



PROVOCATIONS OPEN ACCESS

Amazonia's Cassava and Manioc Through Historical Times

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ABSTRACT

This provocation calls readers to think more deeply about the role anthropology could play in radically disrupting plant blindness. Thanks to Environmental Humanities, the natural world is no longer apprehended as a mere backdrop to human activity. The taken-for-grantedness of plants has given way to a recognition of their biological complexity. However, a preference for “relational” over “classificatory” thinking, linked to a desire to pay greater attention to nonhuman agency, has resulted in portraying “humanity” as a homogenous category. A rush to let vegetal voices be heard could lead to the silencing of forms of collective existence organized around values perceived to be essential for life to flourish. This risk can be avoided by applying the lessons of twentieth-century historical anthropology to the analysis of contemporary communities, whose assertions of the good life wax and wane according to complex historical and ecological dynamics. To show how anthropological methodology could best contribute to Environmental Humanities, I interrogate my early work on manioc domestication through a new kind of ethnographic exploration. A journey I took with two Waorani friends to a ribeirinho community on the Upper Rio Negro forms the starting point for a more intimate and intersubjective interrogation of the creative potential of cross-cultural exchange. On the basis of ethnographic insights triggered by this encounter, I revisit explanations of the historical and spatial divide between manioc brewers and manioc flour makers. I also re-analyze the historical role played by manioc flour during the rubber boom. I underscore the importance of history as lived and remembered. I conclude that environmental humanistic sensibilities may not be sufficient to explain the resilience of agrifood systems. The biological plasticity of manioc matters, but manioc becomes a protagonist only when people carry their memories through.

RESUMEN

Esta provocación llama a los lectores a pensar más profundamente sobre el papel que podría desempeñar la antropología en la alteración radical de la ceguera humana hacia las plantas. Gracias a las Humanidades Ambientales, el mundo natural ya no se aprehende como un mero telón de fondo de la actividad humana. Hoy se reconoce la complejidad biológica de las plantas. Sin embargo, una preferencia por el pensamiento “relacional” sobre el “clasificador,” vinculado al deseo de prestar mayor atención a la agencia no humana, ha dado lugar a retratar a la “humanidad” como una categoría homogénea. Por lo tanto, la prisa por hacer oír las voces vegetales puede conducir al silenciamiento de formas de existencia colectiva organizadas en torno a valores percibidos como esenciales para que la vida florezca. Este riesgo puede evitarse aplicando las lecciones de la antropología histórica del siglo XX al análisis de las comunidades contemporáneas, cuyas afirmaciones sobre el buen vivir aumentan y disminuyen de acuerdo con complejas dinámicas históricas y ecológicas. Para mostrar cómo la metodología antropológica podría contribuir mejor a las Humanidades Ambientales, interrogo mi trabajo inicial sobre la domesticación de la mandioca a través de un nuevo tipo de

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exploración etnográfica. Un viaje que hice con dos amigos waorani a una comunidad de ribeirinhos en el Alto Río Negro brasilero forma el punto de partida para interrogar más íntimamente e de forma intersubjetiva el potencial creativo del intercambio entre culturas. Con base en las ideas etnográficas que desencadenó este encuentro, reconsidero las formas de analizar la división histórica y espacial entre los productores de cerveza de yuca dulce y los fabricantes de harina de mandioca. También vuelvo a analizar el papel histórico desempeñado por la harina de mandioca durante el auge del caucho. Eso me lleva a subrayar la importancia de la historia vivida y recordada. Concluyo que las sensibilidades humanísticas ambientales no son suficientes, quizás, para explicar la resiliencia de los sistemas agroalimentarios. La plasticidad biológica de la mandioca importa, pero la mandioca se convierte en protagonista solo cuando las personas logran a proyectar sus recuerdos adelante, más allá de los que recuerdan.

1 | Introduction

The monocultural, globalizing category “Nature” is breaking down, and researchers are left facing a fast-moving intellectual terrain. Approaches to plant domestication considered revolutionary 35 years ago (Harris and Hillman 1989) are today superseded by ideas and terminologies that started populating the field of Environmental Humanities a decade ago.¹ As I write, Environmental Humanities is being engulfed into the even more encompassing post-humanities agenda.² The global history of capitalism, we are told, must be written not in terms of anthropocentric tales of empire and progress, but from the viewpoint of the cropped companions that have participated in it (Nally and Kearns 2020). For some authors, we must open anthropology to the more-than-human (Tsing 2023). For others, the “other-than-human” has never been absent from anthropological accounts (Lien and Pálsson 2021, 9). Anthropology’s classic holistic approach to social life has always been attentive to multispecies entanglements; it has always, albeit implicitly, embraced a notion of community in which interspecies relations matter (Lien and Pálsson 2021, 10). In other words, anthropologists are like Monsieur Jourdain, who did not realize he was speaking prose all his life. For Lien and Pálsson (2021, 12), then, approach the conviviality shared by humans and other living beings in *biosocial* terms is all that is needed. But can a multispecies anthropology renew historical anthropology and resolve the numerous epistemic tensions that have kept natural, environmental, economic, labor, social (and more) histories apart? And what about anthropology’s engagement with the separate fields of historical ecology, political ecology, and political economy? Are they all really part of ONE history, that of the Anthropocene? What kind of historical anthropology does the 21st century call for?

These questions compel me to reflect on the academic collaborations that have marked my career, as well as, and perhaps more importantly, to explore more deeply the reciprocal dedication that sustains long-term fieldwork. In weaving the two, this provocation seeks to integrate intimate, intersubjective aspects of memory with theories of plant domestication in the Amazon.

Starting with the latter, I now realize that my approach to academic writing has tended toward a measured blend of critical rationality and straightforward objectivism. The term I first used when writing about manioc was *Manihot esculenta* (short for the full scientific botanical name *Manihot esculenta* Crantz ssp. *esculenta*, Euphorbiaceae). This simplification, while getting me

at some kind of encompassing biological reality, inevitably forced me to brush aside the complex cultural, economic, and political history of manioc. However, it was a necessary step in the journey I had embarked on, in the hope of contributing something meaningful to interdisciplinary projects that pioneered new evolutionary biology approaches to plant domestication. Research conducted by Doyle McKey and his team have considerably advanced our understanding of the evolutionary ecology not only of manioc, but also of other clonally propagated crops (McKey et al. 2012). Clonally propagated domesticated plants, which had been under-researched in comparison to seed-propagated crops, offer rich material for evolutionary studies. This research program made use of new molecular biology techniques that enabled the team to investigate infraspecies diversity more accurately. As a result, new light was shed on the complex interactions between wild relatives, parasites and mutualists in complex cultivated environments, as well as on the continued importance of sexual reproduction and seed propagation. By emphasizing dynamics between natural and cultural selection, the team was able to provide new evidence for the complexity of agrobiodiversity, and, by extension, for the co-evolution of people and manioc throughout Amazonia. If researching manioc domestication and diversity from an interdisciplinary lens led us to a novel understanding of how manioc biology interacts with Amerindian cultivation practices, epistemological tensions between a natural science preference for interspecies analysis and a social science propensity to give precedence to social and cultural phenomena never went away (Rival and McKey 2008). For over a decade, our shared interest in the importance of vernacular knowledge of local diversity in agrobiodiversity conservation was enough to sustain our broad interdisciplinary consensus. We all agreed that fighting genetic erosion and maintaining a high level of agrobiodiversity are choices informed by social and cultural representations, as well as economic models. Our publications all sought to integrate social and ecological approaches to plant domestication, an objective which requires linking successfully research on crop diversity, the management of the genetic resources of cultivated plants, and the social and cultural aspects of plant reproduction.

With the passing of time, the research questions driving evolutionary ecologists and archaeologists have evolved. The domestication syndrome is now approached from the standpoint of the behavioral plasticity of plants and animals (Bogaard et al. 2021, 67).³ Pre-Columbian multispecies crop systems are framed today in terms of ecological engineering, whether by humans or by non-human species. Rostain and McKey (2023), for instance, illustrate



FIGURE 1 | Armenia discusses with Omari the FAS conservation and development map for the region where she lives. Laura Rival, September 2009.



FIGURE 2 | Omari shows the FAS map to a Peruvian delegate to the Manaus International Workshop. Laura Rival, September 2009.

how ecology is being redefined in terms of co-evolutionary processes involving the co-participation of multiple species in actions that “engineer” the soil and transform its initial (less favorable) conditions. They propose that the main scientific objective should be to enhance our capacity to differentiate between (i) self-organized, (ii) culturally organized, and (iii) hybrid landscapes. Landscapes classed in the first category are considered natural, and those classed in the second category are “human-imposed.” Those classed in the third category correspond to historical landscapes resulting from the colonization by nonhuman species of structures elaborated by long-gone, pre-Columbian human cultivators. While enlightening us on the behavior of nonhuman ecological engineers over time, this approach cannot inform us on contemporary socio-ecological dynamics or on how diverse ways of knowing interact in practice.

My own contribution has been to push the reflection on what “wild,” “feral,” and “domesticated” might mean for the Waorani⁴ and for the Makushi of southern Guyana (Rival 2014). This has led me to suggest that for cultivators of bitter manioc, “domestication” (as apprehended by modern science) occurs in the kitchen rather than in the cultivated field (Rival and McKey 2008, 1124, Rival 2016b, 23). This is a line of inquiry that Lewis Daly (2019, 2026) has pursued with wonderful granularity and intimate ethnographic flair. Today, I am increasingly wondering whether the practices of sweet manioc cultivators should be approached through a different lens altogether. Their cultivation and processing practices appear to have very little to do with a desire to master the life of the soil or to control the personhood of manioc. A trip I took to the Upper Rio Negro in 2009 (Figures 1-3), as I explain below, played a crucial role in triggering my wanting to rethink the histories of *Manihot esculenta* in Amazonia.

2 | Traveling up the Rio Negro, Late Summer 2009

The journey from the community center where we had spent several days studying the participatory conservation management plan had taken longer than expected. Omari did not seem to mind, though. She was relishing the boat trip up the Rio Negro,



FIGURE 3 | Trip up the Rio Negro with Moi and Omari. Laura Rival, September 2009.

through the mangroves, studying everything around her: the color and temperature of the water; the birds flying; the sun’s position; the currents and counter currents . . . She jerked happy and laughing when a fish suddenly caused the surface of the water to shimmer; she must have been scrutinizing the river for river life. . . . Omari had arrived in Manaus nearly 3 weeks earlier, and the superlative dimensions of everything in the state of Amazonas was no longer astonishing her. Manaus’s dense population; the size of the fishes in the market; the vastness of the rivers; or the long distances covered thanks to various motorized forms of transport—including the boat where we slept for two nights, a first for her. All this aggrandizement was now part of the ordinary, the to-be-expected. When she saw a motorbike assembly factory next to our hotel, with hundreds of bikes neatly aligned row after row, Omari simply remarked that she should get one to cover the journey between her home in Shell-Mera and her office in Puyo: a much more convenient (and cheaper) way of traveling than by bus! In the Rio Negro community, we had stayed with a young family actively involved in the large conservation program we had come to study. Omari had made friends with the wife, Armenia,

who was at least 10 years younger than her. Armenia had cooked for us, while her husband had spent time explaining the conservation rules, the payments, the conditional cash transfers, and more. We had managed communicating across the linguistic divide (Portuguese and Spanish) pretty well. It was time, Armenia thought, to invite us to visit her parents. They lived about 10 h upriver, in one of their *mandioca* farms, dividing their time between crop harvesting, fishing, and *farinha* toasting.

As we approached the farm, we first saw two canoes, one loaded with bananas, plantain, and cassava; the other half immersed and full of peeled, yellow cassava roots. Omari did not say anything, but I could see how intrigued she was. We disembarked; Armenia's dad and mum greeted us. The mum took us to one of her plantations. I estimated the oldest plants to be about two to 3 months old. Armenia found small, slim branches on the ground, which she divided into cuttings, to show Omari how people plant manioc in this part of the Amazon. I don't remember the full conversation between the two of them, but I will never forget Omari's look of utter surprise and total incredulity when Armenia told her that the roots were poisonous; this was a plantation of "*mandioca*," not "*macaxeira*." Omari's first reaction was to dig a tuberous root out, scratch the skin, and put it into her mouth to taste whether this was true. Armenia shouted, horrified: "Don't do that" ... "You'll fall ill, gravely so" ... "you might die..." Omari did not challenge her further. But she clearly did not believe a word of what she was told. I intervened and explained to her, half in Spanish, half in Waorani, that this was a different sort of *yuca* (manioc), *yuca amarga* (bitter manioc), not the one she grew back home. This kind had to be prepared very differently; it was not sweet and could never be eaten raw. The bitter poison had to be expressed, either through immersion in water or through mechanical removal. She was still visibly unconvinced.

We continued the visit and reached the *casa de farinha*, the open-air kitchen where *mandioca* was stored and processed into flour. There, Omari had another shock. She had never seen such quantities of roots being harvested at once, piled into a giant heap in one corner. She exchanged a few animated words in Waorani with Moi, my *toniacabain* (brother-like). He was as intrigued as Omari by the size and quantity of manioc roots in the *tambo*; moreover, he was suspicious. Armenia conversed with her parents and then addressed herself to her Waorani visitors, speaking in slow Portuguese for them to better catch what she was saying. I helped by translating into Spanish, and some Waorani as well. Armenia's mother sang a song in an Indigenous language. What the ribeirinho old couple wanted to tell their Waorani visitors is that their own parents (or grandparents?) had learnt how to grow *mandioca* and prepare *farinha* from native Amazonians during the rubber era. In other words, they had learnt from people not that different from Moi and Omari, but native to this part of Brazil, who spoke their own language, and who had their own way to grow and process manioc. These native Amazonians had taught the newcomers how to live well here, in the Rio Negro watershed; how to grow crops, and how to cook food. They also taught them songs and stories, including the song we had just heard. Armenia added that her family was very grateful to the *indios* for all their teaching. I don't remember Omari or Moi asking any questions to find out more about the technical aspects of *farinha* processing. We sat in silence for a while; Omari offered to join in peeling the roots.

I wish today I had paid more attention to what happened that afternoon. As I am writing this, it occurs to me that there may be some connection between our 2009 trip to the Rio Negro and an incident that occurred in 2013, 4 years later. A period of upheaval and commotion had followed on from the sudden deaths of Ompure and Bougueney, two Waorani elders spear-killed in early March 2013 by warriors from a group of uncontacted Waorani known as Taromenani. As a respected leader, the President of the Waorani Women Association (AMWAE), and a member of a powerful evangelical mission, Omari was directly involved in intense peace talks with the relatives of the deceased from Easter 2013 to at least the end of 2014. It is during that time that she contacted me and asked for help. She wanted me to find funding for what in her view was the only way to create sustained peace with the Taromenani: create a giant manioc plantation at the heart of the Waorani territory that would feed the "hidden ones." Not being in Ecuador at the time, I was unable to understand with sufficient depth what she had in mind. I confess to puzzlement, skepticism, and even suspicion as to where this idea came from. Unsure of the cultural appropriateness of the project, or for that matter, of its realizability, I also wondered how widespread among the Waorani the wish expressed by Omari was. It never occurred to me at the time that her exposure to ribeirinho *mandioca* abundance may have played a role in her imagining this peace solution.

3 | Exploring Shared Memories

It is customary for ethnographers to insert *verbatim* excerpts from their fieldnotes, but the text that underpins this provocation is not an ethnographic vignette. I wrote it largely from memory, some 15 years later. A kind of ethnography without fieldnotes, if you wish. Photographs, old files archived on an external drive, and phone conversations with one of the protagonists contributed to shaping what and how my mind recorded these events. I was then able to triangulate this information with various academic sources. How can an anthropologist write about facts that, although not recorded ethnographically at the time, are still alive in the memory of both the ethnographer and an ethnographer's native traveling companion? Experienced in the company of Moi and Omari, two Waorani groundbreakers I have known for a long time, the memory of traveling up the Rio Negro in 2009 and of Omari's 2014 vision of a peace solution for the people in voluntary isolation forces me out of my intellectual comfort zone. Memory of ethnographic experiences demands the renewal of terms, concepts, and working methods. Moreover, I never anticipated that Armenia's offer to take us to her parents' cassava farm would transport me straight to one of my key research interests, the pan-Amazonian co-evolution of people and manioc.

The Rio Negro trip was part of a 10-day long event co-organized with GTA.⁵ It was my first pan-Amazonian event, something I had dreamt to organize for many years but did not have the financial means to do until the opportunity of developing a strong grant proposal for ESPA⁶ with colleagues from Oxford presented itself. The NAWA (Nacionalidad Waorani del Ecuador) had suffered a disappointing "green economy" scheme on their land in 2005 (Rival 2016a; 2016b, 238–243). My hope was that participating to the GTA-sponsored workshop and knowing firsthand a program as ambitious and promising as the one FAS⁷

had just started to develop in the state of Amazonas would be beneficial to NAWE's leaders. I remember this pan-Amazonian workshop as particularly animated with heated debates about Amazonia's sustainable development, or, as it is called by many Brazilian social movement actors, "*desenvolvimento socioambiental*" (socio-environmental development). The valorization of the diversified production of family agriculture figured high in these debates. Central to the discussions surrounding the conceptualization of environmental and ecosystem services, as well as payments for such services (Muradian et al. 2013), was the question of the relative worth of "forest products" (that is, the intrinsic value of nature) and that of products derived from the transformative skills of forest peoples (small-scale farmers, fishers, *seringueiros*, etc). A lively line of "extractivists" had come to the front stage to explain to native Amazonian delegates from outside Brazil that their labor did increase the value of the forest and in so doing greatly contributed to Brazil's bioeconomy. Questions of ownership (common, cooperative, village-born, family, private, public, etc.) dominated, especially when it came to figuring out deforestation, conservation policies, and changing land uses. Questions regarding labor mobilization were also prominent, albeit more indirectly. I remember being very focused on the goals of the workshop, while Moi and Omari seemed much more relaxed. Perhaps Moi's and Omari's invitation to the workshop mattered less to them than it did to me. By 2009, both had already become seasoned international travelers. The trip to the Rio Negro was not planned; it occurred serendipitously, at the end of the international workshop. Traveling to the Rio Negro was as new to me as it was for my Waorani companions, although, of course, I do not know for sure how traveling to a new part of the Amazon for the first time was subjectively experienced by either of them.⁸ I thus author this article with heightened self-awareness in order to probe intersubjective matters I have never dealt with before. Given that I have not discussed memories of the workshop with Moi, the article focuses on the ones I share with Omari.

The tale of our Upper Rio Negro trip illustrates some of the epistemological problems I face as an anthropologist when encountering the flurry of terms referring to different kinds of people (*indio* and *caboclo*), different kinds of cultivated spaces (e.g., gardens, fields, plantations), or different kinds of processing techniques (e.g., beer, flour, flat bread). Although their comparative scope was more focused than mine, Omari and Armenia too had to work out a whole range of botanical and sociological categories in order to communicate about their respective communities' perspectives on manioc. Yuca and manioc are terms used in Spanish-speaking parts of Amazonia, while *cassava* tends to be used in Brazilian Portuguese, a language in which it is further differentiated into "sweet varieties" (*macaxeira*) and bitter ones (*mandioca*). Manioc varieties have travelled unevenly through space and time, and so have ways of naming them. The lopsided co-optation of some Indigenous terms now used as labels for generic categories means that, in Brazil, the term *cassava* tends to lump together bitter varieties from which a whole range of foods are made, in particular *farinha de mandioca* (*farinha* for short, toasted manioc flour, manioc meal) and *beijú* (flat, unleavened bread made either from grated manioc, manioc starch, or a mixture of the two ingredients). The Spanish spelling *fariña* is sometimes used. The term *ribeirinhos* (literally, river dwellers) refers to rural (peasant) populations made of Indigenous/nonindigenous backgrounds, in whose *tambos* (dwelling, compound) the "flour house" (*casa*



FIGURE 4 | Armenia discusses bitter manioc with Omari. Laura Rival, September 2009.

de farinha) figures prominently. The term "*caboclos*" has fallen into disuse, due to its derogatory connotations of backwardness. Many *caboclos* settled in the Amazon region after the end of the rubber boom, as small-scale, independent rubber tappers, also known as *seringueiros*. Representatives of their "extractivist" social movements (Pacheco and Gomes 2023, Domingues and Sauer 2023) were present at the Manaus, GTA-sponsored international workshop.

4 | Walking From a Bitter Manioc Field to a Manioc Flour House

When Armenia explained that there are two entirely different kinds of manioc, Omari, bewildered and sceptical, first scrutinized the plant's phenotype in the young swidden, then she dug a tuberous root out. Everything looked normal, that is, as she expected it to be in her own *quehencore* (manioc plantation), in other words, as it *should be*. Even the size of the tuber corresponded to her expectation for a 4–5-month-old plant. Faced with so much familiarity, she brought the root to her mouth, a quick and simple way of solving the dissonance between her own experience and the explication she had received. Armenia's shout interrupted her. Would she have found the taste familiar, too, I wondered. This incident brought to life what I had so far grasped intellectually: that for some native Amazonians, such as Omari, there is only one kind of manioc, sweet. However, matters other than plant animacy arose from the cross-cultural exchange that took place between Omari (a sweet manioc beer brewer) and Armenia (a bitter manioc flour processor). As the conversation unfolded, and as we moved from the manioc field to the area where the harvested roots were transformed into flour, I realized that the "agency" of the manioc plant was no longer simply a matter of "perspective."

Armenia guided us to the manioc flour house (Figures 4, 5), where we met a group of men and women, all busy chatting, laughing, and processing a huge heap of tuberous roots.⁹ The spectacle bewildered my Waorani companions even more than the plantation full of poisonous manioc had. Nothing they saw seemed to make sense: the number of tubers being processed at



FIGURE 5 | Heaps of harvested bitter manioc tubers ready to peel—Laura Rival, September 2009.

once; the people (friends and relatives) involved in the processing; the equipment that furnished the kitchen-house; and the kitchen's place and role in the overall sheltering structure. Was it a secondary residence? A summer house? Who did it shelter? The questions they directed to Armenia, however, focused on elucidating what was to them the most extraordinary: Why process so much manioc at once? Guided by their puzzlement, I started to re-evaluate our diversity-in-domestication manioc research program, which had led us to focus on the continued importance of sexually reproduced plants.

When they realized that *mandioca* and *farinha* were completely unknown to their Waorani visitors, the old ribeirinho couple lost no time in evoking their forebears, who had arrived from the Northeast and the “white-water regions” (Fraser et al. 2018, 1390, 1397–1398) during the initial rubber boom. They had learnt how to grow *mandioca* and prepare *farinha* thanks to Brazilian native Amazonians who had taught them how to live well in the Rio Negro watershed; how to grow crops, and how to cook food, for which they were extremely grateful. To honor their memory, and share this memory with Omari and Moi, Armenia's mother sang several songs.¹⁰ Her family, she added, would always remember the *indios'* songs and stories. The old couple's matter-of-fact lesson in Amazonian history is both simple and deep: different *indios* have different types of manioc, which they grow and process in different ways. The songs and stories, though, resonated with new worries: will the family be allowed to continue with their upstream *roça* (swidden)? The old ribeirinho couple had been practicing shifting cultivation within the Rio Negro archipelago for many years, but the islands were now part of the Anavilhanas National Park. Shifting cultivation in the forested areas of the RDS do Rio Negro, legally created 9 months before our visit, was no longer permitted (CEUC 2013, 4). Whether Armenia's parents experienced adversity in the past or not (Fraser et al. 2018, 1394), their way of manioc farming, inherited from Rio Negro native Amazonians, was now challenged by new conservation rules. The settled community they belonged to had signed an agreement with FAS; they were now receiving Bolsa Floresta payments as well as training in non-shifting agroecological methods (Rival 2013). Their *roça* should

thus be relocated on a permanent plot within the community's boundaries.

Armenia's interest in the history of *farinha* making covers the period in which her family history is embedded. It corresponds roughly to the rubber era. I would not have picked up on this seemingly obvious fact had I not witnessed Omari's and Moi's awe and wonder at the *mandioca* magic taking place under their inquisitive eyes in the manioc flour house. While Armenia was patiently explaining all aspects of *farinha* making to the Waorani visitors, my thoughts took me back to ethnographic readings, especially Robert Murphy's memorable descriptions of Mundurucú life in different settings, some more traditional, others more “acculturated.” Moi and Omari continued to watch the bitter manioc being processed with renewed intensity, and I quickly pushed the rubber boom to the back of my mind. What channeled my friends' interests, I venture to say, were the so far unimagined qualities of bitter manioc. The transformation they witnessed opened new possibilities for increase, scale, and abundance.

For all Amazonian cultivators, food underpins wellbeing. Much about Amazonian joviality through time and space can thus be expressed in terms of food sharing and food exchange patterns. In Western Amazonia, manioc beer is the social lubricant *par excellence*. It functions as “a supreme symbol of hospitality” (Brown and van Bolt 1980, 170) as potent as *farinha*-making among Indigenous and ribeirinho communities of central and eastern Amazonia (Lima dos Santos 2023, 101, 111–112). Among the Waorani and their Runa and Shuar neighbors, owners of manioc beer festivals (and today's village heads) satisfy their followers' longing for collective beer drinking by planning enlarged manioc plantations (Rival 2016a; b). As Beveridge (2021, 81–115) remarks, ethnographies about Amazonians have tended to frame manioc beer's capacity to expand sociability within already formed communities. Omari's encounter with ribeirinho cassava farmers, I now realize, opened up the possibility of forms of social enlargement that go beyond pre-established group boundaries. Ribeirinho or quilombo families produce manioc-based foods to be consumed at home or traded. Either way, as I shall argue later on, full recognition of local knowledge demands that equal attention be paid to the foods people choose to prepare and to exchange.

5 | Envisioning a Giant Manioc Plantation

Almost 5 years after our trip to Armenia's community, Omari called. She had become a Waorani spokesperson, leading key negotiations between the government of Ecuador and various organizations around the fate of Waorani groups in voluntary isolation (Rival 2016a, 3–11).¹¹ Omari needed help with the intense peace talks she was carrying out with those who had been affected by the violent conflicts of 2013. She wanted me to find funding for what in her view was the only way to create sustained peace with the Tarmenani: create a giant manioc plantation at the heart of the Waorani territory that would feed the “hidden ones.”

Over the phone, and in her inimitable *huao terero* sprinkled with Spanish expressions, Omari explained that peace depended on creating a giant *quehuencore* at the centre of *monito omë* downriver from the *Via Auca*, by which I understood an area

comprising the northwest corner of the intangible zone as well as the south of the Waorani ethnic territory.¹² From one FaceTime conversation to the next, the exact location of the large manioc field moved slightly, though, presumably reflecting ongoing negotiations with various actors, *waorani* and *cohuori*. I puzzled over the request. What my help would consist of was unclear. Why and how a giant plantation would help re-establish peaceful exchanges between Taramenani, Waorani, and *cohuori*? Was it really what the Taramenani were asking for—manioc gardens they could freely and safely raid when in need? How would Moi and other male leaders bent on waging war against encroachers to *monito omë* react? Wasn't this vision of peace particularly Christian? What (and who) was behind this intensification project? And, more pragmatically, who would make—and maintain—the *nangui nangui quehuencore*? Perhaps what Omari simply needed at this stage was to brainstorm ideas about the 'huge manioc plantation' concept with friendly foreigners like me.

What is certain, though, is that Omari came to think anew about self-sufficiency and intensification while listening to the fears, worries, and grievances that had surrounded the Waorani and Taramenani deaths of 2013–2014. Her thinking was also influenced by the various intensification projects that AMWAE was already fronting (Rival 2016a, 239). One project involved improving the management of *chambira* palm,¹³ which, with the expansion of AMWAE's handicraft commerce, had become an important economic resource. Another consisted in encouraging AMWAE members to cultivate wild cacao in the forested areas around their villages.¹⁴ I knew firsthand that despite conservation-and-development sponsors, it had taken years of sustained efforts to get these forest products to generate a regular income for AMWAE members and their families. There was never enough cash around to keep up with expenses. Too often, Omari had faced women disappointed by meagre returns on their labor. Scarcity creates conflict. Moreover, Waorani villages are surrounded by Runa and Shuar settlements where women cultivate manioc in large quantities to produce manioc beer for daily home consumption and festive gatherings. Intensifying forest products for trade is all very well but increasing food production might be more significant. About a decade later, as I was preparing a research seminar paper on "the plant turn," another thought crossed my mind. Could our September 2009 visit to Armenia's bitter manioc field and flour house have played a role in Omari's vision of a *nangui nangui quehuencore* for the Taramenani? To find out, I decided to speak to her about it.

Omari is now an internationally known *chambira* artist, who travels widely with her "@omere.texturas dela selva"¹⁵ installations (Figures 6–9). She sends me selfies from the exotic places where she gets invited to exhibit her art: the Venice Biennial, Beijing's Revelations China, Paris, and more. Omari is not someone who responds to messages or arranges a common time for you and her to communicate; she messages you, and you must be there. Luckily, I was online at the right time on the 29th of February 2024. I asked her if she remembered her idea of a *nangui nangui quehuencore* for the Taramenani.

Of course, she replied, I am still very keen on it, but I am no longer the President of AMWAE. I am terribly busy with the handicraft shop. I spend my entire days teaching my people how to weave



FIGURE 6 | Omari with her half-sister. Gifted selfie, April 2025.

better. We need to improve the quality of our handicrafts. But yes, it would be great to create this *nangui nangui quehuencore*. I'd love to help. As it happens, I heard a few days ago from one of my weaver apprentices that the Taramenani came close to Yarentaro. We were all so sad, especially the woman who informed us; it brought back memories of Bogueyney.¹⁶ I am no longer a leader of the organization; and I must look after the shop. But there's no one day I don't think about the Taramenani. There are better ways of dealing with this dreadful situation. We could come with stem cuttings ready to plant, plant some, and leave the rest for them to plant... they can take what they want... And we should bring more seeds as well, especially *coromo* (peanut) and *daguenka* (*chonta duro*, peach palm). These they like very much (*ellos se gustan mucho*). This is the best we can do: walk slowly to the top of the hill in the high forest, with no clothes on. Like this, we would not smell bad, they would not be frightened. We would work slow, slowly making a clearing (*limpiando la montaña*). Of course, it could be dangerous, but it is worth trying. We would plant together, all of us, but not everything. We would leave seeds and stem cuttings for them to take. The plantation would be for them exclusively. We would plant for them to eat. This manioc would not be owned by me; no, this is not mine (*no es mi yuca*). If we do as I say, for sure they'll come to take the food (*si hacemos así, ellos vendran a retirar*). The more she talks about the plantation in the forest, the greater her enthusiasm and excitement. It gains reality; a dream come true. I ask her if she remembers our visit to Armenia's manioc plantation on the Rio Negro. Of course I do she replies. This lady was so nice, so friendly. I have told the story of our visit to my mother and sisters many times. How much fun it was to visit and to sit around the giant heap of tubers. It was



FIGURE 7 | Omari's Instagram account.



FIGURE 8 | Omari in Beijing, September 2024. Gifted via WhatsApp.

so hot though ... so much sun, and the boat trip was so long. ... I don't mean this kind of poisonous manioc, though ... of course not. We would plant our own. A giant field with *monito queëne* (our manioc). The soil is cool and rich (fertile) where the Taromenani live. It does not bake in the sun as it does downriver (she means in the Rio Negro region we visited). *Monito omë* (our



FIGURE 9 | Omari in Beijing, September 2023. Gifted via WhatsApp.

forest world, our territory) is fresh and cool. All kinds of animals would be attracted to the *quehuencore*. Yes, as I say, we would leave manioc for the Taromenani to take (*hagamos una plantación para que cogen, que puedan llevar, tambien tallo para que puedan coger, llevar y sembrar*).

Yes, indeed, the Rio Negro visit was a contributing factor, I thought to myself after our February 2024 conversation. The memory of having helped peel enormous quantities of fat and bulging tubers in a convivial atmosphere might have come back to Omari during the conflict-ridden years of 2013–2014; in any case, it was still vivid in 2024. She remembered her hosts as jovial and kind, and their manioc as abundant, but poisonous, because of the hot sun and the dry soil. The manioc plantation she envisaged for the Taromenani would be adapted to the cool, moist conditions of Waorani land. It would suit the slightly hilly part of the forest favored by those who hide in voluntary isolation. There, forest leaves mulch easily and maintain their freshness, making manioc roots sweet and tender. I love the way the envisioned plantation gradually transformed from mono- to poly-culture. The more detailed and precise Omari's vision became, the more multiform cultivation was becoming. All kinds of crops and fruits

started to populate the dreamed agroforestry. What made this special forest clearing both unique and superlative was not so much the size of it, but, rather, its enriched quality. Listening carefully to Omari, I was now able to visualize the space she was imagining, full of different plant products that could either be planted, scattered, gathered, or dispersed; plants that could even take root by themselves. Manioc beings would start shooting up toward the sun; soon, their sweet, young, tender tuberous roots would start cropping. Growing manioc would attract all kinds of animals, beings, and, crucially, people living at a distance, like the Taromenani. Manioc and trees would keep the forest floor moist and cool, protecting it from the harsh sun. All manners of seeds would be strewn across the clearing. The Taromenani would take as much as they wished, eat some roots on their treks, or casually replant stem cuttings along paths or near their hidden-away longhouses.

The purpose of Omari's envisioned *nangui nangui quehuencore* is not to own a manioc beer festival, or to summon the Taromenani. The form of intensification Omari envisages for the "hidden ones" is not structured by quantities. She does not correlate quantitative aspects of crop production with quantities of processed foods. Such calculations inform the planning decisions of native Amazonians who live in already formed communities. They may animate a Waorani festival owner, or a Shuar or Runa cultivator, but this is not what the Taromenani need. In the *durani bai* (ancestral) forest grove, there are no hosts, and therefore no guests, but a gift of natural abundance. Omari's insight into Taromenani sensibility is informed by tales about *durani bai* Waorani.¹⁷ During the 19th century and the first half of the 20th century, Omari's forebears relied on small, hidden-away clearings dispersed throughout the high forest. When conditions permitted, they would create a manioc plantation (*quehuencore*) large enough to generate sufficient quantities of manioc beer for guests and followers. Unlike the Mundurucú during the colonial wars and the rubber era, but not unlike the Taromenani today, *durani bai* Waorani had no easily transportable foodstuff to feed on during their long treks. Oral histories and travelers' accounts mention the fear that *durani bai* Waorani inspired in rubber tappers and their crews. To protect their territory from all predatory interference, they would attack intruders systematically. No one could fish or hunt on their land (Dall' Alba 1992, 97, 105, 112), which they occupied from the borders inward. Borders were patrolled assiduously to prevent *cohuori* invasions (Dall' Alba 1992, 120). If they gradually ceased to fear being enslaved (Dall' Alba 1992, 106) or being devoured by cannibals (Dall' Alba 1992, 117), *durani bai* Waorani continued to refuse the bewitching of civilization for many decades (Dall' Alba 1992, 106, 110, 114–115). To protect themselves, the Taromenani must be able to cover enormous distances in a short span of time. They relocate plants to places where they need them (Rival 2016a, 52, 86). If *durani bai* Waorani took refuge along interfluvial ridgetops (Balée et al. 2023, 853–854), this is not always possible for the Taromenani, who must constantly flee away from overwhelming forces greater and more complex than those which emanated from the rubber economy.

For many Waorani, the Taromenani do not seek to isolate themselves; what they do instead is to create a safe distance between them and those who lack respect for the forest. For Omari, the Taromenani deserve to be given a chance to continue to live *alejados de nosotros* (distanced from us), and, as a result,

closer to *omëre, monito öme* (the forest world in which we become true human beings). A *nangui nangui quehuencore* would appease them for it would enable them to find manioc in the forest. Such manioc would be a forest food not fundamentally different from *petomo* (Ungurahua, *Oenocarpus bataua*), or of any other fruit or plant that is "gleanable," "gatherable," or "collectable." How misplaced, I now realize, was my skepticism, how naïve my practical concerns. It matters little whether manioc stalks are more easily transportable than plantain or banana pups; or whether the plantation can last long enough without NGO input. The Taromenani (and all the beings in the forest which hides them) are aggrieved and prejudiced; they must be appeased. Respect for the forest world not only animates Omari's expansive plan for the Taromenani; it also feeds into her art. A cultural logic other than one structured by resource ownership and labor mobilization animates the bioeconomy she contributes to create. Like her future-oriented interest in manioc for those in voluntary isolation, her *chambira* work is driven by a desire to maintain good relations with distant others. She weaves together polymorphic spatiotemporal transformations from the past with those that have yet to occur; or *that need to occur*.

6 | People and Manioc in Amazonia: Whose History? What Histories?

Talking with Omari about the Taromenani and reminiscing about the journey we took to the upper Rio Negro has opened new anthropological avenues. The ethnography becomes more intersubjective, and the comparative analysis gains in cross-cultural depth. A complex, diverse, dynamic, and multilayered world of Amazonian biocultural interactions lies between the tender, sweet, young, and juicy manioc tubers Omari has dreamt for the Taromenani and the sunbaked bitter cassava she helped process into *farinha de mandioca* on that September 2009 visit. I now grasp why it took me nearly a decade to understand that the form of intensification Omari had envisaged for the Taromenani could very well be the creative product of field visits and unexpected encounters, such as those described here.

I had first seen bitter manioc being grown and processed in Makushi villages. Like Armenia's family and neighbors, the Makushi carefully keep the two kinds of manioc apart (Elias et al. 2000). And, like the ribeirinhos, they prefer the foods made with bitter varieties, deemed more tasty and more valuable. The Makushi gardeners I worked with in Annai and Rewa had repeatedly told me that they were selecting yellow root varieties because 'the Brazilians' like eating yellow *farinha*.¹⁸ I was aware at the time of the continuous exchanges linking Makushi families living in Guyana with those located across the border with Brazil in the state of Roraima. Occupied as I was with shedding light on ancient domesticatory pathways, I did not pay sufficient attention to these links. Bent as I was on finding out how manioc biology interacts with Amerindian cultivation practices, I did not sufficiently attend to food choices (Hladik et al. 1993, 10). Moreover, by looking at manioc cultivation from a purely self-subsistence perspective, I was missing fundamental aspects of Amerindian economic life. To my knowledge, none of the indigenous Amazonian communities ethnographically documented arbitrarily separate food consumption from food exchange, including commercial. The closer they are to urban

areas, the greater the chance is that they market some of their produce, especially processed ones.¹⁹ My hope is that new Amazonianist research will no longer separate Indigenous societies such as the Makushi from peasant societies such as the community in which Armenia and her ribeirinho family live.

There is little doubt that *Manihot esculenta's* extraordinary biological plasticity has allowed people to develop an impressive diversity of agrifood systems in the Amazon rainforest (and in rural areas of Brazil that were once upon a time covered with *Mata Atlantica*). True, such flexibility and adaptability allowed Indigenous peoples from the Rio Negro to share the art of farinha making with Armenia's forebears. But it is the mental intertwining of Armenia's farinha making with *mandioca's* bitter agency that opened Omari's mind to new Waorani ways of thinking about manioc as a crop that is best left escaped in the forest. It follows that Amazonian crop domestication must be approached in ways that reconnect cultivation and food processing; self-sufficiency and intensification; beer brewing and farinha making. Moreover, to contribute more directly to interdisciplinary research on manioc, ethnographic writing needs to deal more systematically with changing consumption preferences and evolving commercial pressures. Whether recent or historical, these have had too little explanatory power for researchers focused on evolutionary biology matters. To illustrate the historical importance of farinha making in Amazonia, I revisit below a classic anthropological text on native Amazonians during the rubber era. I then discuss the continuing relevance of farinha making in rural Brazil today. By bringing the two analytical moments together, I hope to shed new light on the active production of cultural continuity.

7 | Nineteenth-Century Manioc and Rubber Economic Entanglements

Farinha played a key role in Mundurucú's²⁰ differentiated adaptation to the rubber trade. This becomes clear when reading Murphy's seminal work, *The rubber trade and the Mundurucú village*, along new academic work concerned with subaltern economies (Carney 2021) and food security (Moseley 2024, 30–31). Murphy et al. 1954 study contains vivid descriptions of different kinds of "farinha sheds," as he calls them. The settlement typology he proposes does not refer explicitly to farinha making, but the text makes clear that it is central in all three categories (Murphy et al. 1954, 142–143): "aboriginal" (traditional, pre-colonial); "modern savannah" (where the old culture was mostly conserved); and "Cururú" (isolated riverine nuclear families). Even in the 'Cururú' setting, where Mundurucú riverine households blended with other rubber tappers as they got increasingly involved in commercial exchanges with exploitative river traders, farinha making mattered in all kinds of ways. Horticulture and manioc processing were less affected by the changes Murphy documents in other domains of Mundurucú life. The main difference in terms of manioc processing between precolonial times and the 1950s is the replacement of *beijú* manufacture with that of *farinha*. Murphy, who stresses the role of farinha making in creating the right conditions for securing the persistence of what he calls "social integration,"²¹ also references the use of *farinha de mandioca* (as he refers to it in the text) as an item of trade or barter (Murphy et al. 1954, 78; 136). Not only was farinha used for *both* consumption and trade, but

farinha making was also sociologically significant. It was a 'highly cooperative endeavor' (Murphy et al. 1954, 105–106), the main source of "collective effort" (Murphy et al. 1954, 111–112), and a "centripetal force" that facilitated "persisting social integration" despite depopulation and other factors of disintegration (Murphy et al. 1954, 153). Mundurucú farinha making thus bridged the subsistence/market exchange divide. Moreover, farinha making facilitated the fostering of a new kind of social integration between Mundurucú and the newcomers involved in the rubber economy (Murphy et al. 1954, 85–86).²²

It should be noted at this point that we also have plenty historical evidence of coercion and trade asymmetries. Farinha was of interest not only to those who cultivated their autonomy, but also to those who sought to curtail it. A few examples will suffice. Hemming (2009, 115) notes that a governor in the Rio Negro region ordered in 1818 "that village Indians must pay a third of their manioc harvest to the state." Dodd (2021, 123) quotes a research participant whose forebears had to sell their produce exclusively to the trader/land grabber who claimed ownership of the land they were allowed to cultivate. In addition, the forebears of Dodd's informant were requested to pay him a land tax in farinha. Those who attempted to sell to other traders or to evade the tax would immediately lose their usufruct rights. No economic history study I am aware of tries to quantify the amounts of cassava-derived products flowing out of native Amazonian and caboclo flour houses across space and time. However, we have accounts of people who tried to institutionalize rights to cultivate and to provision their families. In so doing, they explicitly gained some spatial sovereignty (Carney 2021, 1086). Both Wolff (1999) and Lima Brito (2022) cover the very end of the rubber era in the region of Manaus. Their studies provide detailed oral histories of the contribution of women's labor to the rubber economy. Of the multiple services women provided, those remembered most vividly by interviewees (both men and women) relate to crop growing and food preparing, especially farinha making. We learn from these accounts that farinha fed *seringueiros* and their families, protecting them from both famine and exploitation. Having home-grown food meant that one did not have to depend entirely on the stores run by the rubber company. Interviewees also mention farinha as a key traditional food in the North-east, which helped migrants maintain cultural and emotional links with their homelands.

With the rubber economy penetrating further into the Upper Amazon, farinha must have expanded northwest. Manuel Cordova (1995, 221), for instance, mentions a lunch brought to him on June 15, 1910 by a woman who reminded him of his mother. He was staying at a rubber tapping station in Peru: "We ate [...] a complete meal with farinha to mix with the rice and meat. The food tasted good, and it reminded me of my past." However, it is almost certain that all farinha reaching the upper Amazon was brought there from Brazil, already processed and ready to use. Historical records of native Amazonians attached to the agricultural estates (*haciendas*) established by rubber entrepreneurs in the wake of the rubber boom in Ecuador, Bolivia, and Peru do not mention farinha or bitter manioc varieties (Loch 1938, Karsten 1998). Instead, they comment upon the fact that these *hacienda*-bound Indigenous families, like their free, unattached counterparts, produce and consume their own sweet manioc.

8 | Twenty-First Century Farinha Conviviality

Murphy's interpretation of Mundurucú sociability is largely supported by a growing literature on the conviviality characterizing farinha making throughout rural Brazil, especially in Quilombola communities.²³ Ribeirinho and Quilombo productive systems, in all their diversity, have much in common with Waorani manioc beer festivals (*ëëmë*) in terms of labor and resource mobilization. Judging from studies of flour houses in various parts of rural Brazil, even communities that are short of land and must purchase the manioc they process into flour are said to have retained strong socio-cultural ties based on the convivial values that animated our day with Armenia's folks: reciprocity, kindness and generosity (Marchetti et al. 2024, 643, 648; Roman and Westengen 2022, 140, 141). There is thus a good chance that Armenia's people have adapted the new land management regime to their farinha conviviality. Like the agroforestry systems promoted by the Grupo de Trabalho Amazônico network mentioned earlier, they are based on the premise that it is possible to transform the natural forest into a harvestable forest while preserving the reproduction capacities of both society and the natural ecosystem. Said differently, these are systems that allow people to scale up production through planned increases in consumption, the latter an index of heightened sociability. Their study demands that we attend to the varied ways in which distinct forest peoples perceive the concentration of useful resources in specific places and over time (Rival 2016a, Brondizio et al. 2021).

For proponents of more-than-human anthropology, the sustaining of such hospitable disposition requires paying attention to "material semiotics." Roman and Westengen (2022: 139), for instance, argue that a proper understanding of cassava harvesting, processing, and commercialization in Espírito Santo do Itá requires paying attention to relations with nonhumans. To understand how cassava, an "escape crop" endowed with "relational" qualities, has allowed this "quilombo-remnant" community to thrive culturally and socially to this day, we must, the authors add, approach resistance "as not directly connected to human intentionality," but, rather, "as an emergent outcome of specific social-material relations" (Roman and Westengen 2022, 139). As Lien and Pálsson (2021) advocate, these authors propose to create new ethnographic descriptions (as well as revisit older ones) and put all of them to the service of new theoretical concerns, such as natures-cultures and other-than-human socialities. My response to the pragmatics of adjusting ethnography to posthumanism is more cautious. Environmental humanist sensibilities, in my view, are insufficient to reconnect the manioc plant as a "living self" (Kohn 2013, 163, 239) with its transformed existence as food, or to consider agrifood systems in their entirety. If we are to account for "biocultural cohesion" in farinha production (Marchetti et al. 2024, 643), we first need to grapple with the ways in which the past affects the present *historically*. Twenty-first-century farinha conviviality results from dynamic interactions between trade and subsistence over time. As Judith Carney (2021, 1643) has shown, Afrodescendant smallholder farming systems in Amazonia formed biocultural refugia, which are best understood with reference to the strategies the enslaved and runaways deployed to feed themselves and negotiate spatial sovereignty.

And as she argues, the agrifood systems of those who endeavour to feed and free themselves abide by an "alimentary logic," which does not dissociate commercial exchanges from self-subsistence (Carney and Rosomoff 2024).

9 | To What Extent Is History a Multispecies Affair?

As mentioned in the introduction, much of my career has been spent documenting key aspects of plant and landscape domestication in the parts of Amazonia where I have conducted fieldwork. An early contributor to the historical ecology framework, which emphasizes historical processes while rejecting environmental determinist approaches such as Optimal Foraging Theory, I have long been concerned with the ways in which Amazonian forest societies transform as they modify their surroundings. We now have much greater understanding of the processes that have led to the anthropization of the Amazon biome. The research on Amazonia's 8000 years of biocultural history, with its focus on the co-evolutionary origins of crop domestication and their pre-Columbian pathways (Neves 2022), has done much to counter the push of commodity frontiers ever deeper into the tropical rainforest, especially in Brazil. This is crucial, given that deeply flawed theories about agrarian transformation (Moseley 2024, 23–25) are still used to justify such penetration. However, when widely popularized²⁴ in the media, such narratives and theories do little to counter the new capitalist spirit of "might is right." By becoming increasingly detached from the life experiences of historical actors such as Omari, Armenia, or the seringueiros I met during the GTA-sponsored workshop, they may even disempower current struggles for justice and sustainability.

I propose, therefore, that we turn our attention to what happened in the biome during the 19th and 20th centuries. Inevitably, the rubber era will stand out as the long historical cycle that has shaped, directly or indirectly, the agrifood systems in which manioc continues to be cultivated as a main food crop. In so doing, however, we must avoid attributing too much multispecies/other-than-human agency to manioc (*Manihot esculenta*) or to rubber (*Hevea brasiliensis*). Whereas manioc is a food crop with a history of domestication thousands of years long, rubber was domesticated in haste as a "plantationable" industrial crop with little edible value in the last decades of the 19th century (Chao et al. 2023, 6). Of course, new analytical sensibilities would expect us to examine manioc and rubber from the perspective of "plant animacy," without which, we are reminded, "human life would be impossible" (Nally and Kearns 2020, 1374). A multispecies anthropologist would approach manioc and rubber relationally, that is, as ongoing life projects resulting from (re-)activated relations. Would that make us lose sight of what matters for Armenia or what is significant for Omari? True, a bio-social lens on crop cultivation need not detract us from approaching the past as remembered and memorized. However, paying focused attention to contrastive forms of collective world making, as I have endeavored to do in this article, requires approaching history as a conscious, intersubjective process that travels along cross-, trans-, and inter-cultural exchanges.

Endnotes

- ¹ UCLA's website defines 'environmental humanities' as both descriptive and aspirational http://environmental.humanities.ucla.edu/?page_id=52
- ² There are no less than 62 titles in the posthumanities series at the University of Minnesota Press. For the series editor, Cary Wolfe, 'traditional humanism is no longer adequate to understand the human's entangled, complex relations with animals, the environment, and technology. See <www.upress.umn.edu/search-grid/series=posthumanities> accessed on Thursday, September 18, 2025.
- ³ This tendency has been reinforced by debates about the Anthropocene (Stephens et al. 2020).
- ⁴ The leaders of the NAWE (Nacionalidad Waorani del Ecuador) asked me in 2022 to stop using the spelling 'Huaorani' when referring to them as a 'nationality.' This, however, does not affect the spelling of other words in *huao terero* (the language of the true people). See Rival 2026 for a full explanation.
- ⁵ Grupo de Trabalho Amazônico. <https://www.forest-trends.org/wp-content/uploads/imported/Gomes.pdf>.
- ⁶ Ecosystem Services for Poverty Alleviation, a UK research consortium formed by DFID, ESRC and NERC. See <https://www.espa.ac.uk>.
- ⁷ The acronym stands for: Fundação Amazônia Sustentável, or, in English, Foundation Sustainable Amazonas.
- ⁸ Manaus is about 1500 kms east of where Moi and Omari live. They came by plane, from Quito, via Lima, Peru. There are now seven ways of getting from Coca (the main town on The Napo River) to Manaus.
- ⁹ Roman and Westengen (2022: 140) describe a remarkably similar setting of heightened sociality reigning inside Cristina' and Adelson's *casa de farinha*. This couple lives roughly 2300kms downstream from Armenia's family, in the Quilombola community Espiritu Santo do Itá, in the northeast region of the state of Pará.
- ¹⁰ The songs may have been Baré or Warekena; these two linguistic groups form the bulk of the population of the upper Rio Negro.
- ¹¹ For the recent ruling of the Inter-American Court of Human Rights (IACHR) in the case opposing the Tagaeri-Taromenane to the Ecuadorian State, see < <https://jurisprudencia.corteidh.or.cr/en/vid/1049684937>> accessed, Monday May 19, 2025, and Machado Haertel (2025) for an initial analysis. The judgment establishes that Ecuador violated the rights to life, personal integrity, and collective property of the Indigenous peoples living in voluntary isolation by failing to prevent the episodes of violence that occurred in 2003, 2006, and 2013, in which members of the Tagaeri and Taromenane were killed. Ecuador is also responsible for the forced separation of two little girls after the 2013 massacre, which affected their cultural identity and fundamental rights.
- ¹² 'Language of the true humans is the literal translation for *huao terero*; 'a field planted with manioc' for *quehuencore*; 'enormous' or 'huge' for *nangui nangui*; 'our forest-territory' for *monito omë*; and 'non-Waorani,' or 'foreigner' for *cohuori*. The intangible zone is often referred to as ZITT (Zona Intangible Tagaeri-Taromenani).
- ¹³ *Astocaryum chambira*, *õone* in *wao terero*.
- ¹⁴ https://canopybridge.com/bepro_listings/wao-chocolate/, displays a photograph of Omari holding a bar of chocolate made with 'Waorani ceremonial grade premium cacao. For AMWAE handicrafts linked to Yasuni campaign= <https://www.saveamericasforests.org/Yasuni/Handicrafts/Introduction.html> and more touristic: <https://www.nanmagazine.com/en/handmade-by-the-waorani-women-2/> https://www.equatorinitiative.org/wp-content/uploads/2017/05/case_1490636773_EN.pdf gives background to how the 2 projects linked. All accessed on Sunday, January 26, 2025
- ¹⁵ Literally, 'at home in my home the forest. textures of the rainforest.' The *wao terero* word '*omere*' stands for 'forest world,' and the Spanish word '*selva*' evokes the Amazon tropical rainforest.
- ¹⁶ Yarentaro is the community closest to where the two Waorani elders (Bogueney and Ompure) were killed in March 2013, and where one of the two abducted girls from families in voluntary isolation has been adopted.
- ¹⁷ Ancient Waorani, who are said to be similar to present-day Taromenani.
- ¹⁸ Sousa Chaves et al. (2018: 235) report that yellow farinha fetches the highest market price in Santarem.
- ¹⁹ Juana Valentina Nieto Moreno's (2006) masters' thesis contains detailed descriptions of Tikuna women living around Leticia, including their gardening, food making, and marketing practices.
- ²⁰ The preferred, contemporary spelling is Mundurukú. However, I have kept the spelling used by Murphy for the sake of consistency.
- ²¹ See for example in Murphy et al. 1954: pages 70, 74, 78, 93, 97, 100, 104. On page 81, he refers to labor coercion, particularly in 'household servitude,' which may have included the making of foods derived from manioc. On page 146 he mentions farinha as an item of barter. This list is not exhaustive.
- ²² What we would need to know, though, is the extent to which these 'Brazilian men' (presumably from the Northeast) were already part of farinha making economies, either through Tupian or freed slave traditions.
- ²³ See for instance, Marchetti et al. 2024, Lima dos Santos 2023, Roman and Westengen 2022, Pacheco and Aguiar Gomes 2023, Lima 2009, Stocker 2006, Fraser et al. 2018.
- ²⁴ See for instance Marc Margolis' *Lost cities of the Amazon* in The Guardian, February 6, 2005 <https://www.theguardian.com/global-development/2025/feb/06/ancient-garden-cities-amazon-indigenous-technologies-archaeology-lost-civilisations-environment-terra-preta>.

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