity.

Bik̶irã numiâ úkũse is the language of wise women. The language of kumua is "the set of the arts of discourses of knowledge" (Barreto 2023). This is how I understand it; João Rivelino Barreto (2022), a Tukano author, published a book *Úkũsse: the form of knowledge in the Tukano dialogical arts*, about the well-being of all the universe. These languages express ancestral lines of thought. When I say 'ancestral', I am referring to my ancestor *Wa'î pino pona mah̶i* "First human of the Fish-Snake", to provide an approximate or equivocal translation. I know that the translation betrays much of the original epistemological and etymological meaning, but it leads us to think and reflect about the terms we use to reach a conceptual premise.

This is why we call ourselves Sons of the Fish-Snake. During the journey in the aquatic world, our ancestor gradually came up in the form of the Fish-Snake until it was time for human transformation. As we know, every people of the Eastern Tukanoan Group has their ancestor. This ancestor is our vital reference, we are speakers of his tongue, and he is also the one who occupied and peopled the territory of his aboriginal people. For Dagoberto Lima, a Tukano man, the importance of *yemeka* (language) (Azevedo 2022), of being a brother-in-law or cross-cousin, so as to occupy such a territory, where another language is spoken, belonging to another people, culturally, politically, and territorially, according to Dagoberto Tukano.

So, the kumua have their own and specific language to carry out the cosmopolitical management of peers and brothers-in-laws. In the construction of anthropological thought for reflexivity, the bahsesé formulas require an effort at conceptualizing the notions of Kumuánic language. The language of the *kumua* is expressed through formulas contained in the bahsesé, which are, at once, arts of the discourse of permission, negotiation, mitigation or soothing (psychological), harmonization between people, the people of the forest, peoples of the world, and the wa'î masa of the river (Barreto 2018, 98-100). The specialist provides a very healthy environment, he provides cosmopolitical management. This cosmopolitical question goes beyond that between humans with other humans. These other humans are cosmopolitical managers in human life. To this end, we require abyssal negotiation. For us, humans, it seems as if we are not quite aligned with these other humans. We are always anthropocentric and do not always listen to these other humans in our lives. The sciences and public policies are not reverberating in other territories, belonging to other humans.

For my late father, Paulo Emílio Barreto (in memoriam), *Wa'î pino pona mah̶i* to do bahsesé was to do *ayuró weero i̶'awî* (to do correctly without any aggression), according to my mother's memory.

Bahsesé is for "*Speaking, negotiating, and offering to wa'î-masa/other humans, to yuk̶i*

masá/forests tree people, yõkoâ masa/people of the constellations, to offer food to the elderly, by the term elderly I am referring to wise specialists, these specialists have their own food and their own language. Language is one of the fundamental tools of negotiating a good life" (Barreto 2019. 69-71).

My Bará father did this to live well in his territory. The more he gave offerings to other humans, the more could he be assured of symmetrical retribution. I started to listen to this dense language since I was doing my Master's research; a language completely different from that used by people in their daily attributions.

Yet, few take pause in these difficult and dangerous languages. The language of the kumua is very restricted, inaccessible to most people. I want to say that this language of the kumua is the first language of the very highest level of knowledge of the specialists. Recently, their children, grandchildren, siblings, uncles and aunts, children-in-law, and grandchildren have become deeply interested in their specialists and in non-Indigenous scientists or researchers. This allows us to apprehend that there is a collective effort between the Indigenous sciences and the Western sciences so that forests may remain standing. One of the languages is concerned with naming, permission, negotiation, attribution, adding, soothing, and offering to other humans, and also between humans. What is needed is to sit next to the stool of thought to align, plan, and budget, so that the collective effort is geared toward uniting unilateral forces. It will only be possible to add between the sciences. There is no other means of saving our lives.

Kumuánic language can be considered one of the languages that has wild thought used by specialists in this earthly layer. Bahsesé is more than a formula, it is also the thought of another human, but with its logic inverted. A sample can clarify what I mean here. When I say wild thought, I am referring to the thought of a *Ya'î* (jaguar shaman, jaguar-specialist). It is he who transforms into a jaguar. This transformed human-jaguar possesses the wild thought to devour another human to feed his *Ya'î* thought. The set of snake bahsesé of the *Ya'î*, the jaguar specialist. This occurs when the ya'î does not take care with his sciences. The violations are non-observations of the dietary rules during the new moon, the full moon, or the time of the edible lizards. This ya'î transforms into a jaguar. This transformed jaguar sees humans as its food, *ya'î ɨ'sê sãâsehe* (to have a fatty body). We, Indigenous scientists, must be careful with the sciences of our body that are constructed within us, according to João Paulo Tukano (Barreto 2022), in *The World in Me: An Indigenous Theory of Bodily Care in the Upper Rio Negro*, where he elaborates on this point.

In the Upper Rio Negro there exists this thought amongst specialists. A thought-battle between the Jaguar-shamans or kumua. Since I know something of this story, I want to bring it to this space of reflexivity of human ecology, how this human thought becomes a wild thought, the wild thought of the kumua. By referring to wild thought, we are referring to other times that existed, this practice among the *ya'îwa*. As we know, to this day this type of wild thought exists in society. My reflexivity as a researcher in the current context, I see how many fattened people see other people as their thought-food (Barreto 2023, 22-23). Human thought becomes wild thought to devour humans – an anthropophagy. My colleague Justino Sarmento, a Tuyuka, uses the term *matapi*. He establishes an association, as if it were a matapi for the university. The university as a great matapi which attracts and imprisons those who enter it.

"The university is like a matapi, placed so that we enter its mouth… We, Indigenous people, left our villages and brought our traditions, that is, we brought another anthropology, built by our ancestors.

Studying in university, we asked: How can we prevent the university form swallowing us like a matapi?" (Rezende 2023, 42-43)

The *matapi* is a fishing trap. In my view, Justino makes sense when he says that thought arrests or captures another thought, making it a hostage within its thought, which ends up dying in the matapi of thought. I thus associate the Ya'î to something that sees humans as if they were its prey. The other human by means of wild thought see humans as its food.

As I mentioned above, bahsesé is a dangerous thing. Indeed, for the peoples of the Eastern Tukanoan Group, bahsesé is a means to do good things in their territories, but in can also be applied, through inversion, to do bad things, and thus in all of society there are certain good practices and bad things because of a bad thought. For me, the very bahsesé becomes bad thought, to send very far away, to pierce the eyes of other humans, to smoke with roasted peppers in houses which bear their name, expelling owners from their habitats (Barreto 2019, 63, 70). The kumû uses bahsesé to cause harm (aggression) to other humans, and, consequently, to humans, as the environment suffers from a dearth of foodstuffs.

In truth, ya'î in the form of a jaguar wanders with wild though in various houses, the places that have names. It can be a metaphor of wild thought to say that, among humans, one cannot see the other as if it were one's prey.

Bɨkɨrã numiâ úkũse - the language of the wise women

This is the art of female speech, aligned with matrilineal thought. *Bɨkɨrã numiâ úkũse* can be understood as if it were merely the tales of people's daily life. This is an equivocal claim. I prefer to say that they are the arts of speaking of wise women or the keepers of knowledge. Wise women have their own female language. Only women understand this locution. The thought of the grandmother is always that her granddaughter will come to occupy her place, as a keeper of the languages, since, from the maternal womb, the children of *wa'î pino maha* (Bará), *Ɨtã pino pona* (Tuyuka), *ɨmɨkohori masá* (Dessana), *toho niîkã umú põro põra masá* (Miriti Tapuia), etc., were already attributed or prepared to be keepers of the arts of female or male speech. This female speech is exclusively used by women.

Masirã numiâ úkũse is the speech of wise women in tune with the speech of their husbands. This female language is expressed in their *ãha-deé, ãha deé,* a melody of female songs, and in the offering speech which is sung in ritual. Women in the Upper Rio Negro have their own language, specific and differentiated, of cosmopolitical management between peers and their sisters-in-law. The art of female speech is also the base of a construction of anthropological thought under the ritual House of the father, the father-in-law, the grandfather, or the husband. *Ãha-deé, ãha deé* is a melody sung by women which expresses their relationality.

However, the ãha deé, ãha deé melody is an expression of female thought. This ãha deé is an expression of knowledge that is constructed in musical form. Musicality comes from her being as a woman. From the beginning, woman was already attributed and prepared to animate the life of her companions. To sing means to create the network of social relations by means of the *ãha deé, ãha dee*. *Ãha deé, ãha deé* is also shared among men. When one listens to this *ãha deé, ãha deé,* what emotion! How many sciences come out of man and woman.

A'té niî bɨkɨrã úkũse - the discourse of ancestrality

I will show here the forms of expression of knowledge in the Upper Rio Negro. *Bɨkɨrã úkũse* are the speeches of wise men that mention their ancestrality. The ancestor is a reference point for the way of life of an aboriginal people in a specific territory.

Ancestrality is a link of the past with the present as a gift for contemporary life. The ancestral is a style of life for the new generation as in the past. Within speech the matter of ancestrality has meaning, because it is an ancestral reference, or, better still, an affective memory of relationality. My ancestral is *Wa'î pino* (Fish snake).

The speech of wise specialists are many, but I can list the types of speech proffered in some moments, such as the *po'orã úkũse* (speeches of offering and retribution); *a'mêri aká-s~~ɨ~~ose* (speeches for consideration among kinspeople); *numiâ sẽrise* (proposing a woman in marriage); and *makârikaharã niîrã úkũsetise*, which are speeches of the owners of the House of ritual or the house of ceremony which also includes hunting grounds, fishing spots, and places where fruits are gathered, as well as garden paths and other visible and invisible paths of circulation.

A'té úkũse pahîro waâ, these are types of male dense speech. To become a *b~~ɨ~~k~~ɨ~~rã úkũse,* one must be a specialist in speeches. The Indigenous sciences choose people to be specialists in the arts of discourse, to be an agent. The keeper of speech is a person who practices and observes prescriptions and restrictions for his sciences. The person is very able in the speech of good thoughts, the speech proffered flows at that moment, yet when nominal prescriptions and restrictions are not observed, the person falls ill. The arts of speech are not a joke. The arts of speech have life, which is why the come to "collect" the health of their keeper. Speech has a logic in the life of people, which is why the life of the person is "collected" for self-care towards health. The owner of the art of speech has to be more careful with his body, *ehêri põ'ra*, which can be glossed as the psychological state of the physical body, particularly its health. The more care he takes, more efficient his speeches become. The owner of speech must be a *n~~ɨ~~k~~ɨ~~ pesayug~~ɨ~~* person, a person in equilibrium in his way of life with his kinspeople.

This language of ancestrality is interdisciplinary, because they are elements of the conceptual map constructed to approach the sciences. The speeches were used often by our grandparents, by our parents, our uncles and aunts, our mothers and grandmothers, since the time of human transformation. The speech of ancestrality is not disconnected, it seems to be from another time, but it is always actualized in time and space because the Kumuánic language of men and the language of wise women is the exercise of contemporary reflexivity. The elements of speeches are transported to the present. These languages are harder, because they are not daily languages used by most people. Only in the elders' circle of conversation is this language heard.

Justino Sarmento Rezende (2021), Tuykua, organized a book with 12 Indigenous authors hailing from different Amazonian peoples. Each one brought their research material to be published. These are the texts of many Indigenous anthropologies. The book was put together just as its title makes evident: *Sieve of Knowledges: Overflowing Indigenous Reflexivities*, a space for the proper fermentation of knowledges and reflexivities. I associate myself with this sieve that overflows with many reflexivities, with the sciences of my parents. My body is as if it were this sieve which overflows with many anthropological reflexivities.

For our kumua of the Upper Rio Negro this is his Kumuánic language, specific, for daily activities. The Kumuánic language is perfectly married to the anthropological exercise, because they are epistemological languages. The Tukanoan man or woman does not choose this language in order to become a specialist, on the contrary, it is this language that chooses the body and the

ehêri põ'ra[2] persons to be wise. At present, there are no longer *Kumuari Wi'î* (the house for training specialists). However, at present, people have strived to listen to the knowledges alongside others, from other peoples in the construction of their sciences for family life, for the life of the territory, for their paths and gardens, for the rivers, and so that their forests remain standing. This gradually creates a web of social relations between Indigenous peoples. The Kumuánic language is the material and immaterial heritage of men and women in the Northwest Amazon.

It can be concluded that this part of the language of specialists goes beyond the language of bahsesé to create a strengthened Amazonian perspective: specialists sitting on the stool of thoughts, the forests standing, life for the world.

Kumuánic language so that forests remain standing

These things described here are indispensable elements for forests to remain standing. There are three important elements. A wild language for forests to remain standing. The Indigenous person is aware that the forest is part of hir or her life. There is no distinction between nature and culture. The art of fragmentation weakens the link. For these forests to remain standing, specialists sit on the stool of thought, life for the world. Since childhood, the sons of *wa'î pino* were prepared for the *wamétise* (the places that have the names of having a relation of):

a) *Wió pesaro* "place of danger or which causes fear/Respect"
b) *Ayuró i'yâ nɨrɨse* "of having greater care/Protection"
c) *Di'ta mariró* "Making no noise /Silence"

These three elements are present in the life of the Indigenous peoples of the Northwest Amazon. For these things, from an early age, we are instructed to observe the path of the forest, the path of garden, and the river and its paths (Barreto 2023, 111-113). When we go into the forest, we must respect, be careful, and tread on these places in silence. Amazonian philosophy counterposes the Anthropocene. The relationship of respect does not mean not-entering the forest. This is not the issue, nor *wamétise*, other places that have names. The way to understand the relation of with lands and forests was visualized Dagoberto Lima Azevedo (in memoriam) in the flowchart of *Di'ta nɨkɨri*, Lands/ Forests.

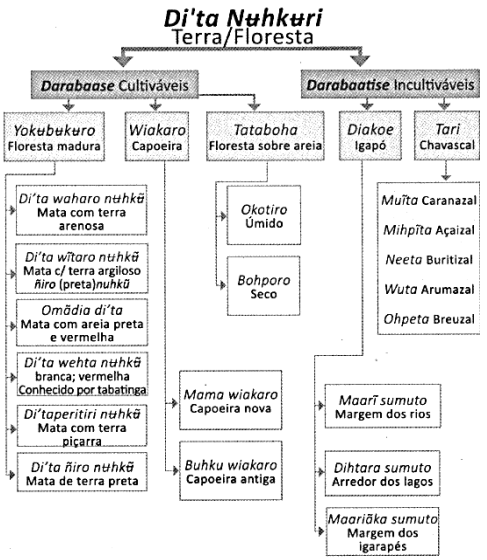

Fig. 1. Di'ta nɨkɨri, Lands and Forests Azevedo 2018, 93.

This does not mean that the forest is untouchable. The lands/ forests are transited, conserved and preserved with their applications: bahsesé, the set of shamanic actions to live well with abundance and health in their ancestral territories by humans and other humans, who do not separate him or herself for this relationality. The specialist circulates in

[2] *Eheri põra* can be understood as the heart, but it can also be understood as the being of man or woman.

these forests and these places by means of his metaphysical thought. There is no fragmented concept for Indigenous peoples in general. Amazonia is the large yard of the world.

Amazonia is a forest with its biodiversity. This story that it is the lungs of the world – it is no longer. There is not so much evidence. The Amazon forest has its vegetal philosophy which has some capacity to prescind itself from these human actions. Because this climate change has direct effects on our planet. In the dawn it is sunny; in the afternoon it is rainy. This is the instability of the present times. These human actions are wild thoughts incorporated into the activities of the Capitolocene, in the words of the ecologist Carolina Levis, with which she considers which are the societies that are generating these drastic alterations in nature and the world, and which make us rethink completely our style of life, particularly in cities (Moulin et al. 2022, 23), and, I might add, in our territories. Latour (1994) claims in his book on symmetrical anthropology, *We have never been modern*, or, better still, we have been the peoples of merchandise. We have never been modern. In truth, dwelling on that, I believe that we indeed think we are modern. Although we are Indigenous, we think we are modern, but as if these things did not affect us in our territories.

The Anthropocene is the enemy of life in the forest, the rivers, etc., and, for this reason, there is no point of return. Humanity is increasingly being smoked and roasted, regardless of place and space. These human actions directly affect the big cities and the territories of aboriginal peoples. There is a great risk that the ozone layer will be unable to maintain its capacity to absorb or filter.

The specialist of the Upper Rio Negro, man and woman, from the maternal womb, the Indigenous child is offered the *misî batí* (vine basket) or the *wɨhî batí* (arumã basket) on his or her head to protect from sun and rain. At present, our Indigenous specialists on climate change claim that smoke circulates in the air, sharply corroding these *batîri*. The Indigenous specialist refers to the batí placed over our heads by the *bahsesé*. However, these batîri over our heads are very much deteriorated. This is why we feel unbearable heat, and experience stuffy nights. All these hours we breathe hot air. The batí that is on our head is full of fat and burnt oil, the monocultures, ashes that spring from the hydroelectric dams burn the tree leaves and the Buriti groves, which thus dry up; the smoke becomes car ashes and ashes from the chimney of large factories, which are the main culprits. These ashes formed in these spaces fall on our forests. The clouds are saturated with fats and oils. This story of batí is not of my own making; for a long time, specialists have been concerned with the importance of the forests for their children.

We need the resilient leaves of our forests to stay standing so that they can filter this pollution. We need to renew our batîri with new vines or with new arumã, for our vine hats on our head.

The specialists sitting, the forests standing, life for the world

As I have mentioned, the forest demands respect, care and silence. Nature has its strength. The forest is sensitive, like humans. This earthly layer has been covered in forest for millennia. Yet the point of no return is fast approaching. This affects all of the planetary system for human life. The sons of the aboriginal Eastern Tukanoan people are being taught a relationality of the utmost respect, care and silence. If there is no dialogue with the Indigenous sciences, we will be approaching the edge of an abyss.

It is important to sit and listen to other sciences. Indigenous scientists from the Upper Rio Negro, along with one from the

lower Amazon, in collaboration with non-Indigenous scientists, published an article in the journal Science, called *Indigenizing conservation Science for a sustainable Amazon. Dialogues between Western and Indigenous systems are critical* (Levis et al. 2024). Indigenous scientists showed that it is important to listen to and converse with Indigenous sciences, life for the world. This will only be possible if we ourselves sit on the same stool of thought, in defence of our lives, this is the collective path, substantial, constructed over thousands of years by the aboriginal people of the Amazon rainforest. Indigenous science is not the only solution, but it can contribute to other alarming situations. But we need to "sit on the stool of thoughts" (Barreto 2023), as I say in my thesis.

My mother, Dona Francisca, Tuyuka, told me in 2024:

"When you enter the forest to hunt, to gather, to collect manivaras, to seek out wood to build the House of Ritual, bringing down trees of virgin forest, or of any quality, to make your garden, to get clay to make ceramics, you need to ask permission from the owner of clay. To gather mushrooms of edible species, speak to the owners, and, likewise, to get vines, piassava, forest fruits, negotiate with and make offerings to the owners of patuá palms, bacaba groves, chonta groves, açaí groves, breuzal, with the owners of vacu, the owner of cunuri, the owners of the caraná straw, the buçu straw, the leaves of the white straw. The owners of the streams or springs, you must speak to these owners."

This is Tuyuka, Bará, Tukano, Dessana, Miriti Tapuia cosmopolitics between humans and nonhumans. Each constituted place has its owner, the agents of this places. These places are the houses of other humans. The largest house, covered with the leaves of tress, is the Amazon House.

The aboriginal peoples of the Eastern Tukanoan group have a custom that before you go and do your daily activity, you must ask the owners' permission. The forest has its managers of human life. However, the forest requires that there be humans who also ensure its symmetrical redistribution. My mother also says that, if we do not speak to these owners, they get mad at human presence, or sometimes hide things.

Another, more classic example, for a Tuykua woman, can be gleaned in my mother's relations to her manioc stems. A woman has her *aturá* (carrying basket) on her back to clear or pick manioc in the garden. The woman thus creates a synergy between human and plant with her cultivars in her garden. The manioc stems are as if they were her children, and also as if they were their ribs, so said my mother, Dona Francisca:

"Today I will take care of you, my manioc stems. My manioc stems, you are like my children. I have to take care of you; I will clean the house that is my garden. You will give up much manioc, and I will thus feed my family. The garden is my being as a woman. The place where the network of social relations between kinship is constructed through food to feed and strengthen the social body."

This type of language, expressed by the owner of the manioc stem, is meaningful for the owner of the garden. My mother shows that here she must be in an affective relationship with her cultigens. Everything that is planted in the garden listens and retributes, bearing, for the owner of the garden, many fruits. There is much abundance of food for the owners of these cultigens.

What I will now describe is the type of language used by the specialist. We might say that it is one of the specific and proper languages to ensure food. For aboriginal peoples there is no possibility other than the abundance of food during a certain period of the annual cycle. Every place in the forest has its owner. All raw materials can be found in the lands/ forests (Azevedo 2022),

they are material goods that belong to the owners, *Yukɨ*[3] *masa*. Everything that is found in the forest are the cultigens of the forests, of *wa'î masa, yukɨ masa, o'mé masa* (people of the airborne space), and for this reason we need to:

Ask the owners for permission– Get permission from the owners regarding what you want to take, to gather for yourself, and in what quantities. I am referring to equilibrium in consumption. Anything one wants to take you must ask for permission to avoid a fatality. Ask for permission, always justifying your aim, explaining why you are taking or gathering from this place. You need to say from where you will get such and such raw material, the sorts of vines, fruits, arumãs, the mainstays, the rafters, caraná straw, buça straw, white straw, clay for ceramics, etc.

Negotiation – This is where the specialist's bahsesé comes in. The matter of negotiation takes place between the specialist and the owners of certain places in the forest. The human specialist creates a network of social roles, foremost to strengthen this relationality and trust. The characteristic of negotiation creates a link with other humans in human life. In other times, more-than-humans were similar to humans. Yet these other humans did not transform into humans in this earthly layer. Other humans are invisible to humans of this earthly layer, but they can be seen in dreams, etc. In this sense they are important for onomastics in the kinship system. The other human is the grandfather, while his grandchild is human. One is raised by one's name in the kinship system. The specialist reveals that so-and-so is a grandson or granddaughter, and this is why they must be cared for and one must not find their presence strange. Negotiation is a means to create kinship systems between humans and nonhumans to live well.

Offering – The matter of negotiation is materialized in offerings to owners of certain places who have the names. When a negotiation takes place, the specialist is made to metaphysically sit in his stool by the owner. Tabacco is offered, lit and smoking, to be passed between those who are sitting and talking. The gourd of ipadú is also passed between people. Whosoever receives these elements must speak, bring forth a memory of his ancestrality. A speech of ancestrality for the present. The gourd of fermented drink is also offered to those who are sitting together. Finally, after this offering, other humans are invited to sit on the stool and to look toward another direction. The owners, other humans, sit and speak of the present.

Soothing (disarming) – Once these offerings have been received, the owners, who are other humans, sit firmly on the stool, smoking tobacco, chewing ipadú powder, drinking fermented manioc drink, they remain calm. They are occupied by these elements, consuming them. They do not think of acting against humans. The specialist disarms wild thought (anger), soothing it and metaphysically attributing good thoughts, offering milk and buiuiu foam. The milk and foam of buiuiu is a metaphor used by the kumû. In my academic work, I write that,

"Buiuiu is a low-hanging fruit from the fallows which is found on the garden path or in the gardens; these fruits contain sweet milk and foams, and they are gathered by children to eat, and they are bird food; these little fruits are associated with elements of the basese, the indispensable elements contained in the formulas; a metaphor, prototype of small fruits as activating principles and essences of human life" (Barreto 2019, 69).

Thus, foodstuffs were transformed into the body and the *ehêri põ'ra*, the good thoughts of other humans in human life. In the body,

[3] Tree, or wood.

metaphysically constituted as its being in human dimensions in man or woman.

The fruits feast. The feast for offering *Yukí masa* (Tree people) with humans. The hosts that offer fruits are not humans, but rather Yukɨ masa. Ther are owners of the lands/forests. This is why there is constant negotiation for the health of the forest and for an abundance of foodstuffs for humans. These other humans offer their goods to humans and humans reciprocate offering fermented drinks in gourds. First, permission must be asked of the owners, this permission is manifest as an offering which is smoked, chewed, and drunk, so that good thoughts may flow. The Yukɨ masa are humans of the forest. Everything that composes the lands/forests are of the Yukɨ masa. It is they who offer them to humans. Other humans perform offering rituals to humans by means of the cycle of nature or constellations. As Justino Tuykua claims, this is the fruit feast (Rezende 2023). But also other foodstuffs; wa'î masa offers up fish at a certain time during the piracema to humans, but they themselves are drinking fermented drink, dancing *kapiwa* (dance of the elders) and playing *wẽô pari* (pan flute), eating edible lizards, etc, for these other humans: *Wa'î masa*, for *Yukí masa*, the fruit feast, and it is a day of drinking for the fish, for an abundance of food in the region of the Upper Rio Negro.

Final considerations

These are practices of our specialists when doing basese according to the cycle of nature. We would need to put these practices alongside other sciences, public policies, so that we may have a greater participative governance. The aboriginal people of the Eastern Tukanoan group of the Upper Rio Negro have already shown their ways of relationality with the tree peoples. These shamanic actions are so that the forest will remain standing, with the rain that falls upon ancestral land. It is regrettable that humans do not ask permission from the owners of the forests, with the tree kin, and so it is necessary to constantly negotiate through basese with tobacco or smoke from embers in our territories. These fruiting trees offer up foodstuffs for humans, for animals and birds, most of the trees free up oxygen. The Amazon forest is a communal ancestral house, life for the world. Trees, animals, birds, and fish already follow, in a very simple way, the cycles of nature. Only Indigenous peoples, river-dwellers, and peasants do their part to keep forests standing, and we will have many problems in our planet earth. The lands/ forests do not eat their fruits.

The lands/ forests that are in Indigenous Territories, with the rains that fall on the Amazon, strengthen primary vegetation, watering life for the world, as claimed in the Technical Note[4] of the Serrapilheira Institute (Mattos et al. 2024). This note presents claims that the maintenance of Indigenous lands is fundamental for the hydrological and alimentary security of a large part of Brazil. The Indigenous Territories of Amazonia influence the rains that fall on 80% of the agro-grazing land of the country. It is from these lands/ forests with primary vegetation.

I would like to conclude by saying that the forests will remain standing, life for the world, when our lands/ forests are very safe places to live. Places where our specialist can sit down calmly on his stool of thoughts for his shamanic actions so that lands/ forest may remain steadfast and firm so that we may live according to our cultural practices. We, people of the forests, live in these lands/ forests with our millenary practices, with our Kumuánic languages and our technologies for planetary healing – before the last tree falls in the Indigenous Amazonian land/ forest. ♦

[4] I am a co-author of this Technical Note.

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Initial Observations on Mundurukú Language Use and Vitality in Urban Settings

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Abstract

Rural-urban migration may be a big challenge for Indigenous language preservation worldwide. In Brazil, the 2022 Census shows that the urban Indigenous population now outnumbers the rural one. This study examines urbanization's impact on the Mundurukú language in Jacareacanga, Pará, based on data from 75 households (21.5% of the city's Indigenous population). Findings suggest that while urbanization increases bilingualism, threatening Mundurukú's exclusive use at home, and education policies accelerate the shift towards Portuguese, social interactions, village visits, and community ties help sustain the language. The study emphasizes the urgent need for bilingual education and initiatives to strengthen Mundurukú in urban areas.

Keywords:
Mundurukú, urbanization, bilingualism, Indigenous language, language vitality

Introduction

Migration is defined as “the movement of persons away from their place of usual residence, either across an international border or within a State” (Sironi et al. 2019, 137). In recent times, various factors such as climate change, natural disasters, conflict, and food insecurity have driven large-scale population displacements (McAuliffe & Oucho 2024). Indigenous populations have also faced internal displacements due to these and other challenges, including limited access to essential services such as education, healthcare, and employment opportunities. As Trujano (2008, 24) points out, “rural-urban internal migration is perhaps one of the most pressing issues affecting Indigenous peoples around the world today.”

Migration among these communities can take multiple forms, including rural-to-rural and rural-to-urban migration, urbanization, displacement, forced removal, and return migration (Trujano 2008, 21). This phenomenon is evident in Brazil, where recent data from the 2022 Census (IBGE 2024) reveal significant shifts in the distribution of the Indigenous population. For the first time, most of Brazil’s Indigenous people reside in urban areas: in 2022, approximately 53.97% (914,746 individuals) lived in cities, while 46.03% (780,090 individuals) remained in rural areas. This increase in the urban Indigenous population cannot be attributed solely to recent migration but is also linked to changes in census methodology and identity recognition (Bello 2024). Since 1991, when "Indigenous" was first included as an explicit category for racial/ethnic self-identification, and more recently with the addition of questions about ethnic affiliation and language (IBGE 2024), the number of individuals reclaiming their ancestral identity has increased as they attempt to reconnect with their historical origins.

The integration of Indigenous peoples into urban life has some implications for their cultural practices, social structures, and language use (Peters & Andersen 2013). In urban contexts, the preservation and transmission of ancestral languages can be challenging, especially when opportunities for communication with other speakers are limited. For instance, a study on Mundurukú undergraduate students in Santarém, Pará state, found that Portuguese is predominantly used in public spaces (Carneiro & Batista 2020). Of the 27 participants in the study, sixteen neither understood nor spoke Mundurukú, two had some comprehension but were unable to speak it, and only nine were bilingual. These bilingual students had migrated from the Mundurukú territories in Jacareacanga to Santarém, specifically to pursue higher education. They reported using their language among themselves, but Portuguese remained the dominant language in other domains.

In this study, I examine the impact of rural-to-urban migration on the vitality of the Mundurukú language (Tupí family), focusing specifically on the urban area of Jacareacanga, Pará, which remains understudied. Although 59% of the municipality’s population is Indigenous, and 14% of them reside in the urban center (IBGE n.d.), little attention has been given to how this demographic shift influences language use and transmission. In the officially demarcated Mundurukú territories in the rural areas of Jacareacanga, the language remains the primary means of daily communication. However, as migration to urban areas increases, bilingualism has become more common, with many individuals now equally proficient in both Mundurukú and Portuguese. This raises important questions about the future of the Mundurukú language in urban environments and the key factors influencing its maintenance and

intergenerational transmission. Preliminary results of this study indicate that strong social ties and connections to rural villages support language preservation, while long-term residency in the city and education can pose threats to it.

The Mundurukú: territory, population and language use

The Mundurukú (endonym *Wũyjũyũ*) are a Tupian nation primarily located in northern Brazil, in the states of Pará (PA) and Amazonas (AM). According to the Instituto Socioambiental (ISA n.d.), they inhabit ten officially recognized territories (see Table 1), with the majority of the population concentrated in three: Sai-Cinza and Mundurukú in Pará, and Coatá-Laranjal in Amazonas.

State	Indigenous territory	Municipality	Other nations	Indigenous residents
PA	Sai Cinza	Jacareacanga	—	1,653
PA	Munduruku	Jacareacanga / Itaituba	Apiaká and uncontacted peoples	9,257
PA	Praia do Índio	Itaituba	—	158
PA	Praia do Mangue	Itaituba	—	180
PA	Sawre Ba'pim	Itaituba	—	d.n.a
PA	Sawré Muybu	Itaituba / Trairão	—	d.n.a.
PA	*Munduruku-Taquara	Aveiro / Belterra	—	213
PA	*Bragança / Marituba	Belterra	—	200
PA	*Planalto Santareno	Santarém	Apiaká	d.n.a.
AM	Coatá-Laranjal	Borba	Sateré-Mawé	4,115

Table 1. Main territories of the Mundurukú people (ISA, n.d.) and total number of residents in each territory (IBGE, 2022). Notes: Asterisks (*) indicate territories with recently claimed ancestral ties. "d.n.a." stands for data not available in the IBGE census.

According to the 2010 Brazilian Census (IBGE 2012), the Mundurukú were among the 15 largest Indigenous nations in Brazil, with a population of 13,103 individuals. While detailed data on individual Indigenous nations from the 2022 Census has not yet been released, the Indigenous population in Jacareacanga, where this research was conducted, has reached 14,216 (IBGE n.d.). With Jacareacanga's total population now at 24,042 residents, Indigenous individuals account for 59% of the municipality's inhabitants. It is therefore reasonable to infer that most of the Indigenous people in Jacareacanga, which includes the main Mundurukú territories—Sai-Cinza and Mundurukú—are probably members of this community, including those living in urban areas. In these two territories, the ancestral language is used in everyday life, acquired by children as their first language, spoken by many—particularly elders, women, and children—as their only language, and spoken fluently by people of all ages, ensuring its continued vitality in the region. In other territories, Portuguese tends to be the dominant language, or families are linguistically mixed, with some members speaking the ancestral language and others not.

Studying the Mundurukú's linguistic situation in urban areas is crucial for several reasons. First, as Indigenous populations increasingly migrate to or integrate into urban areas, patterns of language use may shift, often leading to increased bilingualism and, in some cases, language loss. Thus, understanding how the Mundurukú language is maintained or weakened in urban settings can provide

valuable insights into the factors that support or disrupt its transmission. Second, urbanization presents both challenges and opportunities for Indigenous language vitality. While exposure to Portuguese-dominant environments may accelerate language shift, urban areas can also serve as spaces for cultural and linguistic activism, education, and policy development. Finally, examining the dynamics of Mundurukú in Jacareacanga contributes to broader discussions on Indigenous language preservation in Brazil, particularly in regions where Indigenous people form a significant portion of the population. Identifying the mechanisms that enable the continued use of Mundurukú in urban settings may allow for strategies for its long-term preservation, both in Jacareacanga and beyond.

Methodological approaches

I began working with the Mundurukú and their language in the late 1990s and have since witnessed significant changes in the community's cultural and linguistic practices. Today, bilingualism is far more common than it was back then, and a growing number of Mundurukú individuals now reside in urban areas. However, these changes are not necessarily negative, particularly in the realm of education. Over time, the Mundurukú have increasingly pursued higher education, which unfortunately often necessitates relocating to larger cities, as was the case with the Mundurukú students in Santarém, previously mentioned. Many young Mundurukú have already earned university degrees, expanding their opportunities and influence. As a result, many choose to settle in urban areas to secure employment, further contributing to their integration into city life. In fact, better education was one of the major reasons cited by participants in this research for choosing to live in the city of Jacareacanga, as we will see later.

Another key factor driving their integration into urban centers and non-Indigenous culture could be activism. The fight for their rights and the defense of their territories has compelled them to learn Portuguese in order to participate in political movements. As they engage in activism and advocacy, their use of Portuguese intensifies, as political discourse and negotiations demand some fluency in the national language. Consequently, while activism strengthens their political presence, it also reinforces the linguistic shift toward Portuguese in urban settings.

To explore these hypotheses further, a study was conducted in December 2024 in the city of Jacareacanga, located in the state of Pará, Brazil. The primary data collection instrument was a sociolinguistic questionnaire adapted from the *Guia de Pesquisa e Documentação para o Inventário Nacional da Diversidade Linguística* (INDL), published by the Instituto do Patrimônio Histórico e Artístico Nacional (IPHAN 2016a-b). This instrument allows for a comprehensive understanding of the language practices and attitudes within the urban setting, in other words, the investigation of various aspects of the dynamics of the Mundurukú language, including:

- Demographic composition and language use: identification of the demographic composition of the urban population, analysis of different generations of speakers, and examination of the use of the Mundurukú and Portuguese languages both inside and outside households, as well as the linguistic attitudes of community members.
- Intergenerational transmission: evaluation of the process of language transmission to younger generations, with special attention to the absence of transmission, which may indicate signs of linguistic decline.
- Influence of Portuguese: investigation of the degree of influence of the

Portuguese language, allowing the identification of patterns of linguistic change and adaptation.
- Variation across social domains: analysis of language use variations in different social contexts, such as family, school, work, and other environments, to understand the domains where the language is more frequently used and how this reflects its vitality and status.

The survey was conducted with the authorization and collaboration of the Pusuru Mundurukú Association, based in the same town.[1] The teachers Auriciana Dace, Edilene Kirixi, Rosaleide Akay, Rosiane Kaba and Eliza Akai Wiui played an active role in the interviews, which were primarily conducted in person, often using a door-to-door approach, with responses recorded on printed forms. I am deeply grateful to these collaborators for their invaluable contributions.

Data were collected from 75 households, comprising 431 individuals and accounting for 21.5% of the city's Indigenous population, which totals 2,002.[2] This enabled us to gain a comprehensive understanding of the status of the Mundurukú language in urban settings, with a focus on identifying key factors for its preservation and strengthening.

Characteristics of Mundurukú families and households in Jacareacanga

The Mundurukú families residing in the city who participated in this study are not concentrated in a specific neighborhood but are dispersed across various areas, primarily in the peripheries. Most live in simple homes, typically wooden houses, with limited access to sanitation. Their financial situation is also precarious, with many relying on financial assistance from government programs to meet their basic needs.

Additionally, Mundurukú families tend to be larger than the national average, a trend that is even more pronounced in urban settings. In Jacareacanga, the average household size is 4.69 residents, significantly higher than the national average of 3.32 (IBGE, n.d.). In our sample, the average Mundurukú household consists of 5.7 residents. This disparity highlights the unique demographic characteristics of urban Mundurukú families and the potential challenges they face in terms of housing and public services.

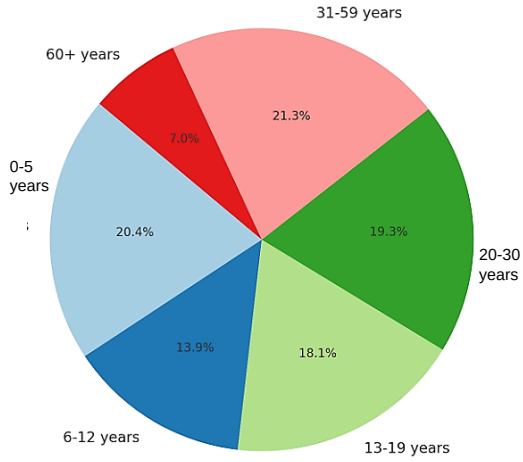

Fig. 1. Percentage distribution of the Mundurukú in Jacareacanga by age groups.

Turning now to the sociolinguistic questionnaire, Mundurukú household residents were categorized into the following age groups: 0-5 years, 6-12 years, 13-19 years, 20-30 years, 31-59 years, and

[1] In May 2024, a research proposal was presented to the Mundurukú people during a meeting involving the author, representatives of the Association, and members of the community. The research objectives and procedures were explained, and the community granted authorization by signing a consent form. They expressed agreement with all aspects of the study and provided support, including personnel to assist with the interviews.

[2] As previously pointed out, there is no information on whether the Indigenous inhabitants of the urban area of Jacareacanga belong to the Mundurukú nation, but they are certainly the majority.

60 years or older. Figure 1 illustrates the percentage distribution of the Mundurukú population by age groups, highlighting differences in age composition. This demographic information is crucial for understanding language transmission patterns across generations, as younger individuals may exhibit different linguistic behaviors compared to older generations.

In Jacareacanga, the largest age groups are those aged 31-59 (21.3%, or 92 adults) and 0-5 years (20.4%, or 88 young children), indicating a relatively young population and a significant proportion of adults in their productive years. The 20-30 years age group also stands out, accounting for 19.3% of the total population living in the city (83 individuals). Children aged 6-12 years (13.9%, or 60 individuals) and adolescents aged 13-19 (18.1%, or 78 individuals) show a considerable distribution, albeit lower than the younger and adult age groups. In contrast, the elderly population (60+ years) is the least represented, comprising only 7% of the total (30 individuals). The higher concentration of individuals under 60 years of age may be attributed to the two main factors driving people to stay in the city: education and work.

The Family domain and language use: preliminary results

Fishman (1965) introduced the concept of domains of language behavior to examine how individuals and communities make language choices in multilingual settings. These domains—family, religion, education, employment, and friendship—reflect some social spheres where language use varies (Fishman 1972).

This section presents some results regarding the use of Mundurukú and Portuguese in family settings, relating them to the length of residence in Jacareacanga (see Table 2). The questionnaire included a question about the primary language used in family interactions, offering the options: “mostly Mundurukú,” “mostly Portuguese,” or “both languages.” For the length of residence in the city, three time-frames were established: less than 5 years, between 5 and 10 years, and more than 10 years. Out of the 75 households surveyed, 22 families had lived in the city for less than 5 years, 17 families for 5 to 10 years, and 36 families had resided in Jacareacanga for over 10 years. Mundurukú was the predominant language in family interactions in 31 households, while 41 reported using both the Indigenous language and Portuguese, and only three showed a predominance of the national language, Portuguese.

The survey reveals interesting tendencies in language use among the Indigenous families in Jacareacanga:

- Recent residents (0-5 years): Among families who have lived in the city for less than 5 years, the native language, Mundurukú, remains dominant in family interactions. This suggests that recent arrivals are more likely to maintain strong ties to their linguistic heritage.
- Intermediate residency (5-10 years): For families residing in the city between 5 and 10 years, there is a noticeable increase in bilingualism (53%), and a decline in exclusive use of Mundurukú (29%). This indicates a gradual integration of Portuguese into daily communication.
- Long-term residency (10+ years): Among families living in Jacareacanga for over a decade, bilingualism becomes the predominant pattern (64%). While the use of Mundurukú remains significant, there is a clear shift towards incorporating Portuguese, reflecting the influence of extended urban residency.

The graph below provides a clearer visualization of the relationship between language use and the length of residence in the city. The proportion of families exclusively using Mundurukú declines with longer residency, dropping from 59%

among those living in the city for less than five years to 31% among residents of over ten years standing. At the same time, there is an important increase in bilingualism and the use of both languages in family interactions, rising from 41% among recent residents to 64% for long-term residents. Encouragingly, the exclusive use of Portuguese remains low across all groups. While Portuguese is becoming a part of daily life, it does not entirely replace the native language.

The family domain, a crucial space of interaction, is typically characterized by informal/intimate communication among family members. The growing preference for Portuguese in these private settings raises concerns about the vitality of the Mundurukú language in the city. In other words, this variation in linguistic behavior draws attention to the impact of urbanization on linguistic practices and poses challenges for the intergenerational transmission of the ancestral language.

Length of residence in city	Mostly Mundurukú	Mostly Portuguese	Both	Total
0-5 years	13	0	9	22
5-10 years	7	1	9	17
10+ years	11	2	23	36
Total	31	3	41	75

Table 2. Use of Mundurukú and Portuguese by length of residence in the city.

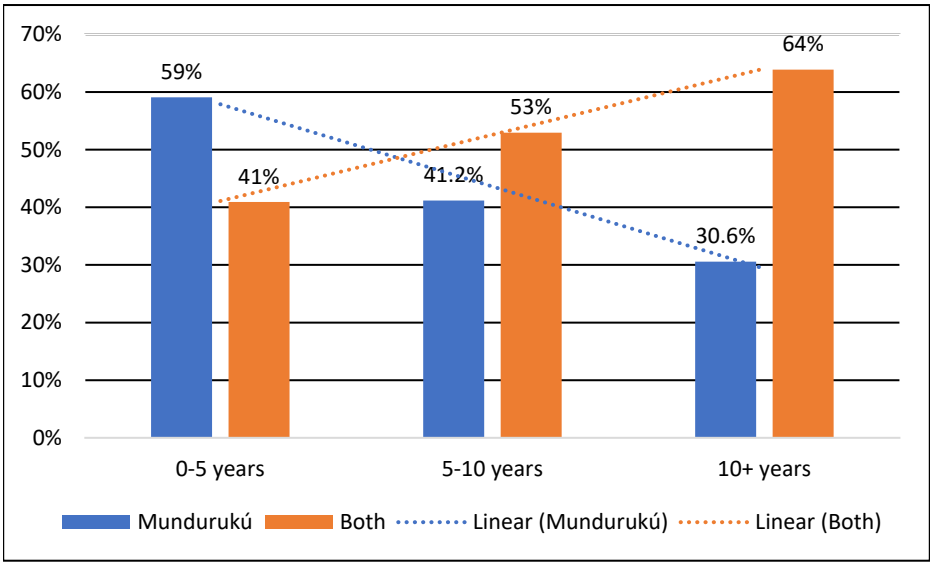

Fig. 2. Relation between language use and length of residence in the city

The findings show that the language choice undergoes changes over time among Indigenous families in Jacareacanga. While Mundurukú continues to play a vital role in their cultural identity, extended residency in the city is associated with increased bilingualism and a gradual shift toward the majority language, Portuguese.

Language acquisition and intergenerational transmission

The results so far indicate an increase in bilingualism as families spend more time in urban areas. Additionally, the questionnaire offers insights into the languages spoken across different age groups and their relationship to households where the Indigenous language is predominantly used. even in urban settings, Mundurukú appears to remain the first language learned at home, at least for the majority of Mundurukú families.

Among adolescents aged 13-19 years, the total number of homes where both languages are spoken remains similar (47 out of 51), but the proportion of households predominantly using Mundurukú drops to 14 households (27.5%). This could reflect a shift toward greater use of Portuguese during adolescence, potentially influenced by increased exposure to other social and educational environments.

Age groups		Mundurukú	Portuguese	Mostly Mundurukú	%
5-12 years	55	50	43	18	32.7
13-19 years	51	47	47	14	27.5
20-30 years	49	48	47	13	26.5
31-59 years	49	46	42	15	30.6
60+ years	21	20	12	6	28.6

Table 3. Languages spoken by age groups and use of Mundurukú at home.

As shown in Table 3, among the 75 households surveyed, 55 included children already of school age (5-12 years), 51 included adolescents (13-19 years), 49 included individuals aged 20-30 years, another 49 included individuals aged 31-59 years, and 21 included elders aged 60 years and older. The table also highlights the total number of households where we can find Mundurukú or Portuguese speakers in different age groups, and compares these with the number of households where Mundurukú was the primary language for daily communication.

In households with children aged 5-12 years, Mundurukú is spoken by children in 50 homes (out of 55), while Portuguese is also spoken in 43. However, only 32.7% of these households (18 homes) predominantly use Mundurukú for family interactions, corroborating the prevalence of bilingualism within this age group. This high rate of bilingualism among children is largely attributed to their entry into school. Respondents reported almost unanimously that school is the primary source of Portuguese learning, whereas Mundurukú is acquired at home with the family. Thus,

The pattern continues in the 20-30 age group, where the proportion of households primarily using Mundurukú further decreases to 26.5% (13 homes out of 49), despite a consistent number of households where we find speakers of both languages.

Interestingly, in the 31-59 age group, the percentage of households predominantly using Mundurukú rises slightly to 30.6% (15 homes out of 49). This could be attributed to older adults in this age range maintaining stronger ties to traditional practices and cultural identity, balancing bilingualism with a continued commitment to preserving the Indigenous language.

Among elders aged 60 years and older, 21 households included family members from this age group, but only 28.6% (6 homes out of 21) reported Mundurukú as the primary language. While the use of the Indigenous language appears to remain relatively stable among older generations—who speak it in

20 households—these elders do not seem to play a decisive role in establishing Mundurukú as the predominant language within their families. This is important despite the possibility that some elders may still be monolingual, as fluent Portuguese speakers in this age group were reported in only 12 households.

Overall, the data suggest a gradual decline in the exclusive use of Mundurukú among younger age groups, potentially influenced by schooling and other external factors. Nevertheless, the continued presence of bilingualism and the use of Mundurukú across all age groups highlight the language's resilience and cultural significance, even in urban settings. However, its future remains at risk without the implementation of policies aimed at reinforcing its use in these environments.

The Friendship domain as a key factor contributing to the preservation of Mundurukú

The shift toward Portuguese in family interactions within the home raises concerns about the long-term vitality of the Mundurukú language in urban settings. However, other forms of engagement, such as social interactions, visits to home villages, and hosting visitors from those communities, play a crucial role in preserving the language and mitigating the risk of complete assimilation. These dynamics can be understood from the perspective of Fishman's (1965, 96-97) framework, which identifies four key sources of language variance and choice: media variance, role variance, situational variance, and domain variance. Of particular relevance here are the last three.[3]

The role variance source indicates that when multilingual speakers resist language shift, "inner speech remains most resistant to interference, switching and disuse of the mother tongue." (Fishman 1965, 78) Situational variance indicates that language maintenance or shift differs across levels of formality (more formal, e.g. religion and work; less formal and intimate communication, e.g. friendship and family), with more intimate settings showing greater resistance to "interference, switching or disuse of the mother tongue." (Fishman 1965, 79) This study presents findings related to less formal and more familiar forms of communication, specifically focusing on intra- and inter-family social interactions. Finally, domain variance has to do with how language maintenance or shift varies across different domains of interaction, reflecting broader socio-cultural factors such as power dynamics, community structure, and influence.

In the case of the Mundurukú in Jacareacanga, three key factors help sustain their language despite the urbanizing pressures that favor Portuguese. First, frequent social interactions among Mundurukú families in the city, such as visits, phone calls, and casual encounters, serve as a strong mechanism for language preservation. Regardless of how long they have lived in urban areas, over 90% of respondents report using the Mundurukú language in these social exchanges. This aligns with Fishman's notion that less formal and intimate community-based interactions—where speakers feel a strong cultural connection—are more resistant to language shift.

Second, the practice of hosting visitors from Mundurukú villages also reinforces language use. During these visits, over 90% of respondents stated that they communicate in the Indigenous language with their guests, helping to sustain its use in urban households. These visits represent situational contexts where the use of

[3] On media variance, Fishman (1965, 78) says, "Where literacy has been attained prior to interaction with an "other tongue" reading and writing use of the mother tongue may resist displacement longer than speaking usage."

Mundurukú remains the norm, supporting Fishman's argument that different communicative settings influence language maintenance.

Third, visits by urban residents to their home villages also contribute to preserving the language, though their frequency tends to decline with prolonged urban residency. Among long-term urban residents (over 10 years), fewer than 40% report always traveling back to their villages, compared to approximately 44% of medium-term residents (5-10 years) and over 60% of short-term residents (less than 5 years). In the case of stays of over 30 days in rural villages, the proportions are relatively consistent, with participation rates of 39% for long-term residents, 38% for medium-term residents, and 45.5% for short-term residents. These visits play a crucial role in reinforcing domain-specific language use, as interactions in the village setting are conducted almost exclusively in Mundurukú.

These initial observations suggest that maintaining strong social networks, fostering connections with village visitors, and ensuring continued mobility between urban and rural areas are key to language preservation.

However, as the duration of urban residency increases, the frequency of visits and extended stays in the villages tends to decline, which may pose challenges to language maintenance in the future, particularly concerning younger generations. For those who have lived in the city from an early age, these connections to their ancestral villages may not be as strong as those of older generations.

To safeguard the intergenerational transmission of Mundurukú, proactive measures are necessary. Strengthening cultural and linguistic ties between urban-born children and their home villages, supporting community-led language initiatives, and implementing policies that promote bilingual education can help sustain the language across future generations.

The Education domain and its impact on Mundurukú language use

The primary factor driving language assimilation among the Mundurukú is the same one that motivates migration to urban areas: **education**[4]**.** Unfortunately, the current educational system primarily uses the majority language, Portuguese, as the medium of instruction, thereby excluding Mundurukú language and culture. This approach creates linguistic barriers and undermines positive attitudes toward the native language.

In Jacareacanga's urban schools, Portuguese is not taught as a second language; rather, Mundurukú children acquire proficiency in Portuguese at an early age. As previously shown (Table 3), in 43 households (78.2%), children aged 5-12 years are already fluent speakers of Portuguese. Thus, there is urgent need for mother-tongue education, which could preserve linguistic heritage while promoting academic success.

Despite Jacareacanga being the municipality with the second-largest Indigenous population—comprising more than 50% of its residents (IBGE, n.d.)—bilingual education for Mundurukú students has not yet been implemented. Implementing bilingual education is essential for reversing language shift and ensuring that the Mundurukú language thrives alongside Portuguese both within and beyond the school environment.

Granting the Mundurukú language **co-official status** in Jacareacanga could

[4] Other reasons were mentioned, such as employment and medical treatment; however, education was cited most frequently in the responses.

represent a significant step toward promoting its linguistic and cultural recognition. Co-official status grants Indigenous languages the same legal standing as the national language within municipal education and public services. This legal recognition could encourage the continued use of the Indigenous language in daily life, contributing to language maintenance and revitalization.

Additionally, co-officialization strengthens the cultural identity and pride of Indigenous communities and improves access to public services for speakers who may not be fluent in Portuguese. In Brazil, this is already a reality in certain municipalities, such as São Gabriel da Cachoeira in Amazonas, where Indigenous languages like Nheengatu, Tukano, and Baniwa are recognized as co-official. Extending co-official status to Indigenous languages in other municipalities fosters cultural diversity and helps ensure that urbanization does not come at the expense of linguistic heritage.

Final remarks

Urbanization, combined with the absence of supportive language policies, has introduced new dynamics to the use of the Mundurukú language, as bilingualism has been accelerating in the city, posing risks to its continued use in family and community domains. The findings presented here call for an urgent implementation of bilingual education and the development of public policies aimed at strengthening and promoting the Mundurukú language in Jacareacanga, Brazil. The absence of such policies has contributed to the growing dominance of Portuguese and the gradual erosion of the Indigenous linguistic heritage.

Bilingualism is predominant among long-term urban residents, with Portuguese integration increasing over time. Encouragingly, exclusive use of Portuguese remains low across all groups. The results also highlighted age-specific language patterns. Mundurukú remains the first language for most children, acquired at home, while Portuguese is learned at school. However, its dominance declines as children grow older, influenced by external environments. Some factors preserving Mundurukú in urban contexts are social interactions among urban Mundurukú families, hosting visitors or traveling to home villages, and maintaining traditional activities and language use.

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Place Names in the Valparaíso Territory: what they tell us about Apurinã (Arawak) history

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Abstract

This study investigates place names in the Apurinã territory of Valparaíso, Brazil, to uncover the linguistic properties of this domain of the language and make inferences on the history of the Apurinã people as it relates to the occupation of their territory. Employing qualitative, semi-quantitative, linguistic and ethnographic methodologies, including interviews and mental map analysis, the research analyzes 71 toponyms. The findings reveal how these names reflect the Apurinã people's deep connection to their land, cosmology, and history, highlighting the importance of toponymic restoration for preserving Indigenous heritage amidst ongoing threats to their territory and language vitality.

Keywords:
Apurinã, toponymy, Arawak, Valparaíso, cultural heritage

Introduction

In this report, we will present the results of a survey and analysis of place names in the Apurinã territory of Valparaíso, located mainly on the banks of tributaries of the Purus River, in the municipality of Boca do Acre, Northwestern Brazil (Fig. 1):

Fig. 1 Aerial image of the Village of Apurinã Valparaíso (Google Earth® in November 9, 2023).

The study of place names or toponyms reveals information not only about a subset of a language's vocabulary, morphology and semantics, but also about a people's history, culture and customs, including regional, natural, or "anthropocultural" properties that reflect the identity traits or even the specific role of individuals within the social history of a community. The research that led to this paper follows the methods and tradition of the field of onomastics, more specifically toponymy. As such, it fits into the field of lexicology, rather than anthropological linguistics or ethnology. In our research, historical, cultural or sociological implications are possible interpretations based on linguistic data—which require validation from the pertinent fields of study.

According to Dick (1990), toponyms allow the visualization of their inscription within a determined space-time. Santos and Costa (2023) state that there is, initially, a binding correspondence between names and designated places, linked by geographical areas, which can be altered over time, so that in toponymy studies of a territory, it is important to analyze the historical perspective. Cambraia and Seabra (2024) reinforce the understanding that toponyms, whether rural or urban, can be considered symbols: geographical, environmental, historical, and social testimonies of an era. The study of toponymy involves not only analyzing the relationship of place names in a specific geographical area, but also investigating the etymology of these names, as they are the main providers of elements for conclusions regarding the history of a place. However, the etymological traits of a word do not constitute the only classificatory criterion for a toponym, as other aspects must be considered, such as the inspiration behind a name of cosmological beliefs or historical processes influencing place names. Navarro (2023) corroborates this understanding by stating that the complexity of classifying toponyms due to their multiform nature makes it possible to use different criteria, intralinguistic and extralinguistic, organizing them along cultural, etymological, sociolinguistic or ontological lines, for example.

Toponyms aim to distinguish geographical areas in spaces that delimit a land surface with specific characteristics. Furthermore, toponyms can reveal communicative factors that make direct reference to the areas that were named. They attribute importance that surpasses the act of naming, serving as an instrument of temporal projection. Thus, through reconstructing the inherent characteristics of each naming, it is possible to capture the mentality of the time and the living conditions of people, albeit partially.

Dick (1990) states that the toponymic sign can be essentially motivated by various triggering factors, as different semantic contents allow relationships to be established between the topographic locations and the respective geographical-cultural areas.

The naming of beings can show the understanding of the reality that surrounds them, highlighting the communicative act through the registration of what was assimilated, although they may be rare among some communities, as Michael (2008, 52) explains: “All the personal names I use for the Nantis mentioned in this study are Nanti adaptations of Spanish names they received from Matsigenkas or mestizos. Prior to being given Spanish names in the early 1990s, personal names were apparently very rare among Nantis.” Isquerdo (2019), highlights the importance of considering that in its essence, the toponym is a linguistic sign, as it integrates the lexicon of the language, carrying all its linguistic and extralinguistic characteristics. Therefore, regarding the choice of designators, the perception of reality is subordinate to the linguistic patterns that obtain within each speaker's community, based on different influential factors, such as customs and habits. According to Dick (1990), naming is configured in conceptual fields that illustrate the object-reality, causing these referential representation schemes to have form and content, expression and substance, in the symbolic language system, reflecting various cultural aspects that compose an organic whole. Thus, when relating the sign to toponymy, a plurality of aspects emerges, as this linguistic element will be endowed with a place-identifying function, integrating a motivating process and allowing the deduction of connections between the name itself and the area designated.

Toponymy involves various scientific areas, including a people's language and culture. It is linked to Onomastics (the study of proper names) and, in addition to studying linguistic signs, it delves deeper by verifying their significant functions. Therefore, when using the verbal communication code, besides defining the conceptual field, speakers also examine internal geographic features. In this context, Dick (2007) says that research in the field of toponymic onomastics conceptually investigates cultural, historical, geographic, and especially linguistic values.

According to Dick (1990), the toponymic motivation comprises a dual aspect, composed of intentionality and the semantic origin of the chosen name. The first is configured in the immediate motive (subjective—beautiful, ugly, good, bad—or objective—color, shape, dimension) according to which a specific name is chosen for a geographical feature; the second is directly linked to the revealed meaning with diverse origins. These two perspectives influence the formation of place names. We then reach an understanding of reality through the combination of the linguistic sign with the toponymic function, revealing its semantic nature, which results in a more direct relationship between the terms involved, allowing the visualization of the physical or anthropocultural aspects of these designations.

The Apurinã Language and its Speakers

Apurinã belongs to the Purus branch of the Arawak language family. In Apurinã the term Pupỹkarywakury is used to name both the language and its speakers. The term “Apurinã” is, in general, only used by them while talking in Portuguese, and was thus most likely given to them by another language group. According to the Indigenous Health Organization of Brazil (SESAI), in 2020, there were 10,228 people belonging to this nation, dispersed, mainly, across the states of Mato Grosso, Rondônia, Amazonas, and Acre. The extent of the

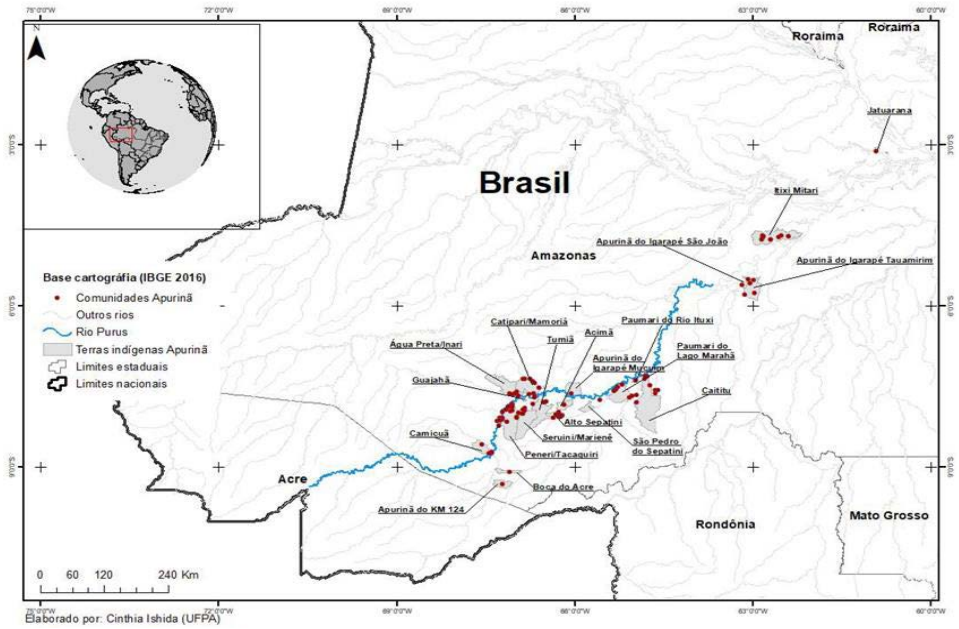

Fig. 2: Distribution of the Apurinã Indigenous Territories (Ishida 2021).

Apurinã territory is vast, with 24 Indigenous territories; most of them have been approved by the Federal Government and others in the identification and delimitation study process, dispersed in over 100 communities across the municipalities of Boca do Acre, Pauini, Lábrea, Tapauá, Manacapuru, Beruri, Manquiri, and Manicoré. The Apurinã territory which is the locus of our study is located in the municipality of Boca do Acre, state of Amazonas. The lack of demarcation of some areas contributes to the dispersion of the people. Facundes (2000) explains that their migratory nature (due to various factors, including historical and sociocultural ones) contributes to the formation of various communities, often composed of people who migrated from their original communities to establish new villages. Figure 2 lays out the distribution of the Apurinã Indigenous Territories, along the Purus River and its tributaries. When this map was designed, the Valparaíso Territory, which is next to the Camicuã Territory, had not been officially recognized.

In the Valparaíso Indigenous Territory, there are 136 residents, divided into 22 families. In addition to these Apurinã families, there are also around 25 non-Indigenous people residing there, who are trying to expel the Apurinã people from their lands. In this region, economically influential people are promoting the destruction of the area and invading spaces that traditionally belong to the Apurinã Indigenous people, for this Indigenous Land is namely still in the process of regularization and therefore suffers many environmental, social, and cultural consequences caused by large-scale developmental enterprises and the growth of agribusiness. Regarding the traditional language, in Valparaíso, only three speakers remain: the Chief of the Apurinã Indigenous Land, an elderly Apurinã woman, and another Indigenous person who no longer resides in Valparaíso, but who was born in the Valparaíso community and visits it frequently. The Apurinã woman understands Portuguese but does not speak it, and the two male Indigenous individuals

speak and understand Apurinã and Portuguese well.

Research into Toponyms in Indigenous Languages of Brazil

Toponyms in Indigenous territories usually reflect the natural characteristics of each locality where Indigenous peoples traditionally lived. It should be noted that this does not occur in every case. Rybka's study (2015) shows that some place names in the Amazon are not analyzable or do not refer to natural/geographical characteristics. However, Dick (1990) states that the relationship between places and everyday Indigenous facts can be presented analogously. Also, toponyms may provide clues about language vitality and historical contact with other groups:

"(...) in an initial phase, the Indigenous name was altered due to missionaries and colonizers' religious convictions, and later, the change became an authoritative measure by the Portuguese government, through a royal charter issued by the Marquês de Pombal, realizing that maintaining Indigenous place names indirectly kept alive the native languages, which were prohibited from spreading." (Dick 1990, 55. Our translation.)

In this sense, it is important to recover toponyms and conduct toponymic restoration, as a way to preserve Indigenous peoples' history and characteristics, considering that a toponym should/could carry information about the reality in which these people live/lived and their linguistic contexts. This further reinforces the idea that perceived historical facts allow us to understand how different languages in the same territory, with their respective sociological implications, may gain various connotations when exposed to diverse conditioning factors.

According to Apurinã (2019), for the Apurinã people, the relationship between Indigenous people and their land is different from that of non-Indigenous people, as the latter, for the most part, do not establish a spiritual connection with the land, unlike some Indigenous peoples. In this sense, Santos (2018) also contributes, adding that the original peoples did not see the land as belonging to them, but on the contrary, felt they belonged to the land. Silva (2018) and Souza and colleagues (2015) also highlight the role of the territory for Indigenous peoples, as well as their direct relationship with nature. Thus, the Apurinã understand that sacred places nourish not only their physical bodies, but also their minds and spirits.

The relationship of the Apurinã with their territories is also identity-based, as their cultural values and their villages are preserved there, establishing a strong relationship with their lands of origin. Apurinã cosmology itself reinforces this feeling of belonging, making the relationship between Indigenous people and the environment intrinsic, primarily through their beliefs and rituals. Thus, we presume that the choice of place names—geographical designations for the surrounding environment integrating physical/cultural spaces—plays an important role as a record of Indigenous peoples' history. Following this line of thought, Dick (1990) notes the existence of fossilized terms that reflect a diversified or multifaceted experiential environmental reality, keeping cultural traditions alive. However, despite the importance of toponymic research addressing Indigenous realities, studies on the subject are quite scarce. The studies on Apurinã toponyms started recently with our own work (Monteiro, 2024; Oliveira e Facundes, 2019), although Apurinã is an Indigenous language of Brazil with extensive documentation, including educational materials for teaching the language, a detailed grammar describing its phonetics, phonology, morphology, dialectology, lexicology, and syntax (Facundes, 2000),

dictionaries (Facundes et al, 2017; Lima-Padovani, 2020), in addition to other articles and senior students' monographs, master's theses, and doctoral dissertations on various language domains (Freitas, 2017; Lima-Padovani, 2016).

Data Sources and Methodology of Toponymic Research in the Valparaíso Apurinã Indigenous Land

The research results presented in this paper are primarily based on the MA Thesis of the first author (Monteiro, 2024), and the fundamental contribution of Souza, as a native Apurinã speaker and profound knowledge holder of the local history and cultural traditions of the Apurinã people of the Valparaíso territory, in the Southern Amazon. The third author is the main linguist studying the Apurinã language, who has been working for over three decades on the description, documentation and development of teaching materials in Apurinã; his contribution included the morphosyntactic and semantic analysis of the place names.

The toponymic research conducted in the Valparaíso Apurinã Indigenous Territory followed a qualitative, semi-quantitative, and ethnographic methodology. The procedures adopted involved bibliographic, documentary, and field research. The methodological procedures used in the research are derived from a study of the mental maps of the Valparaíso territory produced by Apurinã teachers from the Boca do Acre communities during a language teaching materials orientation workshop in 2022, as part of a collaboration between Virtanen, Apurinã and Facundes, with the participation of all the remaining authors of the present study. The map cannot be displayed here due to a collective decision by the Apurinã people present at the workshop. They made this choice because the map shows locations considered sacred by the Apurinã people and areas with important natural resources, which cannot be publicly disseminated due to the current threats to Indigenous lands in Brazil. The second author of this paper was the main author of the map, which was the basis for this paper.

Data Description and Analysis

The cataloged research data correspond to the 71 terms listed in Table 1[1].

The toponyms that occur most frequently are phytotoponyms (15 occurrences), referring to vegetation, which can be represented by clusters of the same or different species, followed by anthropotoponyms (11 occurrences), which are constituted from personal designators.

We followed the classification scheme of Dick (1990) and sorted the 71 place names into categories defined by her. Sixty-three place names could be classified as belonging to a single category in this system, while six belonged to multiple categories and two could not be classified. Out of the 63 place names that we could classify, the largest group was phytotoponyms, or toponyms referring to plant species, the second largest group was anthropotoponyms, formed from personal designators (first names, family nicknames, combined or not). These toponyms were analyzed based on the research of Dick (1990) and other authors, such as Isquerdo e Oliveira (2001), Nadin (2017), Pereira (2017), Prezia (2017) and Tibiriçá (1985). They were then classified into the taxonomies and morphologies proposed by Dick (1990), whose classificatory model is

[1] Some terms for which an English translation is not provided have no semantic equivalent in English; for others, a translation has not yet been identified.

ideally suited to the study of toponymy because it organizes and classifies the elements that motivate geographical names, which allows for a broader understanding of toponymic motivations.

One aim of the lexicographical and etymological research on these place names, following Isquerdo e Oliveira (2001) and Nadin (2017), was to propose a semantic analysis and classification of the various terms. These methodological procedures and theoretical concepts provide an understanding of toponymic motivations and the relationship of the Apurinã people with the geographic space in the context of Valparaíso, their cultural traditions, history, and geography. In the case of taxonomies, results were obtained for terms classified in anthropocultural taxa, related to human historical and cultural specificities, and in taxa linked to the natural environment, as shown in Table 2 and Table 3.

The records for each toponym included the following fields: Municipality; Location; Toponym; Geographical Feature (F/H); Taxonomy; Etymology; Lexical Entry; Morphological Structure; Encyclopedic Information and Sources.

According to the morphological classification proposed by Dick, toponyms can be classified in three ways: i) Simple Specific Element: defined through a single formative (noun or adjective), possibly followed by a suffix (e.g. diminutive, augmentative); ii) Compound Toponym or Compound Specific Element: features more than one forming element, with content of various origins; iii) Hybrid Toponym, or Hybrid Specific Element: designator composed of linguistic elements from diverse sources (Portuguese + Indigenous formation or vice versa). Hybrid toponyms can be further subdivided into two items: Simple Hybrid: formed from a single element with more than one linguistic layer; Compound Hybrid: formed by two or more linguistic elements from different languages.

The results from the taxonomic classification of toponyms in the Indigenous Territory of Valparaíso took distinct forms and were described in terms of their coverage fields, toponymic taxa, and the morphological structure proposed. They were divided according to three criteria: i) toponyms classified in a specific taxon; ii) toponyms classified simultaneously into more than one taxon, considering their meanings and interpretative possibilities; iii) terms classified as inconclusive or undefined due to the lack of knowledge about the meanings of some lexical items and/or morphemes, and the absence of references or theoretical contributions for their precise definitions. Table 4 specifies the results, totaling the 71 (seventy-one) toponyms studied.

In terms of grammatical analysis, considering the morphological aspects of Dick (1990), 27 (twenty-seven) toponyms were classified as simple elements (examples: “Sãkuã” and “Castanhal”) ; 23 (twenty-three) were classified as compound toponyms or compound specific elements (examples: “Igarapé Miriti” and “Canudo Velho”); 2 (two) received the classification of hybrid specific element (examples: “Puxabala” and “Valparaíso”) and 17 (seventeen) of compound hybrid elements (examples: “Igarapé Preto” and “Maloca do Retiro”). The 2 (two) toponyms classified as inconclusive/undefined were not categorized in taxa nor was their morphological constitution verified.

After analyzing the data of place names in Valparaíso, it was found that the most common incidence of morphological classification corresponds to simple specific element toponyms, since they are composed of a single formative, sometimes accompanied by suffixations. This group represented 33.3% of the analyzed data, mostly consisting of lexical elements from Indigenous languages, curiously not from the Apurinã language, but borrowings from Tupian languages, which entered the

Apurinã language via Portuguese. In Table 5, we present the list of toponyms in Apurinã, hybrid toponyms and toponyms in Portuguese (including those of Tupi origin that entered Apurinã via Portuguese) in the Apurinã Indigenous Territory of Valparaíso.

Among the results of the analyses and classifications of the names of places in the Apurinã Indigenous Territory of Valparaíso, there are toponyms that are not of Apurinã origin. The inclusion of these toponyms in our analysis follows from the fact that they are part of the memory of these people, reflecting the history of occupation of their territory by non-Indigenous people, and thus the history of their territory.[2] It is only by including the toponyms of non-Apurinã origin in our analysis that we can fully evaluate the role of the toponyms of Apurinã origin.

Due to space constraints and considering the objectives of this study, we will present only a few toponymic records. More examples can be found in Monteiro (2024). In Table 6, we present the record of the toponym “Aldeia Central Karuá.” This designator was chosen for the area as a tribute to a great female Apurinã leader named “Karuá.” Karuá was the founder of the Karuá Village, so the toponym was classified as an anthropotoponym. This village is the “mother village” of the Indigenous Territory of Valparaíso, where significant battles between the region's Indigenous people took place. Apurinã ancestors lived in this location, which was the center of the Indigenous traditional territory. For various reasons, many Apurinã individuals subsequently left to occupy different spaces. In addition to the conflict between the Indigenous people living here, another motivation for the Apurinã people to migrate in increasing numbers to the interior of the Indigenous territory was the felling of trees that took place on the land, also caused by the strengthening of agribusiness in the region.

Table 7 presents information about the area named Igarapé Miriti. Miriti is the name of an area where there used to be a stream called "Igarapé Miriti" (Miriti palm tree stream), which dried up due to deforestation in the territory. This area once had many Miriti palm trees. Currently, there are none left. This toponym is classified as a phytotoponym. Additionally, it is considered a fossilized toponym, as the area no longer exhibits the characteristics that initially inspired its name, meaning that the distinctive features motivating the designation are no longer present.

Table 8 presents a toponym simultaneously classified under the taxonomies of animotoponym and hodotoponym. In view of the Apurinã narratives in which kymapury is the sacred path that interconnects all the Apurinã people, linking aspects related to nature and the mystical, or signifies the totality of the arcs or paths of the shaman’s walk—the trail of everything—it is possible to classify the toponym as an Animatoponym, as it relates to the taxon that deals with the mental and spiritual life of human beings. In this light, kymapury is connected to the Apurinã culture, involving the feelings and beliefs of these people. On the other hand, given that Kymapury means “trajectory” or “path” in Apurinã, being the generic name assigned to strips of land that connect one place to another, it can also be classified as a hodotoponym, or a name related to urban or rural communication routes.

[2] The history of the occupation requires investigation and is beyond the scope of this paper.

Toponyms in the Valparaíso Indigenous Territory			
1	2 Bocas (2 Mouths)	37	Karuaru
2	Aldeia Central Karuã (Karuã Central Village)	38	Karuá
3	Aldeia Joary (Joary Village)	39	Kayanamari Encantados Valentes (Kayanamari “Brave enchanted being”)
4	Barreiro do Juarí (Clay pit of Astrocaryum jauari)	40	Kaykuarety Encantado (Enchanted Kaykuarety))
5	Barreiro do Tibuçu (Clay pit of Tibuçu)	41	Kãxãry
6	Boa Vista 1 (Nice View 1)	42	Kymapury (path)
7	Boa Vista 2 (Nice View 2)	43	Kytãrery
8	Boa Vista 3 (Nice View 3)	44	Lago do Bom Lugar (Lake of the good place)
9	Boca do Acre (Mouth of Acre)	45	Lago Conceição do Desterro (Lake of the conception of banishment)
10	BR 317 (Federal road 317)	46	Lago Sãkuã (Snook-fish (Hoplias malabaricus) lake)
11	BR 319 (Federal road 319)	47	Makoã
12	BR do Banco do Brasil (Bank of Brazil Br)	48	Maloca do Igarapé Preto/ Pupurery (Hut of black creek/ Pupurery)
13	Buritizal (Buriti palm trees (Mauritia flexuosa) grove)	49	Maloca do Retiro (Hut of retreat)
14	Campo (Field)	50	Mamão (Papaya)
15	Canudo (Straw)	51	Manẽe (Swamp)
16	Canudo Novo (New straw)	52	Mapongapá
17	Canudo Velho (Old straw)	53	Maruquê
18	Castanhal (Brazil nut grove)	54	Miriti (Miriti Palm Tree (Mauritia flexuosa))
19	Chavascal (Swamp)	55	Mucuim (Tick)
20	Coqueiral (Coconut grove)	56	Pajaú
21	Cruzeiro (Cross shape)	57	Paranã (Stream)
22	Cruzerinho (Little cross shape)	58	Patoazal (Patoá tree (Oenocarpus bataua) grove))

23	Fazenda União (Union Farm)	59	Piquiá (Piquiá tree (Caryocar brasiliense))
24	Fazenda Riachão (Big stream farm)	60	Poço do Arroz (Well of Rice)
25	Igarapé Anury (Anury creek)	61	Pula-Pula (Jump-Jump)
26	Igarapé Cajari (Cajari-river creek)	62	Puxabala (Bullet Pull)
27	Igarapé Grande (Large Creek)	63	Retiro (Retreat)
28	Igarapé do Jiju (Jeju-Fish (Hoplerythrinus unitaeniatus) Creek)	64	Retiro Velho (Old Retreat)
29	Igarapé Maruquê (Maruquê Creek)	65	Rio Purus (Purus River)
30	Igarapé Karuaru (Caruaru creek)	66	Sãkuã (Snook-fish (Hoplias malabaricus) creek))
31	Igarapé Miriti (Miriti palm (Mauritia flexuosa) creek))	67	Terra de Antônio Caboco (Land of Antônio Caboco)
32	Igarapé Preto (Black creek)	68	Terra do Açaí (Land of Açaí)
33	Igarapé do Retiro (Retirement creek)	69	Terra Nova (New Land)
34	Igarapé São Francisco (San Francisco Creek)	70	Tibuçu
35	Iquirema	71	Valparaíso
36	Joary		

Table 1. 71 Toponyms in the Valparaíso Indigenous Territory. Source: Monteiro (2024, 56).

Types of Toponyms	Concepts
Astrotoponyms	Relating to celestial bodies;
Cardinal Toponyms	Relating to geographical positions in general;
Chromotoponyms	Relating to colors;
Dimensional Toponyms	Relating to dimensional characteristics of geographical features, such as length, width, thickness, height, and depth;
Phytotoponyms	Relating to the composition of terrestrial vegetation;
Geomorphological or Orotoponyms	Relating to landforms (includes elevations and depressions);
Hydrotonyms	Possessing hydronymic nature;
Lithotoponyms	Having a mineral origin, reflecting the constitutive nature of soils or terrains;
Meteorological Toponyms	Relating to atmospheric phenomena;
Morphotoponyms	Reflecting the sense of geographical shapes;
Zootoponyms	Relating to the presence of animals as motivating sources.

Table 2. Toponyms of physical nature proposed by Dick. Source: Monteiro (2024, 62), based on the toponymic classification established by Dick (1990).

Types of Toponyms	Concepts
Animotoponyms	Relating to mental life and spiritual culture, encompassing products of human cognition;
Anthropotoponyms	Have a historical character. Formed from personal designators (first names, family nicknames, combined or not);
Axiotoponyms	Formed by proper names with added personal titles;
Chorotoponyms	Relating to names of cities, countries, states, or continents;
Chronotoponyms	Consist of place names that address chronological indicators;
Ecotoponyms	Relating to habitation in general;
Ergotoponyms	Relating to elements of human material culture;
Ethnotoponyms	Relating to ethnic groups, cities, states, countries, regions, continents;
Dirrematotoponyms	Formed by phrases or linguistic statements;
Hierotoponyms	Relating to religious toponymy, including associations;
Hagiotoponyms	Relating to names of saints and holy figures from the Roman hagiology;
Mythotoponyms	Relating to mythological entities;

Hodotoponyms	Relating to rural or urban communication routes;
Historiotoponyms	Related to designators that encompass historical-social movements, their members, and dates relative to these events;
Numerotoponyms	Composed of numeral adjectives;
Poliotoponyms	Formed by populated clusters;
Sociotoponyms	Relating to professional activities, workplaces, and meeting points for any group;
Somatotoponyms	Related to designators in analogy to parts of the human or animal body.

Table 3. Toponyms of anthropocultural nature proposed by Dick. Source: Monteiro (2024, p. 62), based on the toponymic classification established by Dick (1990)

General Toponymic Classification of Place Names at TI Apurina Valparaíso	**Data Quantity**
i) Toponyms classified into specific taxonomies	63
ii) Toponyms with multiple classification possibilities	6
iii) Inconclusive/undefined classifications	2
TOTAL	**71**

Table 4. Results of the classification of toponyms from the Apurinã Indigenous Territory of Valparaíso in the toponymic taxa proposed by Dick (1990). Source: Monteiro (2024, 127).

Toponyms in Apurinã	**Hybrid Toponyms**	**Toponyms in Portuguese (including those originally from Tupian languages which entered Apurinã through Portuguese)**
Karuá (*Neoglaziovia variegata*)	Aldeia Central Karuã (Karuã Central Village)	Karuaru (proper name)
Kãxãry (itch)	Aldeia Joary *(Joary (Astrocaryum jauari*) Village)	Miriti (Miriti palm (Mauritia flexuosa) creek)
Kymapury (path)	Barreiro do Juarí (Clay pit of Juari)	Mucuim (Tick)
Kytãrery (water basket)	Igarapé Grande (Large creek)	Pajaú (*Triplaris Pachau*)
Makoã (proper name)	Igarapé Maruquê/Maruky (Maruquê/Maruky creek)	Paranã (River stream)
Manẽe (swamp)	Igarapé Preto (Black creek)	Piquiá (Piquiá tree (Caryocar brasiliense))
Maruky (proper name)	Igarapé Retiro (Resting creek)	Tibuçu

Sãkuã (Snook-fish (*Hoplias malabaricus*) creek))	Igarapé São Francisco (St Francis creek)	Retiro (Resting place)
Kaianamari (Canamari - ethnonym)	Kayanamari Encantados Valentes (Kayanamari Brave Enchanted)	Mamão (Papaya)
Kaykuarety (related to alligator)	Kaykuarety Encantado (Enchanted Kaykuarety)	Patoazal (Patoá tree (*Oenocarpus bataua*) grove))
	Lago Sãkuã (Snook-fish (*Hoplias malabaricus*) Lake))	2 Bocas (Two mouths)
	Maloca do Igarapé Preto (Longhouse of black creek)	Barreiro do Tibuçu (Clay pit of Tibuçu)
	Maloca do Retiro (Hut of retreat)	Boa Vista 1 (Nice View 1)
	Rio Purus (Purus River)	Boa Vista 2 (Nice View 2)
	Terra de Antônio Caboco (Land of Antônio Caboco)	Boa Vista 3 (Nice View 3)
	Terra do Açaí (Açaí (Euterpe oleracea) land)	Canudo Velho (Old straw)
		Canudo Novo (New straw)
		Fazenda Riachão (Big stream farm)
		Igarapé Anury (Anury creek)
		Igarapé Cajari (Cajari-river creek)
		Igarapé do Jiju (Jeju-Fish (Hoplerythrinus unitaeniatus) creek)
		Igarapé Karuaru (Caruaru creek)
		Igarapé Miriti (Miriti palm (Mauritia flexuosa) creek))
		Lago Conceição do Desterro (Lake of conception of banishment)
		Lago do Bom Lugar
		Poço do Arroz (Rice well)

		Pula-pula (jump-jump)
		Retiro Velho (Old port)
		Terra Nova (New land)
		BR 317 (Federal road 317)
		BR 319 (Federal road 319)
		BR Banco do Brasil (Bank of Brazil national road)

Table 5. List of toponyms in Apurinã, hybrid toponyms and toponyms in Portuguese. Source: Monteiro (2024, 130).

Municipality: Boca Do Acre/Am Location: Ti – Valparaíso	
Toponym: Aldeia Central Karuã	**Geographic Feature**: Village
Taxonomy: Anthroponym	
Lexical Entry/Encyclopedic Information:	
Village. [From Arabic ad-daya(t).] N. f. 1. Small settlement, inferior to a town; rustic settlement; hamlet. 2. Brazil. Settlement exclusively made up of Indigenous people; maloca. 3. Brazil. BA Rel. Terreiro (7), in caboclo candomblés; roça. 4. Anthro. Social unit consisting of a multi-family collective dwelling or a group of homes in the same place, organized politically and spatially according to its society. 5. By extension, the location occupied by this community. 6. Archaeol. Archaeological site, generally circular from 20 to 100m in diameter, with evidence such as dark soil patches, charcoal, stone and ceramic objects, construction remains, etc. 7. Brazil. RS. Group of very poorly built houses near barracks or camps where soldiers' families live. [Irregular dim.: aldeola and aldeota.]	
Central. [From Lat. centrale.] Adj. 2 g. 1. Located in the center. 2. Related to center; centric. 3. Fig. Main, fundamental, essential: central figure.~V. angle-heating-, bank-, heating-, field-, castle-, cylinder-, conic-, crater-, eclipse-, force-moment-, rib-, nucleus-, part-, peak-, point-, processor-, symmetry-, nervous system- and vowel-. N. f. 4. Place or building where certain installations are centralized: power plant. (FERREIRA, 2009, p. 439)	
Karuá name of a female Indigenous Apurinã leader living in the Apurinã TI of Valparaiso.	
Source: Apurinã Dictionary (in preparation); Ferreira (1999, p. 89, 439); FLEx Program; Chief Wãtu (Apurinã Indigenous leader of TI Valparaíso).	
Morphological Structure: Hybrid Toponym/ Specific Hybrid Element, formed by the lexical units ALDEIA + CENTRAL + KARUÁ.	

Table 6. Toponym Record for **Aldeia Central Karuá**. Source: Monteiro (2024, 77).

Municipality: Boca Do Acre/Am	**Location:** Ti – Valparaíso
Toponym: Igarapé Miriti	**Geographic Feature:** Af - River Stream
Taxonomy: Phytotoponym	
Lexical Entry/ Encyclopedic Information: **Igarapé**. From Tupi.] N. **m**. Braz. Amaz. MS Small river that shares the same characteristics as large ones and is usually navigable; the larger ones are called igarapés-açus and the smaller ones, igarapés-mirins. **Miriti.** [From Tupi mbyrytý Variant of buriti.] N. **m**. Braz. Amaz. Bot. Very tall palm tree (30-50m), native to swamps (Mauritia flexuosa), with globular fruits, whose split trunk yields a sweet and starchy juice, and whose leaves are used for roofing.	
Source: FERREIRA (1999, 1073,1343); Chief Wãtu (Apurinã Indigenous leader from the TI of Valparaíso).	
Morphological Structure: Composite Toponym/ Specific element composed of the lexical units: igarapé + miriti	

Table 7. Toponym Record for Igarapé Miriti. Source: Monteiro (2024, 99).

Municipality: Boca Do Acre/Am	**Localização:** Ti – Valparaíso
Toponym: Kymapury	**Geographic Feature:** Path
Taxonomy: Animotoponym/Hodotoponym	
Lexical Entry/ Encyclopedic Information: **Kemapury ~ Kimapury** (n.m) trajectory, path. A generic name for all land strips that lead from one place to another.	
Source: Apurinã Dictionary (in preparation); Apurinã Lexical Database ; Chief Wãtu (Apurinã Indigenous leadership of TI Valparaíso).	
Morphological Structure: Simple specific element, formed by the lexical unit: Kemapury	

Table 8. Toponym Record for Kymapury. Source: Monteiro (2024, 121).

Final Remarks

The study of Indigenous toponymy considers the significance of cultural and sociological implications, resulting in a faithful reflection of the relationship between the chosen names and the named areas. In this context, toponymic studies demonstrate that knowing certain motivational factors that lead to the choice of a specific name as a designation for a geographic area allows for more precise taxonomic analyses and classifications. Thus, awareness of extralinguistic (e.g. historical or cultural) factors facilitates the taxonomy process. In the case of linguistic aspects, we can affirm that for the accurate classification of a toponym, a set of knowledge involving semantic and morphological aspects is necessary.

Addressing the discriminative nature of the toponym in its physical-geographic aspect, the toponymy of the Apurinã Indigenous Territory of Valparaíso presents a higher quantity of phytotoponyms (toponyms related to vegetation), followed by anthroponyms (toponyms derived from personal names). From this observation, we can deduce that the relationship with the environment directly influences the cognitive and social universe of the Apurinã community of the Valparaíso Indigenous Territory. For the Apurinã culture of this Indigenous Territory, contact with flora in various contexts (medicinal, nutritional, or spiritual, for instance) is notably significant in their daily life. It is the significant interaction with flora that explains the pervasive use of words for elements of flora to label places in the Apurinã territory. As to the use of personal names, it is determined by the role of particular people in historical events that are representative of the history of the community of Valparaíso. Such people include the earliest inhabitants, and those who were often identified as significant leaders of the community.

The fossilization of toponyms in the geographic space of the Valparaíso Apurinã Indigenous Territory has occurred due to environmental destruction in this area from various development and agribusiness projects. These contexts altered the characteristics initially found in the localities at the time of naming. The toponym Igarapé Miriti, previously mentioned, names an area that has suffered intense environmental damage, and whose topography no longer corresponds to the name initially chosen; the stream has dried up and no miriti (*Mauritia flexuosa Mart*) are to be found there any more. Among the morphological classifications of toponyms, there is a prevalence of names classified as simple elements in Indigenous languages. In the category of compound toponyms, there is a greater prevalence of names in Portuguese. Since the latter are semantically more transparent, they may have been more recently coined, thus under the influence of the dominant Portuguese language. Although there are clear threats and attempts to silence the Indigenous discourse, history and cultural traditions, the Apurinã people of the Valparaíso Indigenous Territory resists by insisting on maintaining some place names within their territory in their traditional language.

We cannot emphasize too strongly that the choice of names and the drive to preserve some toponyms, especially among those belonging to the Apurinã language, on the part of the Apurinã Indigenous people themselves, are directly linked to aspects of the struggle to safeguard the identity of this people, given that these names carry with them original motivations, memory, historical aspects and constituents of this Indigenous nation. ♦

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Language technology for the Uralic languages in Amazonian contexts

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Abstract

This article explores the application of language technology developed for Uralic languages in the revitalization, invigoration and research of Indigenous Amazonian languages. It highlights the potential and challenges of digital tool development for linguistically and culturally rich languages with minimal resources. Uralic language technology derives from the facilitation of Saami languages and over 150 other languages world-wide, including Indigenous Amazonian languages, such as Apurinã and Sakurabiat, in the GiellaLT infrastructure. This language-independent framework has been established, emphasizing reusability of technology and code to address the virtual lack of digital resources for minority languages, which helps in the enhancement of language documentation, education, and revitalization efforts. The authors present collaborative work between European and Brazilian researchers, emphasizing the importance of co-design with native speaker communities to ensure tools, such as spellcheckers, morphological analyzers, and keyboards, reflect actual language use. It is noted that despite environmental and cultural differences between Northern Eurasia and the Amazon, both regions share common challenges, such as underused language archives and endangered language vitality. The research underscores the importance of cross-regional cooperation and open-source, modular infrastructures for advancing language technology in minority and endangered language contexts worldwide.

Keywords:
Language technology, Uralic languages, Amazonian languages, language revitalization, Universal Dependencies

Introduction

Language technology is what we think of when we discuss the creation and implementation of computer tools that facilitate the use of language in the ever-expanding digital dimensions of the modern world. The size and prominence of a language in society does not necessarily go hand in hand with its presence in digital space. Hence, even if a language is spoken by hundreds of thousands or even millions, it might be virtually absent on the Internet and might not have any publications available in databases. Even when a language is actively used and present, actual numbers apply, i.e., the smaller the number of language users, the fewer the number of people there are developing language-specific tools or contributing to media in and for that same language. What happens if there actually are people who want to publish online, keep a blog or journal, or they simply want to write in a non-majority language.

A non-majority-language journal or blog might be faced with additional challenges. Just to name three, the editors might have to manually proofread every piece, the majority-language society might require that all publications have a majority-language translation, and there might be interest among non-speakers to read the basic message of a media they would otherwise not comprehend. Hence, we provide the gist of a story related by the head of Giellatekno ‘language technology (in Northern Saami)’, Trond Trosterud, in one of his many workshops:

“Once there was a Northern Saami weekly where the editors spent over 50 percent of their time proofreading what they had written, because there was no automated way of doing it. The head of the Giellatekno said that if the newspaper could provide quantities of text in digital format, Giellatekno would provide the newspaper with a spell checker. The spell checker was made and has meant that, now with more time on their hands, the newspaper can be published at least twice a week.”

Giellatekno, which together with Divvun form today's GiellaLT, was originally established at what is now the Norwegian Arctic University in Tromsoe, Norway in 2001, specializing in Saami language technology and working with open source and rule-based solutions. Soon the Saami Parliament in Norway was interested in an organization specializing in the application of research outcomes to practical tool development -- entré Divvun, which in Northern Saami means 'correction'. Today, Giellatekno and Divvun together are known as the umbrella organization GiellaLT, where research and tool development continues, not only for Saami languages but for over 160 languages around the world.

The people at GiellaLT have taken on the challenge of addressing an outside interest in what is actually written in Saami-language publications. They have developed a rule-based translation system for online Saami-language newspapers that allows the interested but non-fluent foreigners a peek into the news media. This means that the writers can spend their time more on what they actually want to do and are good at. At the same time, it must be noted that GiellaLT whole-heartedly develops this translation tool on a small language to large language scenario, but NOT the other way around -- speakers of majority languages can cope with below optimal level texts, but introducing less than perfect machine-translated texts for a minority language would only pollute the environment. Since GiellaLT stresses the concept of reusable code, this system has been enabled in a way that can be readily applied to languages being described in the GiellaLT infrastructure. This means direct support for small languages with limited resources. Native speakers, of course, have a head start in this kind of development; they have a beneficial knowledge of their

own native or heritage language, which they can continue to enhance, but they can also develop additional skills and expertise, which they might use regardless of the language.

Development of language technology for a minority language is not only a way of establishing that language in the digital age. It also means the establishment of new domains for the language. By promoting language speakers as language professionals and facilitators, we are adding esteem to the cultural aspects of the language as well. Language facilitation can also be sped by sharing language-independent infrastructures, such that ready solutions for any number of descriptive, implementation or development issues can be followed, e.g., analyzers for linguists, spell checkers and grammar checkers for writers, enhancement for text-to-speech apps, and translation. Since no one is actually going to become a millionaire describing a small language, we need to provide open-source golden corpora for the chance contributors to the development and description of these languages. To this end, we suggest among others work in the Universal Dependencies (UD) project, where language resources intended for the development of language technology can also be displayed as a scientific citing venue for language research and archives. Universal Dependencies is a project that contains annotated text materials in many different languages, trying to use the same annotation scheme consistently. This makes the language materials comparable in a way that has not been possible before. UD might also serve as a platform for the curation of language understanding, and the annotated sentences can be used and displayed in different environments, i.e. in dictionaries or other applications.

These approaches are largely independent of individual languages. Thereby, although the relevance of language technology for the Uralic languages outside the field of Uralic studies may not be obvious at first glance, there is surprisingly much common ground. Uralic languages are endangered and they have a rich tradition of fieldwork-based data collection. They do have existing language resources, but they are not uniform in their written tradition or transcription conventions, and may need extensive work to be integrated into contemporary language technology platforms. Uralic languages are not alone in this situation, and from this point of view there are many similarities with languages all over the globe. We at the University of Helsinki have had systematic collaboration with our partners in Brazil, and this has given us space to exchange experiences and learn from each other. Our experience from this line of work has been very positive, and in this article, we discuss various points of view where we have found that Uralic studies and work on Amazonian languages can contribute to the bilateral enrichment of knowledge compiled by researchers and language communities on both sides. Although our approach highlights language technology, we are convinced that there are many other aspects where relations such as these can be very important if not vital to the individual language communities.

The environments of the Amazon and Northern Eurasia are quite diverse, and it may be a challenge to align the natural habitats of Amazonian rainforest and Northern Eurasian evergreen forest, steppe and tundra. Thus, there are fewer natural phenomena that can be identified among flora, fauna and fungi by the two sets of speech communities living in these areas, where even the weather is different – snow and ice versus rain every day or all day. The diversity in the environmental differences provides the foundation for diversity in traditional livelihoods, cultures and modes of subsistence. Both regions, however, have numerous endangered languages with a rich history of language documentation and the existence of large, usually underused, archive collections. Language shift is often seen as advancing rapidly, and the loss of

language weakens the cultural relevance of traditional societies. Losing one's linguistic homeland is associated with extensive and simultaneous changes in one's society and integration with surrounding societies. By bringing together researchers who have focused on different environments in their careers, we can accumulate their understanding of nuances in all of our work which is not obvious in a scenario where we confine ourselves to what is familiar to us.

Our work has primarily focused on language technology and applying it to the Indigenous and endangered languages. In the modern world, language technology has multiple applications, some which are very visible in daily life. Keyboards, both on computers and mobile devices, are a good example. This also illustrates how the tools of language technology need to be developed in collaboration with their users: the keyboard has to meet the needs of the language community, and their guidance and collaboration must be included in the project from the beginning. Whether something is needed and wanted should always be the first questions when initiating new work. Working with language means working with the cultural heritage of Indigenous peoples, which directly references responsibilities and implications (see Development of language technology, paragraph 5, above).

The collaboration described in this article was initiated within a project coordinated by professors Pirjo Kristiina Virtanen, Sidney Facundes and Thiago Cardoso Mota. This has included contact and collaboration between researchers at the University of Helsinki, Finland, Federal University of Pará (UFPA), Belém, and Federal University of Amazonas, Manaus, Brazil. Both introduce knowledge exchange, regular travel and stays of the participants in these universities, but also contact maintained in the meanwhile, has been very important in developing various collaborations within the framework described here.

Among the current collaborators, Jack Rueter, has worked with the description of indigenous languages of the Americas since 2014 (Rueter et al. 2021, 2023). While the first descriptions are limited to basic phenomena of Salishan, Sahaptin languages of the Pacific Northwest, his greatest progress has been in collaboration with Brazilian researchers of Arawakan Apurinã and Tupian Sakurabiat/Mekéns. It is in work on Apurinã that collaboration is establishing a workflow where researchers and native speakers together document illustrative use of the language and share this information for finite-state description by Rueter. The collaboration produces many outcomes that enhance the studies of the target languages.

The finite-state description indicated above is used in analysers of Apurinã for the researchers and the possible introduction of a spell-checking instrument dependent upon an Apurinã authoritative organ and an extensive set of open-source keyboards for the Apurinã language. The analyser for researchers is also used in the annotation of texts published in the Universal Dependencies project, but it can also be flipped for use as a generator. The generator can produce word forms for more extensive collaboration between fieldworkers and native speakers interested in documentation of the limitations of regular morphology, i.e., the generator only produces what it is told to produce. If it produces "regular forms" that are not acceptable, the native speaker researcher is able to identify limitations to necessary/possible generation. This, of course, also requires multiple voices in evaluation. Evaluation will need plenty of additional work.

Uralic language technology as an extension of Saami language technology

Language technology, when understood from a broad perspective, encompasses a

wide array of tools and technologies that can be used to process linguistic materials. This implies the need for an infrastructure that might be made available for the study and documentation of several languages at once. Despite the fact that some of the technologies, such as those involved in the construction of rule-based morphological analysers, require relatively extensive language specific development in order to be applied to a new language, there are many aspects of an ideal infrastructure that can be reused. This, in itself, introduces scientific research questions beyond the descriptive and typological ones inherent in linguistic fieldwork – how to build a language-independent infrastructure suitable for language research, revitalization and maintenance.

The construction of an infrastructure for language research makes up a notable portion of any language-research project. In order for the infrastructure to be shared in the study and documentation of several languages, it must not be limited to the structures of an individual language, instead, it should be designed as a language-independent infrastructure with extensive modularity and more than one language-research team to drive it. There must also be certain principles agreed upon by the teams that include adherence to reusability, language independence as well as collaboration with language curating institutions and long-term maintenance and archiving. With a language-independent infrastructure of this nature in place, new language-research teams can follow the lead of teams already working, contribute to diversity and concentrate on their own research. Teams working with Uralic languages in many countries are well aware of the open-source, Saami language-technology infrastructure «GiellaLT» based at the Norwegian Arctic University in Tromsø, Norway. One way to access these tools is a Python package developed by our collaborator (Hämäläinen 2019). At the same time, distinct infrastructures have also been developed to maintain lexical information (Alnajjar et al. 2020). The goal within Uralic language studies has been described as digital documentation of Uralic Languages with open-source tools and modern NLP methods (Hämäläinen et al. 2023). Language documentation has been taken into consideration from early on when developing these methodologies, with various ways to integrate these tools into ELAN files and other tools commonly used in the field (Gerstenberger et al. 2017; Jouste et al. 2022). Collaboration with our Amazonian colleagues has also drawn our attention to the need to address SIL Fieldworks based workflows as well. At least integrating and using data stored in this format in NLP tools would be an important step forward. For many languages the largest collected lexicons are stored in this software. The situation is somewhat different with the Uralic languages, where historical lexical collections from the early 20th century are often the largest and most extensive type of resource, and these have often already been published as dictionaries.

One tool developed for «GiellaLT», which is so common in the documentation of languages and whose importance is seldom considered, is the keyboard. The idea of this tool is that a keyboard be set up for each individual language with one file that describes all layouts for that language, i.e., the layout file should describe the requirements for Android, Windows, MacOS, iPhone, iPad, Chrome and other instances. The motivation for one keyboard for each language lies in the fact that even now, in the Windows operating system, the keyboard tells the computer what the input language is. So, by making an Apurinã keyboard, we are automatically enabling use of an Apurinã spell checker. The challenges of such an undertaking are numerous. First, the standard layout for the majority language of a given country (Brazil) should be noted, i.e., both linguists and language users will find it easier to

begin using the keyboard. Second, the keyboard should provide for all characters used in the modern language and historical documentation, and the strokes required for producing characters and punctuation should be mnemonic from the language users' perspective. Finally, in order to produce a successful keyboard a professional user should participate in the development. In work with the Apurinã keyboard, for example, there were six people involved – two working directly in the infrastructure and four providing extensive feedback regarding key positions in various layouts and the smoothness of download and updating,

Introspection of Amazonian and Uralic language research traditions, archives and actors is a way of providing further impetus to the extension of a shared research infrastructure. By introducing new players with different approaches to similar data sets, research and language revitalization histories, «Language technology in the Amazonian/Uralic context» workshop, conducted in September and October 2023, played an important role in introducing points of mutual benefits for diverse research teams. Awareness of openly available language tools and methodologies will hopefully provide an understanding of where development is needed and can be continued.

Understanding the importance and challenge of larger sets of tools, methods and the modularity of a shared research infrastructure brings the Amazonian/Uralic teams back to the needs and practicalities of individual language research. Whereas morphological analysers are initially constructed for linguists, these same analysers with normative adaptation can be used as components in spell checkers and computer-assisted language learning tools. The analyser, for example, inherently contains the lexicon of the language, which, in principle, can be directly linked to corpus analysis and dictionary creation. The unrecognized forms have to be explicitly explained in the construction of the analyser, and if something cannot be described, this would suggest that something is not totally understood yet.

At times, work with phenomena not completely understood can be enhanced through collaborative or parallel work. Collaboration provides unexpected insight from other research traditions. It shows us the overlap between lexicography, phonetics, morphology, syntax, language learning, even etymology, translation, etc. In a word, collaboration instills an overview of what information is necessary or auxiliary for different aspects of language documentation. It also introduces new open-source venues where many of these overlapping segments might be joined for a better comprehension of the world's languages. One such venue is the Universal Dependencies project inaugurated January 15, 2015.

The Universal Dependencies project produces biannual releases of curated, annotated corpora intended for improved language-technological training and testing grounds. This same project has since become recognized for its potential in the study of language typology. During the past decade, many Uralic languages have been included in the Universal Dependencies project. Lately, the same advancement has been observed in languages of Amazonia and South America more widely. The goal of the Universal Dependencies project is to provide similarly annotated corpora for a large range of languages, with the same annotation scheme and underlying data structure. This makes the Universal Dependencies treebanks a great source for comparative research, and these treebanks have seen increasing use within recent years. Besides this they also form comparable and uniform structures for the development of language technology and tools of natural language processing.

One practical result of this collaboration has been the release of the first Apurinã

Universal Dependencies treebank. The treebank contains fully annotated sentences from the Apurinã language. When they were being created, numerous linguistic questions also had to be addressed. Apurinã was the first Arawakan language in the project, and this alone necessitated that some of the features in this language family be adequately thought over and addressed. It is very significant for the Universal Dependencies project that the languages represent as many language families as possible. And for each language, different genres and styles should ideally also be present.

In 2022 and 2023, language technology courses were taught in direct collaboration between the Universities of Helsinki and UFPA, in Belém. The content of the courses included familiarization with different tools of Natural Language Processing, starting with the rule-based analysers the research group in Helsinki has been working with for a long time in the context of Uralic languages. The lectures also introduced methodologies that can be used to process image-, audio- and video-based materials. This included especially scanned transcribed documents with audio- and video-aligned transcriptions. First, the course was conducted online, and later in Belém. Experiences were very good and we plan to continue this initiative. Different presentations and seminars, both in Helsinki and Belém, complement these longer teaching initiatives in an excellent manner.

Amazonian languages in their own contexts

There are some key differences between the languages spoken in Amazonia and the Uralic languages. First of all, the Uralic languages all belong to one single, well-established language family, whereas in Amazonia there is a vast number of language families and language isolates. This means that the differences between languages are inevitably larger, and the possibilities of reusing materials from one language to the next are less obvious. Learning numerous Amazonian languages takes necessarily more effort than learning various Uralic languages, as it is not possible to build upon similar grammatical structures that are found throughout the Uralic languages and easily reused in a fairly comparable manner in these languages.

The Indigenous languages of Amazonia that we have been working with through this collaboration are, in general, smaller than many Uralic languages, and the areas where they are spoken are smaller as well. The language families that we have been introduced to are Arawakan, Tupian and Jê. The language diversity in Amazonia is all in all much greater than it is in Northern Eurasia. Northern Eurasia attests to at least eight language families. Amazonia, in contrast, is the home of at least ten language families and three language isolates. Usually, Amazonia is reported as having 15 to 20 language families, while in general the typological similarities in the language families of the Northern Eurasia reduce the diversity in this region even further.

Some aspects of dissimilarity between Uralic languages and those of the Amazon actually lie in traditions of their documentation. While both research traditions might well recognize the same phenomena, they might not apply the same terminology. The concept of consonant gradation is familiar virtually to anyone studying Balto-Finnic or Saamic languages, so the presence of consonant variation at word boundaries might immediately be seen as evidence of consonant gradation, whereas the phenomena might actually be a matter of allophonic variation. The terminology used for describing object and subject marking on verbs in Uralic studies is by tradition “objective” and “subjective” conjugation, while description of conjugation marking in languages of the Amazon might refer to “subject-object”

conjugation. Distinctions between languages might even be observed in the virtual absence of counting systems. Linguistic diversity can best be studied through collaboration between specialists working with diverse languages. One example of this can be seen in the open-source Universal Dependencies project where both languages of Amazonia and Uralic languages are receiving more and more attention.

The Universal Dependencies (UD) project is making a concerted effort to find relations for describing all languages of the world. At the same time the UD project provides for the presentation of a new type of open-source text corpora. This is an important aspect in minority language studies whose corpora are not limited to one type (see Rueter & Partanen, 2019). In UD, annotators learn a new awareness, and yet they might become confused when dealing with languages from vastly different environments. Whereas the Uralic languages often have negative auxiliaries, which conjugate for person or indicate tense, mood or aspect, there is often a temptation to call the Apurinã word of negation, which does not conjugate or show tense, aspect or mood an auxiliary when, in fact, the word of negation might better be described as a particle of negation. Collaboration in this kind of project, although initially complicated, can prove to help co-researchers find new solutions for describing the phenomena of each others' language of study.

Another similarity is that while within the majority of the Uralic language speech area the main contact language is Russian, in the majority of the Amazonian context it is Portuguese. The similarity is that a larger, Indo-European language plays the role of majority language. From a wider perspective, of course, this is a simplification, but, in principle, it has many implications. For example, most of the bilingual dictionaries for these languages use the same language as the target language. Similarly a large part of the existing grammatical resources are in that individual target language.

Shared similarities in linguistic data

One central similarity in both the Amazonian and Uralic regions is that in the end the linguistic data types are fairly comparable. Text collections and dictionaries are similar sources, and contain comparable elements, even when they are dealt with in different research traditions. Local research traditions may be different, for example, in the question of what kind of annotations have been preferred, or what the role of historical linguistics has played for the wider orientation of the field. For Uralic studies, most of the traditional research has indeed focused on the relations between various Uralic languages, and etymological research needs that are very closely tied to the meticulously thorough collection of lexicon. At the same time, questions such as language contact have started to be asked just in the last decades. There may be marked differences in how the research tradition of the field has been set in the very multilingual context of Amazonia and within Uralic linguistics. At the same time, when the data itself has been collected, there are certain aspects that are very universal, or at least appear shared here.

There is a great similarity in how much of the existing collected material remains unpublished, and the organization and curation of the data collected during the last few decades continuously demands very extensive resources from the researchers and students working with them. The best practices in the field of language documentation are well understood and there have been decades of discussion addressing desirable workflows, but there is still a very acute need to automate these processes and establish conventions for handling this sort of data as part of the daily

data collection and research workflows. This challenge is no different, regardless of whether the linguistic fieldworker is pondering these questions on the bank of the Rivers Volga or Purus.

The need to represent the same texts in different transcription systems and orthographies, depending on audience and intended use, is also relatively similar. Individual researchers have used diverse transcription systems with different ideas about phonology, and also the orthographies may address different issues at varying levels of accuracy. Linguists may need some information in the transcriptions, and the language users may need something else. The way we would like to frame this problem is that we do not need to choose one system, but ideally transcription and orthography, or some different transcription levels, can be automatically derived from one another. An additional useful part here is that this demands very thorough analyses of the strengths of different solutions, which may further provide orientation in their use.

Some of the technologies investigated in this collaboration are still being adopted both in Uralic and Amazonian studies. For example, we are still waiting for consistent and high-quality results in speech recognition for endangered Uralic and Amazonian languages. There have been individual positive reports (Partanen et al. 2020), but applying these tools in practice has not yet been done. In an ideal scenario, we would be able to use existing transcriptions and their audio to fine tune a speech recognition model for a specific endangered language and a given corpus of recordings. We are nearly at the point where we can do speech recognition for the segments where a local majority language is spoken. Nonetheless, to advance this from individual experiments and tests, it would be necessary to systematically evaluate how well this functions currently and how much work is involved in the correction of the output.

At the moment the text recognition of rare and complex scripts has developed relatively far, such that both printed and handwritten texts can be extracted fairly easily. This easily leads to more effective reuse and publishing of archival materials (Partanen et al. 2022).

Conclusion

Most importantly, Uralic-Amazonian linguistic collaboration described in this study has potential to benefit the speakers of endangered languages by advancing the level of language technology support for these languages. The use of languages in different domains of society is crucial, and the digital environments are becoming commonplace everywhere. The development of language technology allows the use of indigenous-language keyboards on various devices, among these computers and mobile phones. When these devices are used, spell checking and dictionaries are among the tools that are crucial in ensuring that digital communication is effortless and well-functioning. Naturally, there is the question whether the community sees this development as desirable or necessary, but it's important to provide the possibility.

Linguistic work over decades, if not centuries, has resulted in large amounts of materials in indigenous languages that are not currently available to the communities. The methods described here allow digitizing and processing more effectively with many different types of data, which may be of crucial importance when scarce resources in endangered languages can be made better available to the communities from which they originated. Collaboration between the language community members, linguists and natural language processing researchers is continuously of utmost importance, and the language community would ideally guide the direction and priorities of the development.

There are also continuous new developments that have to be taken into account. We've recently demonstrated that even some smaller Uralic languages can be very efficiently processed with Large Language Models (Partanen 2024). Hämäläinen et al. (2024) have also pointed out the need to take these technologies into account, even in the context of endangered languages. At the same time, the questions of ethics and responsibility, as well as data ownership, become all the more important and must be considered carefully and from different perspectives. Recent studies have also shown very promising results in using LLMs in glossing endangered languages (Ginn et al. 2024), which would be very useful in the context of language documentation both in Northern Eurasia and Amazonia. The future remains promising but needs extensive collaboration and understanding of our shared issues and questions. ♦

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‘Animal’ and ‘animate’ in connection to ‘living’ and ‘spirit’ in North Sámi and Finnish

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To collaborate on research with different Indigenous peoples is truly a privilege. In this essay, I share memories from a conceptual-cultural discussion with Apurinã and Tukano Amazonian colleagues,[1] which then brought me to ponder how my Indigenous language—North Sámi—approaches similar concepts and ontologies. In particular, we discussed what terms like ‘other-than-human,’ ‘non-human’ or ‘more-than-human’ would be called in the Indigenous languages we know and use. The Amazonian colleagues Justino Rezende Sarmento, Silvio Sanches Barreto Bará, Rosijane Fernandes Moura Tukano, Francisco Apurinã, and Thiago Mota Cardoso shared that the word for ‘non-human’ in many Amazonian languages also includes the idea of human (see also Virtanen & Apurinã 2024). They revealed that there is no word that separates other-than-human beings (such as animals, plants, rocks and spirits) into their own category, since they are described collectively with one word, which would probably be best translated into English as the word ‘life.’ That made me excited, as I thought that also in North Sámi, ‘animal’ and ‘animate’ are connected to ‘life.’ We do not have a single word for animals, plants, lakes, rivers and rocks either which would not include humans, or differ and not relate to the verb ‘to live’ or the substantive ‘life.’ ‘Animal’ and ‘animate’ in North Sámi (and in Finnish as well, as I quickly after the discussion later recognized) connect to ‘life’ or ‘to live’ and are not their own words in the sense of being removed from ‘life’ or ‘living,’ as it is in English. Additionally, terms like non-human and more-than-human are not easy to translate into Sámi or Finnish, as there are no existing terms for them. Instead, new terms are searched for and created for both languages (see Kortekallio et al. 2021 on searching for Finnish terms).

In this essay, I approach some of the equivalent words of North Sámi and Finnish as a non-linguist, a thinker-out-loud, and a researcher-writer who occasionally gets excited about language. I also thank Jelena Porsanger for the joint discussions. I also use both the Giellatekno dictionary (Trosterud 2013–2022), the Etymological Database of Sámi Languages (Álgu-tietokanta) and the Etymological Dictionary of Finnish (Suomen etymologinen sanakirja), all of which are available as digital databases. I focus especially on the terms ‘animal’ and ‘animate’ and their relatedness to ‘life’ and ‘spirit.’ ‘Spirit’ comes

[1] The discussion on May 24, 2024, in a final seminar of TFK-Project funded by the Finnish Education Agency, which enabled a staff and student exchange project between the University of Helsinki, the Federal University of Amazonas, and Federal University of Pará.

into discussion through one old term on natural objects, which happens to be related to blessing in North Sámi.

According to linguist Minerva Piha (2020), the Sámi language(s) and the Sámi people came to the areas of present-day Southern and Lake Finland from the Ladoga region at the beginning of the Common Era. The Sámi and Finnish languages both have a common origin (Finno-Ugric languages) and have borrowed from each other, currently following the borders of the Nordic countries. They have borrowed words from the dominant language cultures surrounding Sámi, but also the other way round, Finnish and Nordic languages have borrowed words from the Sámi languages. Perspectives on these exchanges are being variously refined and emphasized in multiple slightly different ways in the latest studies by linguists, but in any case, all the Nordic languages including Sámi languages are connected with each other in different ways (see, e.g., Saarikivi 2011). For this reason, in this essay I will discuss not only North Sámi as an Indigenous language but also Finnish in parallel—first, because they are both my mother (and father) tongues, and secondly, because it is inspiring to show their similarity. Since I am not a linguist, I feel free to make wild, virtual interpretations and I can let my imagination flow (see also Guttorm 2020). Learning Sámi as an adult helps to recognize the obvious in Sámi and to think through it, for example, in terms of the already widely used North Sámi and Finnish terms for 'animism,' which is translated simply into *animisma* (North Sámi) and *animismi* (Finnish), even though in that translation the Sámi and Finnish wisdom related to the roots words 'animate' and 'animal' go lost.

Sámi and many other Indigenous languages are often said to be verb languages (see, e.g., Gross 2014, 83–99). Things are spoken of and about in different forms of verbs, and nouns are often based on verbs. That is why I will start with the verb *eallit*, 'to live.' In the etymology of the Sámi language, the word *eallit* has many other meanings in addition to the meaning of 'to live': to be subject to bending (e.g., iron on a sled); to cope, to manage (without hunger), to be able; to visit somewhere (though I have not come across the latter meaning myself during my ten years of knowing Sámi). In Finnish 'to live' is *elää*, which also have multiple meanings and uses.

The verb *eallit*, 'to live,' has given rise to many verb derivatives over time, which are now considered adjectives or nouns. *Ealli* means almost exclusively 'animal' in Modern Sámi, but it is based on the verb *eallit* and can be directly translated to both 'living' and 'alive,' as also Ingold (2000) and Sammallahti (1993) state, according to Helander-Renvall (2010, 48). This is also the case in Finnish, as all the different variations throughout the known history[2] for the words *elävä* ('living', 'alive', also about both 'animal' and 'human being', in Finnish) and *eläjä* ('a living being') have been based on the verb *elää* ('to live'): *elin*, *eliö* and *eläin.* In both Finnish and Saami, animals (*eläin* in Finnish and *ealli* in North Sámi) do not include plants (*šaddu* in North Sámi and *kasvi* in Finnish), a concept that in both languages is based on the verb *šaddat*, 'to grow.' Today, the etymological dictionary of Finnish (Suomen etymologinen sanakirja) distinguishes an animal from a plant by defining the former exactly as organisms whose "characteristics include, among others, use of organic food, lack of cell walls and usually the ability to move actively."

According to Sámi scholar Jelena Porsanger (in a conversation between her and me 5/24/2024), *ealli* has the skill of maintaining life. *Ealli* thus gets by and sticks to life.

[2] See https://kaino.kotus.fi/ses/?p=qs-article&etym_id=ETYM_99ad44d1fd1face9ce6bf52c225e2c0e&list_id=1&keyword=eläin&word=eläin

According to her, an *ealli* is an animal that has blood. Even though one normally calls a bird *loddi* and a fish *guolli,* the word *ealli* can also be used in general terms as a collective noun to name a group of animals regarding to their ecological habitat, like *meahcce-ealli* (‘forest animal’), *duottar-ealli* (‘tundra animal’) or *mearra-ealli* (‘sea animal’). Also, in Finnish the word *elävä* (‘living’, ‘alive’) is still used in conjunctions, e.g. *merenelävä* (a living being, therefore an animal, of the sea) or *ulkomaanelävä* (a living being of a foreign country, which therefore refers to a foreign person)[3].

When I asked Jelena whether a person could also be called *ealli*, being ‘alive’ or ‘living,’ Porsanger was of the opinion that it might be inappropriate to call someone *ealli.* Also, in Finnish the word *eläimellinen* (animal-like or brutish or subhuman) has been or is still used to refer to some people, repeating and reconstructing the animal–human dichotomy. *Ealli*, ‘alive’ or ‘living’ can though be connected to the word person to specify that a person is alive, *ealli olmmoš*, as opposite to a dead one, but it is seldom used, as there are other ways to say this. *Eallilan olmmoš* is a person, who has lived long, an aged person. Also, *eallin*, ‘life,’ is a derivative from the verb *eallit,* more precisely an active essive: *eallimin*, which means ‘as alive’ or ‘in life’ and has contracted into the word *eallin*. So, both *eläin/ealli* (‘animal’) and *elämä/eallin* (‘life’) in both Finnish and Sámi are based on the verb *elää/eallit* (‘to live’) and mean ‘living’ or ‘(as) a living being.’ Overall, the verbs *eallit* (North Sámi) and correspondingly *elää* (Finnish) have many verb, adjective and noun derivatives in both languages. Here I will not go deeper in these here, but mention that for example in the reindeer husbandry research project EALÀT the word *eallit* has been studied in more depth:

“The term «ealát» is from the language of the indigenous Sámi people of Fennoscandia, and means «good pasture». This word is related to the term «eallu», which means «herd» and the origin of these terms derives from the word «eallin», or «life». In other words, pastures are the foundation for the reindeer herd, and reindeer herds are the foundation for the lives of reindeer herding peoples.” (Oskal 2009, 5.)

The word ‘animate’ in both North Sámi and Finnish is based on the verb ‘to live’ and includes all living beings: *ealas* (‘animate’ in North Sámi) and *elollinen* (‘animate,’ literally translated ‘having a life’). In North Sámi also, the word *heakkalaš* is used for ‘animate,’ literally translated ‘having a spirit or a breath.’ In Finnish, the word *eliö*, ‘organism,’ is a derivate from the verb *elää*, ‘to live.’ In both Sámi and Finnish languages, all living beings, ‘organisms,’ can also be called ‘a piece of nature’: *luondugáhppálat* in North Sámi or *luontokappale* in Finnish, or just *gáhppálat* (‘a piece’) in North Sámi.

In North Sámi, ‘organisms’ can also be called *sivdnádus* (literally and traditionally translated as ‘blessing’ or ‘creation’, ‘creature’, even ‘all the Creation work’, see Sjöberg 2018, 92, 152). *Sivdnádus* is based on the verb *sivdnidit* (‘to create,’ used especially about God, and ‘to bless’) and/but it currently means a ‘natural object,’ ‘animate’ and ‘nature,’ according to both the Álgu database (Álgu-tietokanta) and the Giellatekno dictionary (Trosterud 2013–2022). The meaning of *sivdnánus* has therefore almost totally detached from the verbal root of the word. Also, the word *sivdniduvvon* (‘blessed’), a passive form of the verb *sivdnidit*, can be used. Both *sivdnádus* and *sivdniduvvon* are less frequently heard in everyday use today, but as can be seen from the dictionary definition, at least *sivdnádus* has almost completely lost its Christian context – and content, too.

[3] I thank Anni Jääskeläinen for commenting this text and reminding me of these words!

In the Sámi language, earlier there was no distinction between nature and culture; the word *luondu,* 'nature', was not used to refer to the environment but to the nature of a person or animal, that is, their character (see, e. g. Joks et al. 2020; Guttorm 2021). Actually, that is the case also for Finnish – *luonto*, 'nature', has been and still is widely used in the meaning of the nature of persons and things, and in some dialects, even more than in the meaning of the environment outside the habitat that man has shaped for himself (Suomen murteiden sanakirja/Dictionary of Finnish Dialects) [4]. All places and lands – and living beings – have their own special character, as Elina Helander-Renvall (2010, 46) writes. In a previous article (Guttorm 2021), I introduced some words of the variety used for different landscapes and terrains, although the word *luondu* ('nature') is already in use in modern Sámi. When the word *sivdnidit* ('to bless') is identified and understood as Christian-influenced and thus been used only after missionaries' visits and Christianization, it leads to me to the question of what words for 'natural objects' or 'organisms' or life including all living beings were used before, before Christianity and before 'nature' was distinguished from everyday life, in North Sámi. Was the term *heakkalaš* ('animate,' or literally translated 'having a spirit or a breath') used already then? Who indeed knows? This could be further re-searched with traditional scholars and knowledge holders.

In the Sámi language, the word for 'spirit' has two words: *vuoigŋa* and *heagga*. The verb *vuoigŋat* means 'to breathe,' and many words related to resting begin with *vuoigŋa*. According to the Àlgu-database *heagga* means both spirit, life, body[5], and even uterus, as *vuoigŋa* means spirit, spirit being, and also stance and mood. *Heagga* is the closest equivalent to the Finnish word *henki*, which means 'spirit' or 'breath,' but also a 'human being' (with a breath) or 'person', as for example, how many persons were present or can fit in a certain space. According to linguist Anneli Räikkälä (1996), it originally meant the airflow caused by breathing but also spiritual life, God and the divine aspect of man. I would say that 'spirit' no longer refers solely to God (of Christianity) or the divine aspect of man, but it can also refer to spirits other than Christian spirits. According to the etymological dictionary of Finnish, *henki* means 'breath,' 'respiration' or 'breathing air,' 'life,' 'soul,' even 'a spirit being' or 'ghost,' and currently also 'a person.' The Finnish words *henkinen* and *hengellinen* distinguish currently quite clearly between 'mental' and 'spiritual,' as do the North Sámi concepts *heakkalaš and vuoiŋŋalaš*. While the Finnish concept of 'spiritual'(*hengellinen*) has been traditionally associated specifically with Christian spirituality, the Sámi word *vuoiŋŋalaš* does not distinguish between Christian or non-Christian spirituality and it also can mean 'mental' (Sjöberg 2018).

According to Räikkälä (1996, 1), the word for 'person,' *henkilö* (derived from the word *henki, '*spirit*')*, was "coined by Wolmari Kilpinen in the mid-19th century to correspond to the Swedish [and English][6] word person." In North Sámi, when talking about 'persons,' the word *persovdna* ('person'), borrowed from Germanic languages, is currently widely used. In Finland, the ambiguous word *henki* is still used for 'person' (*henki/henkilö*) and also as a derivate in 'personal' and 'personnel' (*henkilökunta*). When Elina Helander-Renvall (2010) presents the Sámi worldview from an animist perspective, she refers to a poem by

[4] https://kaino.kotus.fi/sms/?p=qs-article&sms_id=SMS_4cecd3761d1fe29abd503fa0101f1830&list_id=1&keyword=luonto&word=luonto

[5] For 'body' we have in both Finnish and North Sámi at least two different words, in which the flesh is either more or less present. In this essay I do not continue this path either but suggest reading Finnish feminist scholars like Sara Heinämaa (e.g. 1996).

[6] My insertion.

the Sámi polymath and shaman Nils-Aslak Valkeapää (1994), who writes: "we have lived here from generation to generation […] when they come they will find this land, us, and *we are* stones, plants, animals, fish, water, wind, earth, sky" (author's emphasis). Based on this, Helander-Renvall (2010, 47–48) concludes that deities, stars, planets, animals, spirits and diseases have the ability to manifest as persons. I am wondering, if Helander-Renvall was writing in Sámi or Finnish, would she perhaps use the term *heagga*/*henki*? Helander-Renvall (2010, 47–48) also states that although humans and non-humans are seen as reciprocal actors, they are clearly two different categories in the Sámi worldview.

In conclusion, both 'animal' and 'animate' in North Sámi and Finnish have their basis in 'life' or 'to live,' as in many Amazonian languages. In both North Sámi and Finnish, 'animate' (*ealas* in North Sámi and *elollinen* in Finnish, the latter literally translated as 'having a life') derives from either the substantive 'life' or the verb 'to live.' Also, 'animal' (*eläin* in Finnish and *ealli* in North Sámi) is based on the word 'to live'/'life,' and it means a living being—just like a human being also lives. The difference concerning both these words is that in Sámi the noun still has its verbal component, but in Finnish the noun is clearly a noun, being also based on a noun. In addition, *eliö* ('organism') in Finnish derivates from the verb *elää* ('to live'); in North Sámi the nearest term for 'organism' would be *sivdnádus* (literally translated as 'blessing') or *luondugáhppalat* (literally 'piece of nature'). These words could be used when discussing the widely used terms 'non-human,' 'other-than-human' and 'more-than-human,' indicating that in both North Sámi and Finnish, both 'animate' and 'organism' are based on 'life' or 'to live' and thus also include both people, animals and plants. In Finnish also *elävä* ('living', 'alive') could be used as such including both humans, animals, plants and everything we understand as alive. Such a beautiful, a bit dialectal word, but useful as such.

As an expansion I could add that in Finnish, in geological and biological understanding, even though not necessarily in people's own personal understandings, *elollinen luonto* 'animate' does not include water, air, rocks and celestial bodies, which are seen as *eloton luonto* ('inanimate nature,' literally translated as 'lifeless nature'). So, while English 'animate' seems in some sense to be connected to the ability to move, feel and know, in Finnish 'inanimate' is seen as 'lifeless.' In these kinds of categorizations, spirits are then seen just as supernatural or unearthly beings. But as noted above, 'spirits' still live in the designation of individual human beings: *heagga* (North Sámi) and *henki* (Finnish), meaning both 'spirit' or 'breath' and 'a person.' However, Swedish and other Anglo-American languages have influenced even in the Indigenous North Sámi language, as the word *persovdna* ('person') is taking over *heagga* ('person,' literally translated as 'spirit'). In North Sámi, however, *sivdnádus* ('organism' in dictionaries, like seen above, but literally and traditionally translated also as 'blessing' or 'creation', 'creature', and even 'all the Creation work') though can be seen to include the whole planet Earth as its content.

By going to the roots of the everyday words in Indigenous North Sámi, but also in Finnish, we can recognize the deep spirituality and understanding of connectedness to 'Life' as such. Let us acknowledge that and respect the Life and Creation in everything, both human and other-than-human living beings and Creatures. Another outcome would be to try to hold on to the connections which multiple Sámi and Finnish concepts have to or with Earth and Life. As 'animism' is currently rendered as *animisma* (North Sámi) or *animismi* (in Finnish), the connection to the root words 'animal' and 'animate' get lost in those direct translations, like we saw above. I think we should be more careful when translating theories and isms into these land- and life-based languages. As 'animal' and 'animate' in (North) Sámi and Finnish languages are connected to life and having a spirit, maybe 'animism'

could as well. Could ‘animism’ be translated, for example, as *elollisuusoppi* or *eläväisyysoppi* (‘theory or science of having-a-life’) or *hengellisyysoppi* (‘theory or science of having-a-spirit/breath’)? In North Sámi these words could be something like *ealasvuohtaoahppu* or *vuoiŋŋalašvuohtaoahppu*.

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Reflection on Indigenous Objects That Leave and Return to Their Territories

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Between May 20 and 24 of 2025, an exchange of knowledge, experiences, and perspectives took place between Indigenous and non-Indigenous researchers in Helsinki, Finland. This exchange was part of a collaborative project involving the universities of Helsinki, UFAM, and UFPA, under the initiative: *Indigenous Studies, Traditional Knowledge, and the Environment in Amazonia-Finland Cooperation*, funded by TFK, program of the Finnish State Education Agency. The activities occurred in various university spaces, fostering engagement, interaction, and meaningful outcomes.

One topic that captured my attention was a presentation by Dr. Jelena, from the Sámi Indigenous people, about Indigenous sovereignty over research data, principles, and the spiritual and technological significance of objects produced in their territories.

Dr. Jelena spoke about her work at the Sámi Riddo Duottar Museum in Norway, particularly her efforts to negotiate with European museums to repatriate Sámi objects to their places of origin. While the goal is the physical return of the objects, in cases where this is not possible, digital repatriation serves as an alternative.

Her presentation highlighted musical instruments like the "drum," which in Brazil is known by the same term. Many drums, vital to Sámi shamans' work, have been taken by researchers and are now held in European museums. Dr. Jelena shared images of those drums, which she documented as part of an effort to bring them back to her communities, and she was visibly emotional as she emphasized their material and immaterial significance.

She referred to them as "sacred objects," illustrating the profound connection between the objects and Sámi spirituality. This sparked a fascinating discussion, particularly when Dr. Justino, an Indigenous researcher from the Tuyuka people of the Rio Negro region in Brazil, questioned whether the objects, upon their return, might still feel "orphaned" due to the lack of people with the specific knowledge of how to handle them.

This issue resonated with my own Apurinã people, who traditionally live along the Purus River and its tributaries. One of our sacred instruments, the *kamatxi*, is held in a museum in Berlin, Germany. The kamatxi, made from the bark of the jutaí tree and nearly two meters long, was used in a ritual also called kamatxi. The ritual, reserved for shamans (*myyty*), involved a complex and sacred practice that connected humans with spiritual beings from other realms.

Today, this ritual is no longer performed, and knowledge of it has diminished due to various factors. The kamatxi served as a medium for inviting spiritual entities, whose arrival was marked by natural phenomena like rain and storms. The instrument, the ritual, and the spiritual beings themselves are all referred to as kamatxi, highlighting the profound interconnectedness of the physical and spiritual realms.

In reflecting on these stories, the return of Indigenous objects raises complex questions. While the physical repatriation of such objects is vital for cultural restoration, it also requires ensuring that the spiritual and traditional knowledge related to them is preserved. Without specialists to handle the sacred items, their reintegration into Indigenous communities could pose challenges.

Nevertheless, I believe it is worth fighting to bring such objects back to their original territories. Their return could restore a sense of belonging, reconnecting them with their rightful communities – both human and non-human.

So, dear readers, what is your opinion on this matter?

Ʉtãpinopona makʉ kũ tʉgeñare

Reflections of a Tuyuka scholar on the importance of knowledge exchange between the University of Helsinki (Finland) and Federal University of Amazonas (Brazil)

Justino Sarmento Rezende Tuyuka Dʉpó
Federal University of Amazonas

Kumã 2017 niri Antropologia Social kʉã hĩrere bue nʉkãwʉ yʉ, pairiwi bueriwi Universidade Federal do Amazonas wametiri wipʉ. Kumã 2021 tiere bue yapadowʉ, doutorado kʉã hĩrere.

In the year 2017, I began my doctoral studies in social anthropology at the Federal University of Amazonas (UFAM). I completed my doctorate on October 5, 2021.

Kumã 2022, dezembro nirĩ, Thiago Mota Cardoso, Programa de Pós-Graduação em Antropologia Social padegʉ, Antropologia buera pohterimakarãre wedewi: niawʉ to, sika Projeto "Estudos Indígenas, kʉã mahsirẽre buere niero, mahkarʉkʉ makañere buere niero ano Amazônia makãra, tiebiri Finlândia makarãna," hĩ wedewi.

In December 2022, Professor Thiago Mota Cardoso, from the Graduate Program in Social Anthropology, presented the project "Indigenous Studies, Traditional Knowledge, and the Environment in the Amazon-Finland Collaboration" to Indigenous academics.

Yʉ tʉgeñari pairo nirõ titʉ, yohamarõpʉre waña tiritʉ yʉha hĩre heatʉ yʉ tʉgeñarepʉre, kʉãye wedere (inglês, finlandês) mahsĩriga yʉha hĩre heawʉ yʉ tʉgeñarepʉre. Peé tʉgeñare nirotiwʉ.

In my view, the project was quite ambitious. I thought to myself: I have never traveled as far as Finland. I said: "I don't know how to speak Finnish or English." I thought about many types of situations that could emerge.

Kuimipokʉ, warobokuto topʉre, marĩ mahsĩrere newaro bokuto hĩ tʉgeñawʉ, bʉrekori kañe baua tiero niãwʉ atienohã, apeye ditaripʉ nirã basokare marĩ mahsĩrere newaro boku ano Amazônia makañe, Brasil makañe mahsirẽre, hĩ tʉgeñawʉ yʉ.

Even though I felt uncertain, I also believed it was necessary to take our knowledge to faraway places and share it with other peoples. I also said to myself: “Good opportunities don’t come around all the time – now is the time to bring the knowledge of the peoples of the Amazon and Brazil to other countries.”

Yи tиgeñarepи peé nitи yиre, ya wedera kиã niretire, kиã niri dita, Rio Negro, Amazonas-Brasil popeapи nihirã kиã mahsirẽ bauanerige, kиã paderetire, kиã tиgeñare nitи. Tiere yи newagиda hĩ wãkututuawи yи.

I was aware that I would be carrying the knowledge of many Indigenous peoples from the Upper Rio Negro region, from Amazonas/Brazil, and speaking about their ways of life, their working techniques, and their worlds.

Yoaro wagиdи timia yи, hĩ wãkurи kuwи, yи, inglês wedese mahsĩri, tиoñeri tiãwиrã yи, hĩ tиgeñawи. Deroti wedesegиdari yи wagиrиha, to makarãpиre wedegи dero tigиdari yи, hĩrukuwи yи.

I was very worried – how would I travel without speaking or understanding English? I also wondered how I would convey the knowledge of the peoples from our region without having mastered the English language.

Peé tиgeñare nimipokari, añuhãdaku to, hĩrukuwи yи. Yи boró wagиme timiwиrã yи, kиã paká buere dutikoropи wagи timiwиrã yи, inglês wedese mahsirãka wadakia hĩ wãkutuawи yи.

These concerns also opened new positive perspectives for me. Each day, I convinced myself that everything would go well since the trip was being planned by the professors, who would serve as translators and act as bridges in our efforts at communication.

Helsinki иsã (Thiago Cardoso Mota, Silvio Sanches Barreto) eheari siro, Rovanieme wametiri makãpи newawa иsãre, Antropologia buera paи neakumuã tihirã kиã bue, saiña mahsiõ kиã tirigere wedera tiwa. Ũsã Amazônia makarãka, marĩ ñekиsиtиã mahsirẽre wedewи иsã, inglês mena wedekowa kиã aperãpиre, paи niwã иsã wederé tиodиgara. Yиsиahamawи timakãpиha, yиsиare butire mana wahĩro koãwи.

As soon as we (Thiago Cardoso Mota, Silvio Sanchez Barreto, and me) arrived in the city of Helsinki, we continued our journey to the municipality of Rovaniemi to participate in the International Conference of Anthropology, where various researchers presented their studies. We, from the Amazon, shared the knowledge of our ancestors. The translators conveyed our words in English, and many participants were eager to hear what we had to say. That city was very cold and covered in snow.

Helsinki pиre potá eheara peé bиewи иsã, to makarã buere masirã peé kиã masirẽre wedewa bиrekori kañe, иsãre. Ũsã pekã wederukuwи, anopиre marĩ niretire, marĩ tиgeñare.

When we returned to Helsinki, we encountered a wealth of knowledge. The researchers shared many of their insights. Those of us from the Amazon shared with them the knowledge of our grandparents.

Ũsã peka, ano Amazonas pи, UFAMpиre иsã buemиarerẽ wedewи, иsã kañe bue, saiña masĩ ti mиarerẽ wedewи.

We shared our research practices and results from work done at UFAM.

Fig. 1. Thiago, Pirjo Kristiina, Silvio Bará, and Justino Tuyuka at the Conference in Rovaniemi.

To makarã Sami basoka wedewa, кнãye kiti, кнã bayiri buemнa пнkã masirẽ, кнã padebнa tirere wedewa кнã. Peé nirõtiwн, тноñe petinoña maniwн bиri.

The Sámi shared their stories and showcased their knowledge and sciences, which they had organized through research and the structuring of their work. A vast amount of knowledge emerged – it was impossible to remember everything.

Basoka кнã wederere aperãpere apeye ñemedari mena wedeko tire, tie niromakañe nirõ tiwн tieha. Rovanieme, Helsinki, Manaus-pн иsã wedekameyo tiwaru киri, wedekora niwã, baiyiro wisioro watoa tira timiwãra кнã, añuro wedeko basioada hĩra, кнã тиgeñarepиre ñasa пнkã, wedekora timiwãra кнã, apereme nirõ tiwн tiekã, masirãye nirõ tiwн.

In Helsinki, Rovaniemi, and Manaus, the work of translating ideas from one language into another was crucial. It is not an easy task, as it also requires understanding the conceptual, social, and cultural framework of another language as well as the mindset of another people.

Añuro wede masiõ tira, иmнã, numiã, añuhamarõ menirã nirã tiwa, wedese menirã. Кнã te ti paderige, иsãre baiyha marõ иseni peoga уиha, кнãra иsã тноñeri tiboriro, wedemasiõ tirukuwa, кнã, biro ti wedea daku тнã кнã hĩ buerira nirã timiwãra кнã.

A good translator is an artist, performing incredible linguistic acrobatics and movements. I am immensely grateful for the solidarity of those who, with patience and dedication, carried out this work.

Buego Pirjo Kristiina wametigo, peé tiapuwo ko иsãre, иsã topн nire bиrekorire иsã wedese kamesã tiadare nipetiro keno kũ tirigo niwõ ko. Topн makãra pohterimakarã Sami wametira mena, иsã wedese kameyo tiadare nipetiro kenorigo niwõ ko. Кнã Sami wametira niwã Finlândiapи, Suéciapи, Noruegapи tebiri Russiapи.

Professor Pirjo Kristiina (Virtanen) facilitated moments of dialogue with various groups, such as the Sámi scholars and other people. They are the original inhabitants of a vast territory that spans Finland, Sweden, Norway, and Russia.

Sami basokaha, marĩ ano Brasil-makãra, América latina makãra tiro biro bauriwa kнãha, merã bira nirã tiwa. Kнahã añuro butira ni, kнãye poakã soãre niwн, kнãye kaperi yasare nirõ tiwн, pekasã tiro biro baura nirã tiwa.

The Sámi people, unlike the Indigenous peoples we know from Brazil and Latin America, are quite different, even in their physical appearance. They have fair skin, blond hair, and blue eyes similar to other citizens of Finland, Sweden, Norway, and Russia.

Basoka Sami mena нsã wedese tirige añuhamarõ wagн to. Kнahã peé pade bнarira nirã tiwa, kнã bue mнarige añuro keno kũ tirira niwã, atie biblioteca kнã hirẽ, museu hirẽ, universidade hirẽ kнorapн niwã. Tie kiti wederi tнora, birope ti padero bokuto marikãre, hĩ tнgeñare wawн to maripere. Peé masirẽ kно, keno kũ tihirã, apeye ditaripнre, kнã masirerẽ kio pesaro mena iña, padeono tirapн niwã kнãha.

The opportunity to talk with the Sámi was quite important for us, the Indigenous academics who were able to be there. We discussed how they organize their studies, libraries, museums, and universities. This kind of conversation is valuable for us – it opens new perspectives on life and inspires new dreams. The Sámi have an international presence and are recognized as an Indigenous nation.

Usã topн bue kamesã tiwarukurige, peé padere waro tiwн, kнã нsãre boka ñerirare, sно paderirare, нsã hearira terora. Usã buerigere UFAMpн buera nihirã, marĩ masirẽ bнarige mena padeapн tiada marĩ hirẽ niwн. Helsinki makarãka нsã masirẽ kũrige wakũadakia kнã, hĩ tнgeñawн нsã.

All the moments of the project were intense, both for us and for the hosts. It is a project that should yield good results for the PPGAS/UFAM as well as for the University of Helsinki.

Basoka masirerẽ kнã buerigekã peé nirõtiwн topнreha, añure wiseripн, añure tatipapн kнã kenokũrige nirõ tiwн. Kнã wedesere kãre kнã añuro bue, kenokũ tirige nirõ tiwн. Tie kнã kenokũ tirigere pan basoka, tiere bнe dнgara no, bнearo hirã, tie wiserire hoã nнkõ, bue dнgara norẽ wede timenihãwa kнãpнha. Tie wiseri añuhamarõ kenokũrige nimipokari, kenomнdнgara wiora kнã wapaye nemorõ bнara tiwa mena.

With respect to anthropological studies, in Helsinki they have a rich body of materials. When visiting the museums, we observed a diversity of well-organized anthropological and linguistic themes. This knowledge is made available to the interested public. Despite everything appearing very well-structured, they still feel the need for greater investment so their research can advance further.

Kнã wedere buemнãrakã, añuro kнã kenokũrige nirõ tiwн, atie mama kнã bue bнarige mena (tecnologia) kenokũ tirira niwã kнã. Añuhamarõ buetiritн atiereha. Tieno makañere buenнkãripнre borotiwн yн iñari, tebiri atie informática kнã hirẽre masirã botu niwн. Tiere marĩ masĩriatã wisio niwн.

The issue of language and its organization when using new technologies is highly important. We had little time to delve deeper into this topic. I realized that one would need a background in linguistics, proficiency in computing, and a good understanding of English to learn effectively. I felt quite limited in this regard.

Peé watoare niwʉto bayihamarõ yʉre tʉgeñari tirige. Kʉã ñekʉsʉtʉapʉ, marĩ pʉtopʉ tirobirora, kʉã yaiwa kʉorige, kʉã masirẽ kʉorigere añuro, añuri wiseripʉ kʉã tiere padore, añuhamarõ iñatʉ yʉha kʉã teti padeorere. Tieno bʉedʉgagʉha topʉ buero bomiwʉ. Tiere tʉo, tie kʉã wamorẽ yʉ iñari peé tʉgeñare eheatʉ yʉre, yʉ ñekʉsʉtʉakã, Oko Ñiriya makarãkã atienorã kʉomirira niwã hĩ tʉgeñawʉ yʉ.

One issue that caught my attention was the strong presence of shamanic themes and shamanism. They are present in the materials organized in museums and archives and the subject of paintings and oral narratives. This realization inspired me to reflect on and deepen my knowledge of my relatives from the Upper Rio Negro.

Bayiro ʉsenire eheawʉto yʉre, sikato eheagʉ timiwʉrã yʉ. Aperãka yʉ tirobirora niromakañe bʉaro boga yʉha. Marĩya dita niãrigʉ ape ditapʉ marĩ kamesãri, apeye tʉgeñare bauawʉto, marĩ niretire nimipokari, merã tʉge iñanowʉtosa. Yoaropʉ nigʉ marĩya ditare kameñako tigʉ, merã sañuro inãnowʉto, atie marĩ bue tirekãre terora.

I was pleased to have participated in this first exchange and hope that other colleagues will have the opportunity to take part as well. It is beneficial to step outside our Amazonian environment and experience other cultures and universities. The experience has even helped us think differently about our own Amazonian region and the academic degree programs.

Helsinki makãra buera, Sami basoka, eheawa kʉãka marĩpʉtore, Universidade Federal do Amazonas (Manaus) wametiropʉre, ati dita, paʉ poterimakãra kʉã niri ditapʉre. Añuro warotiwʉ, kʉã ʉsã bueriwipʉ, ʉsã niri makãpʉ kʉã ehearo. Poterimakarã PPGASmakãra, Colegiado Indígena makãra, kʉã mena wedese tiwa, kʉã wede tiri tʉowa, peé masirẽ bʉaratiwʉ.

The professors from Helsinki and representatives of the Sámi people visited UFAM's Manaus campus, in the lands of the Amazon, home to hundreds of Indigenous nations. For us, this was very significant, as the students from the Graduate Program in Social Anthropology, along with the participating Indigenous college, benefited greatly from the experience.

Finlândiapʉ niarira ano Manauspʉ heararehа apero niro tiwʉto, kʉãya ditapʉ tirobiro yʉsʉa tiria anopʉha, asiri dita niro tia, marirẽ asituware tiri dita nirõtia. Tiera nirõo tia, marĩ merã tʉgeñara, merã nirẽ ditaripʉ nirã nimipokara, neakumo marĩ masirerẽ wede masiõ tire.

For those who came from Finland, being in Manaus was a chance to experience the extreme heat of the region and the sweat running down their bodies. It was also a moment of intercultural co-living.

Ʉsã poterimakãra inglês wedese masĩri, tiere tʉoñeri, kʉã Finlândia makarã pekã portugues-re tʉoñeri, wedese masĩ, tireno ʉsã paderere wisioro wari tiriwʉ, tie menarã wedese kameyo, masĩ ware nirõ tiwʉ. Finlândia makarã anopʉ Amazôniapʉ nirã basoka kʉã niretirere, kʉã paderetirere, kʉã buemʉatirere masiwã kʉã.

The difficulties we encountered by not speaking English and that those who came from Finland encountered by not speaking Portuguese did not become barriers but rather served as bridges for establishing exchanges. The visitors learned how the peoples of the Amazon live, what they do for work, and what they study.

2024 maio muipũ nirĩ Helsinkipн eheawн нsã, niwã buegн Thiago Cadoso, doutorado buego Rosijane F. Moura, daseayo, yн dokapuarayн Justino.

In May 2024, Professor Thiago Cardoso, PhD candidate Rosijane F. Moura, postdoctoral researcher Justino (Sarmento Rezende Tuyuka), and myself participated in another exchange program at the University of Helsinki (Finland).

Нsã eheari siro, buego Pirjo Kristiina, Helsinki makarã кнã kamesãropн нsãre newawo, topн nitoarira niwa Brasil-makarã topн ni, topн pade, buerano. Topн кнã yarige newarigere yapн tiwн нsã, añuro нsãre bokañe tiwa. Yatoare siro кнã mena Parque кнã hirõre kamesã tiwн sikãro mena.

After our arrival in Helsinki, Professor Pirjo Kristiina took us to a city park, where other Brazilian researchers who had arrived earlier, along with other Brazilians living in Helsinki, were participating in a picnic. We were warmly welcomed, shared a meal, and then continued exploring different parts of the park.

Нsã kaniri tatiapн pota eheara wedese nayõ tiwн, нsã masirã sẽwa warukurere. Dero ti tihirã tiere merã marirẽ tiapure warore tibokura marĩ, wedesewн; marĩ poterimakarã kã peé merã waro watoa nirarã tiawн marĩ atie bнrekoripнre, atie makãrикнri merã do niwawн to, hĩ wedesesн нsã do, poterimakãra do.

At the hotel, we discussed our research projects and how to transform our dreams into actions that contribute to a new anthropological perspective within the contemporary Indigenous context and amidst the continuous environmental changes happening worldwide.

Sika yerisãribнreko niri sikawi tiatopнmakañe кнã, keno kũre, basoka iña dнgarare, wede masiõ кнã tiriwipн (Museu da História Natural). Peé nirõ tiwн tiwipнre, minipona, waikнra sutiri niwнto. Tie menarã wimarãre, bнtoare bнemнa tirara tiwa кнã.

On a Sunday morning, we visited the Natural History Museum, where we encountered diverse realities from various continents. The museum offers an educational perspective for future generations.

Pekasã, poterimakarã кнã masirẽre кнã saiña warukure, нsã poterimakarakã кнã pekasã tirobirora saiña warukurere buewн нsã.

We studied extensively about research ethics, both from non-Indigenous and Indigenous perspectives.

Yн тнgeñata marĩ poterimakarãka, matapнre atie bнreko niretirere saiña, bнemнatirira nirã tiwн marihã. Atie makãrикнri niretirere añuro masĩrira nirã tirira niwã marĩ ñekнsнmнa, ati bнrekore waikнra nirãre añuro masĩrira niwã кнã, ñokoã кн biretirere, dia pairo ware, dia wetidiare masĩrira niwã bнtoapн, yukнrika niretire bнrekorire masĩrira niwã, waikнra nimpetira кнã niretirere masĩrira niwã.

In my view, Indigenous peoples have always been researchers of various realities, developing concepts to categorize the vast knowledge they possess about biodiversity, cosmic beings, waters, constellations, the different water cycles (floods and ebbs), the flowering and fruiting seasons, and the lives of animals that are interconnected with the cycles of life.

Yoari mena, ania, pohterimakarã kнã Universidadiripнre são buenнkãriro. Kнãre buerá, birô tihirã boeadaku, birotihirã hoadaku kнã hĩri tнohirã merã sañura hoahĩya, marĩ ñekнsмнã kнã masirẽ kн neamнtirigere.

In recent decades, many Indigenous people have entered higher education. Due to the theoretical and methodological requirements, they have adopted new ways of conducting research on the diverse knowledge developed by their peoples.

Marĩ pohterimakн nitihĩgн, marĩya wedera mena masĩre tнoama tihĩgн hoadнgari, keoro warigato hĩ tнgeñaro biro nihãwн, kнãpeka terora iñatu niwã marirẽ, pekasãdo kнã saiña waruku kнã tiriri iñariro niro te bitu niwũ.

For someone who is a member of an Indigenous nation, researching their own community's knowledge can feel quite strange – both for the researcher and for those who become interlocutors.

Kнã poterimakãra universidade boerapekã, нsã pohterimakãra nitoame, tetira masiã нsãka hĩre nitн. Kнã mahsirãpeka, wede tiboranopeka, atiye marĩ mahsĩrerẽ mahsĩtoa mнahã, derotira saiña warukui, hihãtu niwã kнã.

This feeling arises on both sides because academic researchers, believing they are already members of a particular people, often consider themselves knowledgeable about their own cultures and may feel that conducting research on them is unnecessary.

Bнtoa mahsirã, tebiri kнã pakнsмнakã, mamarã boerá kнã saiña warukuri, hĩya kнãre: mн mahsitoaboku atie mariye mahsirẽre, mata wimagнpнra, iña mнatitoawн mнha, atie marĩ mahsirẽre timнatiri iña mнatiwн mнha.

The elders and parents often say to the young researcher: "You should already know our knowledge, as you have been observing how our culture works since birth."

Ahpeye ditaripн boe kamesãgн tнoñewн yн marĩ bahsoka masirĩ peé niretirere, marĩ bahsoka kañe kнã wedesere kнorere. Marĩ mahsirẽ kañe, marĩ saiña bнarigere, wedekamesã tireme niwн, marĩre wederiraye nirotiwн tiye mahsirẽ, kнã wede duhtiripн wederope keoro niã hĩ wedesawa, tekarẽ kнã.

During the exchange, I understood that there are various ways to interpret linguistic, epistemological, and other codes. Not everything we learn during our research can be shared freely without the consent of the people who hold that knowledge.

Atipátipнre paн niwã numiã, мнã, pohterimakãra, nokañe dihtari makãra kнã mahsirẽre saiña, ohatu tiwarukura, kнã basoka niretirere boe hoawa, kнãye dihtarire nirẽtirere, kнã wedeserere, kнãye diári biretire, kнã yaretire, kнã biretire, kнãye wedesere mena kнã bahsamo kнore, kнãye wiseri tira kнã yemonokore makañe boeawa kнã, kнãye kitire hoawa, atiye makarukнri makañere boewa kнã. Deti kiopehsaro mena ativere padoadari marĩ, kнã bahsokare teti padoadari marĩ hirẽre boewa kнã, deti marĩ saiña bнarigere wedeadari marĩ, deti tiere wederi pakarã kнoadari marĩ, hĩwa kнã.

There are many researchers who conduct studies among different Indigenous peoples across various continents, examining how they relate to people, territories, languages, water, food, the body, and the importance of strengthening their languages through music. They also study their architectural history, oral history documentation, and the vitality of different ecological understandings, approaching all these issues respectfully and the peoples who create this knowledge and the different ways to guard and disseminate it.

Pehkasã kнã ehari siro, peé pohterimakarã kнã mahsirẽ, kio pehsaro mena padeo tiya maniyu, bнri nirã, bнri nirẽ tirobiro iñanoyu, kнã biretire, paderetire, bahseretire, kнã wedesere, kio pehsaro mena iña tirihĩya, buire tirobiro iñahiya, ative kio pehsare niato hĩ inãrihĩya kнãha.

Throughout various periods of colonization, Indigenous peoples and their knowledge were not respected. They were often perceived as people without knowledge, while their cultural practices, traditions, and languages were portrayed as exotic elements, with outsiders not respecting their profound meanings.

Kanнsõropн (1930) bauhĩyu merã sañuro padeo pade tiwaro bokuto hĩre bauayo (Convenções, Declarações), tiemenapнsa merã sañuro, kio pehsaro mena iñanoyusa, ati bнreko katira makañe, bahsamorĩ, makarиkн makañe, kiti wedere makañe.

More recently, in the 1930s legal instruments such as conventions and declarations emerged to ensure respect for diverse knowledge systems, including beliefs about cosmic life, music, ecology, and oral traditions.

Buere mena, mahsirẽ bahsokare saiña warukura, kнã nirẽ dihtari makañere boewarukura, kнã mahsirẽre saiña warukura, tive ditaripн nirã bahsokare saiña, kнã mena wedese, tiere buera niawн нhsã, hĩ wede toaripн, to makarã bahsoka, añuadaku bue tiya hĩripн bue nнkãre nirõtiriro niwн.

Before conducting research on people, their territories, and diverse knowledge systems, researchers must obtain the consent of Indigenous peoples. They need to engage in dialogue with the inhabitants of those territories to help protect Indigenous peoples' intellectual and cultural heritage.

Pohterimakãra nipetirare, kнã nirẽ dihtari, ahtipáti katire makañe, kнã mahsirẽ sikн нhpн tirobiro niro tiku, bahsokapekã tiyepнre kahtirã tikia, tiepe bahsokapнre katiku.

For Indigenous peoples, all territories, ecology, and knowledge are interconnected – they are part of the human body, and the human body is part of other bodies.

Peé wedesere wahtoa, wedesewa kнã Deroti padero bomito hĩrere, paн padera, sikн padegн, sika makã nirã mena deti padere añubogarito hĩrere wedesewa. Makarĩ makãra bahsoka mahsirõ nirõtiwн kнã boera saiña warukurere, tvere iñanнnнse tiro nirõ tiwн, bahsoka masĩrere, kнã nirẽtirere, kнã biretirere mahsiwara timiwãra kнã boerá

There have been many discussions about collective and individual ethical protocols, as well as community and collective rights. Communities need to be aware of and involved in the research process because research directly affects their epistemologies, axiologies, and ontologies.

Pohterimakãra kнã nirẽ dihtariha, wiseri tirobiro nirõtiwн, paн ahti kahtirã kнã nirẽ wiseri, bahsoka kнã maniripнra nitoa hĩya kнãha, dero wededнgagн wisioro tнgeñagн, bauera, wahtiã, pinoã, yukн, waikнra, hĩ siohãnoya kнã, nirimikia kнãpe, bahsoka nirã tikia.

The territories are like homes, the dwellings of many beings that have inhabited them long before the arrival of those considered "humans." In linguistic terms, we refer to them as spirits, enchanted beings, serpents, plants, and animals.

Buere mena, mahsĩre saiña waruku padere, diyeno niti añure bнadare tiemena, diyeno nito keoro waribokuto hĩ tнgeñare, hĩ wedero niku to. Sika makã nirã bahsoka mena, tebiri boera saiña warukura, sikaro mena padero niku to, bahsokare padeore mena padero niku, tebiri kнã watoa nire apeyenorẽ padeoro nikuto. Nova Zelândiapнre, Mãori bahsoka atie

nibokuto añuro tiapure hĩ hoatuya: padeore, tiapure, keori padeapure, baiyhamaro nirẽtirere padeore.

Research projects must consider both the benefits and risks of engaging with such knowledge. Research can be conducted with the participation of both internal and external agents, always with the aim of respecting the various lives that are directly and indirectly affected. I also learned that in New Zealand, the Māori have drawn from certain values, respect, reciprocity, responsibility, and relevance, which I recognized as deeply important.

Pohterimaкʜ, Paciku Apurinã bahsoku, Keoro padere, mahsirẽ saiña waruku tiritabere, keori ti padeya hĩre niku hĩwi, mahsĩre saiña warukugʜ ahperãya wipʜ nigʜ tirobiro ninoku, hĩwi, tetigʜ padeoro niku wimakãrarẽ, hĩwi. Te mahsĩre saiña warukugʜra ahpeye mahsiwa noku, hĩwi.

For Indigenous scholar Francisco Apurinã, a research code of ethics is what guides the researcher during their time in the “house of the other,” as a “guest.” It is the research field itself that shapes the profile of the researcher.

Kʜrã biro hĩwi sukã, ahtie marĩye dihtaripʜre nikia kʜã te dihtarire iñanʜnʜse kora, kʜã wiseri nirõtiku (bahsokare, bahsoka nierãre), sikãwi mahkãra nirã tikia, hĩwi, tetiro añuro padeoro nirõ tikuto, hĩwi. Marĩ añuro padeo tiegʜ, pekãsa kʜã tirobiro tihãnoku, bʜri nirẽtirobiro inãhanoku, hĩwi.

According to the same Indigenous scholar, all territories have their caretakers, those who are responsible for the land (non-humans, other beings) and people, who maintain a close relationship with the inhabitants of the territory. We must be careful not to fall into the traps of coloniality.

Kʜã wedere tʜowʜ yʜ, merã sañuro nirẽpere bayiro tuhtuawari tirobuto niwʜto, kʜã mahsirẽ saiña warukura, tebiri mahkãri makãra sikãro mena paderi añuadaro titʜ; saiña warukura kʜorenorẽ dukũ tihĩra, bahsoka mena wedese waruku, padeapu, mahsirẽ saiña bʜa, bahsokare tʜhsaro mena padeo tiri añuro waku hĩ wedesewa, kʜã.

I also understood that new attitudes should be cultivated between researchers and communities, promoting genuine co-living with the people involved in the research. It is important to move away from a reliance on such tools as notebooks, recorders, and cell phones. The pursuit of knowledge should be built on trust and meaningful cooperation.

Bahsoka mena keoro wedese tiro niwʜto, diyenorẽ yʜ buere mena tiapuro bogari mʜã, hĩ saiña, mʜã ahti mahkãrape deroti padeapuadari mʜã, hĩ saiña, derope yʜ mʜarʜto nigʜ, yʜ padeapʜro bogari mʜã, hĩ titoagʜrʜ, kʜã bahsoka mena keoro nirẽti, te nokõro padeya kʜã hĩri tʜo padero nirotiwʜ.

Through transparent dialogue, it becomes possible to understand, together with the communities, what issues are important for the Indigenous peoples and what researchers can contribute and what the community’s role will be in the research, such as allowing the researchers to participate in community life and helping them create authentic relationships with time and conduct meaningful research.

Tie boere petiri, kʜã bahsoka makãri makãra na atie niatosa, marĩ paderige, hĩ wiyari nikuto, kʜã makãripʜ kʜã kʜoadarere, boeri wiseripʜ, peé nikuto ahpeye. Tetira nipetira marĩ paderige niato hĩ iñara añuro ʜhsenikia, hĩwa.

The results should be shared, and the researched materials should be made available to communities, schools, and other relevant spaces at the end of the research project.

Ultimately, it should be a collective product, created with the participation of everyone involved.

Peé boewи уи tiepи bue kamesãgи, ati pũpиre hoatu petinoña maniã. Paи mahsirã nihirã peé mahsirẽ иhsãre wede, bue, inõwa, Ecologia makarã, Antropologia makãra, Linguística makãra, Ciências sociais-makãra, biroti buea иhsã, biroti keno kuã иhsã hĩ̃wa, kиã, mapa kиã tirere iñowã, museu wiseri kuã paderere wedewa, bahsoka wederere kиã dicionário padere wedewa.

I learned a vast amount during my time in Finland, and I am unable to include everything in this short text. Professionals from various fields, including ecology, social anthropology, linguistics, and the social sciences, shared different research practices and ways of systematizing knowledge, such as through the use of maps, museums, and linguistic dictionaries.

Kиã menarã kamesã, wedeseapи tirera nihãro tiwи marĩ buereha, wedesere wahtoara mahsirẽ marĩ̃re wedera tiwa, kиã kiti, kиã biretire, kиãye mahsirẽ, kиã nirẽtire, kиã ñehkиsиmиã biritirige.

The very experience of co-living alongside different researchers has served as a true lesson in the transmission of different histories, cultures, knowledges, sciences, customs, and traditions.

Tie уи boe warukurigere baiyiri иhseni peo tia уиha. Ahpeto уи keoro ti, tirigere, уиre okoboya hĩa уи, ahpetore añuhamaro bue tiritи, уи. Uhsãre wedeko tirirare baiyiro иhsenipeo tia уи, inglês mena kиã wederi, иhsãpere português-mena kиã wedekorigere, tebiri, português-mena, иhsã wederi, inglês-mena kиã wedeko tirigere.

Finally, I want to recognize the great impact of this exchange project. I apologize to all those involved when I could not find ways to correspond to the rhythm of all the knowledge being offered. I am grateful to the translators who facilitated communication between English and Portuguese.

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