

Lifetimes of human occupations in Amazonia: rethinking the human presence and landscape transformations

Anne Rapp Py-Daniel

Institute of Sciences of Society, Federal University of Western Pará

Claide de Paula Moraes

Federal University of Western Pará

Abstract

Following the approach of Historical Ecologists this presentation will use data from different collaborative projects in order to demonstrate that today's Amazon forest, considered by many as one of the few pristine and unchanged wild environments of the planet, is in fact the result of a long term human management of positive impacts. This assumption is extremely important to rethink the role of traditional populations for the preservation of the Amazon.

Scientific standard view presents Amazonia as a place where local societies were unable to reach a fully developed stage as a result of a supposed shortage of resources and an oppressive environment. In this perspective, humans would not have been able to domesticate animals and plants of significant importance to their daily diet. Therefore, forest groups would have lived in continuous dependency and limited by the availability of wild game and plant resources in nature.

With the better understanding and accumulation of data provided by Amazonian archaeological sites and remains, nowadays it is possible to offer an alternative viewpoint to understand the long relationship thread between humans and their environment. Different from the first assumptions presented in archaeological studies from the 1950's to the 1990's, we suggest that Amazonian people developed mechanisms of manipulation and interaction with the environment that allowed animals and plants to be managed or semi-domesticated in different ways and that these choices acquired, throughout time, more importance in the manner they obtained food from the forest.

Dealing with some undomesticated plants has freed humans from laborious agricultural work and from the need to choose more fertile soils as the only settlement possibility for home and production sites. We understand that this process was not an imposition from the environment, but rather, it was a cultural choice. The evidence that several plants were fully domesticated in archaeological sites shows that ancient societies knew how to cultivate, but nonetheless, gave a secondary importance to these plants, choosing a more flexible approach.

This presentation will focus on four main moments of the human occupation history in Amazon: first, the arrival of the earliest comers, around 12 thousand years ago and how they interacted with a "pristine environment", we will mention evidence that these new comers initiated a process of environment manipulation following distinct strategies; second, a few millennia later, this process culminated in large occupations and populous societies in distant parts of the Amazon around the year 1000 A.D., which created a large network of exchanges (social, economic, political, material, etc.); third, we will mention how these large societies entered a moment of intense disputes in some parts of the Amazon, and subsequently experienced a population decline. When these populations apparently started to regain stability, the European contact drastically changed Amazonian societies forever with the arrival of new foreign populations. At the same time, many bias and harmful concepts emerged. Finally, we will focus on nowadays occupants, who still have a traditional life style and that were influenced by ancient indigenous societies. By dealing with these four moments of occupation, we will revisit a few key concepts like: environment, human-nature interaction, urbanism, human ecology, sustainability, negative and positive human impacts.

1. Introduction

Many people believe that there are places on the Earth's surface that are still completely natural, in

other words, places where humans¹ have not caused

1. The matter of humanity as part of nature is a heated debate. The limits between natural and cultural are frequently questioned, and an enormous number of proposals exist.

any kind of impact, positive or negative. Amazonia is believed to be one of those places (Meggers, 1971; Barlow et al., 2012).

Concerns about the rapid changes taking place in the planet's climate and vegetation cover, have resonated with environmentalists and development agencies and have real life repercussions. The results of this controversial debate served as basis for politicians and policy makers to make decisions and implement public policies, towards preservation and/or economic exploitation of natural resources in areas assumed to be "human free". As an example of how these different types of approaches have always been prejudicial for traditional populations, in 1971, in the Tapajós River Basin the Brazilian Government suggested that 1 million ha, for environmental reasons, became the PARNA (Parque Nacional da Amazônia – Amazonia National Parc). In this type of conservation unity all human beings are to be left out, therefor hundreds of riverine and forest dependent populations were thrown out of their own homes and lands and sent to the other margin of the same river, this was all in the name of preservation (Camargo and Torres, 2016). Sadly, in 2012, the parcs limits were reviewed and reduced, this time for economic reasons, a new hydroelectric dam was being considered in the Tapajós River (Camargo and Torres, 2016). Once again, the government response was to remove the already displaced populations. Fortunately, the dam was not yet built, but there are still those who are seeking to go on with the project.

The human-nature interaction through hundreds even thousands of years is a phenomenon that interests many archaeologists, because, in order to understand the human's trajectory, since the appearance of our species, it is necessary to comprehend the relation that "we", as a species, have established with the different environments that "we" came in contact with, as well as "our" relation to other animals and plants in each of the regions occupied.

Although we have increasingly moved away from the theoretical perspectives of the "Environmental Determinism", our present understanding is that it is not possible to disregard the environment when studying human cultures.

Our History is quite old, considering the available data, we are talking about at least 200,000 years or, if one takes into account the new findings, maybe up to 300,000 years (Hublin et al., 2017).

Nonetheless, even if one accepts only the most conservative hypotheses, we have no difficulty

demonstrating that the History of human colonization of the Earth was a slow process. The Americas, for example, would have been one of the last chapters of this story. While the dates for human occupation of the Americas is another topic of heated debate, it is a recent event compared to the date of our species' emergence.

In this paper the discussion of human occupation in Amazonia will be the primary focus, which is one of the most singular places in South America, and site of both intellectual and economical disputes between conservative and developmental points of view. Our perspective is to present human knowledge production systems as a cumulative trajectory. The archaeological data indicates that human occupations diverged significantly from following an "evolutionary linearity" and, as such, it makes more sense to think of the coexistence of different social, economic, and political systems and sets of cultural choices rather than to propose a linear succession of different societies.

Despite the importance of Amazonia, on a planetary scale, with its 7 million km² dispersed in nine different countries, politically it only occupies a peripheral position in relation to the centers of power of these same countries. This is a historical process related to how these countries were colonized and which regions were valued, for instance in Brazil all the coastal region were initially sought, the Amazon was only considered in very particular circumstances (example: rubber boom, slave trade, extraction of natural resources).

In Brazil, the area of the Amazon where we have been working for the last fifteen years, is the stage for a "crusade" of territorial occupation similar to what was known in the United States of America as the "march to the West". This movement advances over the Amazon, alleging that the lands they are occupying are empty and untouched, just waiting for settlers to promote national economic development and prosperity. In many moments of Brazilian History this march towards the north was promoted and driven by the government. As such, in the 1960s and 1970s, the Brazilian government promoted migration using the slogan that "the Amazon was a land without people for landless people" and that it was fundamental for national sovereignty that this condition be changed through colonization (Torres, 2005). This program was responsible for the opening of roads, the establishment of new urban centers, and the rise of enterprises focused on industrial scale exploitation of natural resources,

such as iron, aluminum, cassiterite, gold, and petroleum. To meet the demands of these projects and urban centers in the southern portion of the country, large hydroelectric dams were designed, several of which have already been built.

The speed by which this project was expected to implement changes, coupled with a lack of knowledge about Amazonian particularities among its architects, turned this governmental program into an unfinished and extremely conflicting enterprise whose impacts are blatantly evident to the present day. The land without people, advertised by the colonizing enterprise of the 1960's, was based on the common-sense notion that the Amazon rainforest and the fragmented native populations that inhabit it today are part of what is still wild and untouched on the planet. Even though this event happened almost 5 centuries after the European colonization, the mechanisms used by the Brazilian government were hardly different from the strategies of the sixteenth century. They followed the premise that both the environment and the native populations lacked "domestication" (Image 1). And, for the traditional populations this "domestication" usually meant extermination. Evidences of these types of reasoning are extremely well documented and can be easily found in international news mentioning how the government is willing to trample civil rights, mainly

poor and traditional communities, for economic reasons. Belo Monte's Dam in the Xingu River or the Santo Antônio and Jirau Dam's in the Madeira River are examples that were widely reported and had high environmental and social impact. Less known are local (State and Municipal) political changes that have been legalizing large scale farming and mining in areas occupied by traditional populations.

With this brief outline established let us see what the archaeological data presents about the presence and permanence of humans in the Amazon. Also, we will try to demonstrate the necessity of respecting traditional ways of life, as matter of ethical behaviour, but also because if we want to preserve the forest we will need them to help maintain what was created through thousands of years of interaction.

2. The first archaeological attempts to explain the human presence in the Amazon

The beginning of what archaeologists can call "professional archaeology" in the Amazon region came in the late 1940s with the works of Betty Meggers and Clifford Evans (1957). However, other researchers, amateurs or naturalists, had earlier passed through the region and left abundant descriptions of their findings.

These early professional archaeologists made a lasting mark on the archaeology and anthropol-



Image 1: Picture taken from an airplane showing the floodplains near the city of Santarém, Brazil. Observe the small houses, what initially looks like just large masses of land and water, are actually traditionally occupied territories. Photo: C. Moraes.

ogy of the region. To a large extent, Meggers and Evans were responsible for the spread of what became known as “Environmental Determinism”. This theoretical postulation affirmed that the social, cultural, political, and economic development of a population was subordinated to the environment it inhabited. Thus, “civilizations” would only emerge in fertile settings, where diverse ecological niches were easily exploitable. These ideas largely drew on the assumptions of the naturalist and botanist Carl Friedrich Philipp von Martius, who set about trying to explain the native humans of the Amazon. He proposed that the natives of the Amazon represented one of the most advanced stages of the “degeneration” of any civilization (von Martius, [1832] 1982) and, more importantly, that this was a natural process. The Amazonian environment, according to his interpretation, would lead the people who inhabited it to become more and more “primitive”, to the point of ceasing to exist as social beings, that is he was only admitting them as a “savage” form.

In this context, the Amazon was evaluated as a large mass of tropical rainforest on top of poor and infertile soils. These limitations associated with what Betty Meggers (1971) termed a permanent “climatic instability” (for example: disparity of flood periods, El Niño events, etc.) would have made the entire region unsuitable for the rise of long-lasting, socially complex, large human settlements. Any archaeological remains that pointed to substantial occupations (as in the finds from the island of Marajó and Santarém county) were interpreted as external invasions of more “civilized” societies (like the Andean civilizations or the societies found in the Caribbean area). Nonetheless, they too would have had a short “life-span” within the region since they would suffer from the “hostile” environment and quickly degenerate.

Science had to wait until 1970 to see researchers from the humanities beginning to review and revise the environmental perspective, changing it completely and arguing that the Amazon was indeed a paradise (Lathrap, 1970). Within this new perspective the floodplain areas were reconsidered and interpreted as extremely suitable locations for large-scale agriculture. But most of these proposals were not based on archaeological data, they rather considered that the intertwined hydrographic network of the Amazonian rivers would bring large benefits. Anna Roosevelt (Roosevelt, 1980, 1987, 1991) in the late 1970’s and during the 1980’s and 1990’s would return to a number of the archaeological sites

identified by earlier researchers and amateur naturalists, such as Charles Hartt and Curt Nimuendajú, and confirm their observations about: the presence of large villages (under the city of Santarém and on the island of Marajó); and extremely ancient occupations (such as the site Caverna da Pedra Pintada in the county of Monte Alegre (Roosevelt et al., 1996) and the shell mound of Taperinha in Santarém county) (Roosevelt et al., 1991). However, the mechanisms of occupation, the access to resources, and the human-nature relationship were still not well understood.

The research developed in the field of Historical Ecology² from the end of the 1990’s provided the basis for new perspectives and for studies to be conducted in association with large interdisciplinary projects³. The initial large projects are now dismembering into more localized ones.

Although gigantic gaps still exist, archaeologists have begun to have more data to be able to discuss human occupation without falling into the stereotypes of the past that associated the Amazon sometimes with heaven and sometimes with hell.

As more controlled archaeological data emerged the idea of local Amazonian cultural development becomes increasingly plausible. Today we can say that humans have been present in the Amazon for at least 12,000 years. During this time, what the archaeological data presents are not rapid and doomed events of attempted colonisations, but rather a long process of the cultural construction of ecological niches and the flowering of various cultures. A few millennia later, this process culminated, around the year 1000 A.D., in large occupations and populous societies in distant parts of the Amazon and the establishment of a large network of exchanges (social, economic, political, material, etc.). Later, in some parts of the Amazon, these large societies entered a moment of intense disputes and subsequent

2. As William Balée states, Historical Ecology is believed to be both a theoretical proposal and a methodological proposal. The books of Balée (2002) and Balée and Erickson (2006) are references to the discussion of how human societies interact with the environment. They proposed (along with the different authors of their books) that anthropogenic processes can have both positive and negative impacts on the environment (Erickson, 2006: 245-246).

3. As examples of these large projects we have the Central Amazon Project created in 1995 by Eduardo Neves, James Petersen and Michael Heckenberger. Denise Schaan and her team acted in extremely different areas of the Amazon (from Acre to Pará State) from the beginning of the year 2000. Heiko Prumers and Clark Erickson, independently, structured large projects in the Bolivian Amazon. Stéphen Rostain has spent the last 30 years making large surveys in the Guianas and Ecuadorian Amazon. Michael Heckenberger and his colleagues completely reviewed the Indigenous history in the Xingu River working with the Indigenous population known as the Kuikuro.

population decline. When these populations apparently started to regain stability, European contact drastically changed Amazonian societies forever with the arrival of new foreign populations.

Departing from this last moment we want to re-think “what are the cities in the Amazon” and the difference between occupations of negative and positive impact (Balée, 2002) using archaeological data and personal experiences.

3. First humans and the pristine environment

Very little is known about Amazonia’s first occupants. But the data uncovered thus far shows that the Amazonian region has some of the oldest dates for human occupations in the Americas, starting at least 12 thousand years ago (for example: Abrigo do Sol in the state of Rondônia/Brazil, Caverna da Pedra Pintada in the state of Pará/Brazil). Very few sites are known for this period and the one that has been the most studied is Caverna da Pedra Pintada, with dates going back to 12,000 years before the present (Roosevelt et al., 1996; Pereira et al., 2016). In the 2010’s, Edith Pereira (Museu Paraense Emílio Goeldi) and collaborators have returned to the same cave and confirmed the dates.

The excavations in this site have demonstrated that humans were not passive to their environment, on the contrary, for instance they had noticed the high potential of palm trees and were using them intensively (Roosevelt et al., 1996; Pereira et al., 2016; Myrtle Shock pers. Comm.). These trees are still found in the area surrounding the cave and continue today to be an important part of the diet of people living in the Amazon. The sparse remains of faunal bone express a diversity of fish that are not present anywhere near the cave (Roosevelt et al., 1996; Pereira et al., 2016), the rivers are a few kilometres from the cave.

The data show that the early Amazonians were not mere hunter-gatherers passing through the Amazon in search of more attractive places. They are an evidence that socio-technical transitions occurred in order to allow the early Amazonians to adapt to that natural environment. In the site Caverna da Pedra Pintada, and in more than 40 sites already identified in the region, we see enduring occupations with permanent positive impacts on the transformation of the environment. One can propose that these places are what Schlanger (1992) and Zedeño (1997) defined as persistent places. Besides that, the cultural sequence observed in the archaeologi-

cal record of earlier sites indicates that the new occupants always took advantage of the environments managed by the previous occupants. There was an efficient process of accumulated socio-technical adaptation concentrated in certain locations. Two currently commercially important plants are good examples of this. Brazil nuts (*Bertholletia excelsa*) and açai (*Euterpe oleracea*) are undomesticated plants, but the management of which is important for the local economy and they also occupy an important role in exports nowadays. Evidence of these plants is present in the oldest levels of Amazonian archaeological sites (Morcote-Rios et al., 1998; Pereira et al., 2016; Shock and Moraes *in press*). A recent botanical survey (Ter Steege et al., 2013) pointed out the açai palm tree as the most abundant species distributed across the Amazon. Could we consider this hyperdominance as a natural process? It seems more logical to consider that this is the result of a management started several millennia earlier, in other words, it was a long process of building ecological niches with greater taxonomic diversity and selecting edible plants.

Thus, it is possible to affirm that an Amazonian way of life emerged after a complex adaptative human-nature interaction system from the earliest human presence. It is not simply a human adaptation to the Amazon, but an adaptive mutualism where both sides begun changing.

Around 7000 B.P.⁴ systems of human settlement emerged, one of them shows evidence of an increased use of managed plants, while another is associated with more intensive exploitation of aquatic resources (fish, molluscs, mammals, and chelonians), both providing resources for longer periods of settlement. Humans started to manipulate and, through selection, domesticated several plants including manioc/cassava and peach palm (*Bactris gasipaes*, known as *pupunha* in Portuguese or *chontaduro* in Spanish), that like those previously mentioned, are plants that remain of great importance to Amazonians’ diet⁵ (Clement et al., 2009). In other parts of the America’s during the same period corn, potatoes, and some types of peppers were also managed to the point of complete domestication⁶. It is necessary to understand these first interventions on the local flora if one wants to comprehend how later societies developed, or even

4. B.P. refers to a time Before Present.

5. One could argue of their importance in the world, since great part of Africa is now producing Manioc.

6. Domestication is a process of selection leading to complete human dependency, of a plant or animal.

the importance of these resources for the first Europeans to arrive in the continent.

Still around 7,000 years ago, some of the human populations in the region decided to build large mounds with shells that were used and occupied for thousands of years (known in Brazil as *Sambaquis*). These shell mounds seem to have served both as dwelling places and as funerary monuments (Roosevelt et al., 1991; Imazio da Silveira and Schaan, 2010; Pugliese et al., 2018). It is important to note that these changes did not mean the end of the prior lifeway and were not a transition to a new system. Archaeological sites in natural shelters and near waterfalls continue to appear as contemporary sites, demonstrating that hunting for terrestrial animals, fishing, and collecting and managing plants persisted as a very successful strategy.

Evidence of the oldest ceramics in South America, dating back to about 8,000 years, perhaps even more, are found in some of these shell mounds. They are probably the oldest pottery made on the entire American continent (Roosevelt et al., 1991), but again this did not mean that from this moment on the Amazonian populations all became potters. On the contrary, this innovation will remain quite rare as, between 8 and 3 thousand years before the present, the traces of ceramics in archaeological sites are sparse.

In some sites located close to waterfalls, one can see an intensification in fishing activities, with dates also around 7,000 years ago. In these places, fish were very easy to catch (Mongeló, 2015), and the abundant human actions had a permanent impact on the chemical and physical properties of the occupied soil (Miller, 2009; Neves, 2012), they are the oldest known “Terra Preta de Índio” (TPI) or “Anthropogenic Dark Earth” (ADE). These soils, when compared to the natural soils of the Amazon, have a high fertility index and greater power of nutrient retention, characteristics that persist for extremely long periods (Teixeira et al., 2009). Some of the managed plants, and in some cases domesticated plants, probably began to find in these modified soils interesting niches for propagation. Once more this does not mean that from this moment on all these populations became farmers. What the archaeological remains show is that they could have made this choice, but chose not to.

4. Village life

Around 3,000 years ago several domesticated plants including manioc, peach palm (Clement et

al., 2009), corn (Roosevelt, 1980), rice (Hilbert et al., 2017) were widely available in the Amazon. At this point human populations probably understood that the disposal of organic matter associated with the controlled use of fire could transform the soil into TPI or TPI like. Yet, it is important to notice that most TPIs are found in residential areas. During this period the archaeological record shows an intensification of the production of ceramic vessels. This “technological package” seems to have led to the emergence of yet a new way of village life in the Amazon. The archaeological evidence from these sites (botanical and faunal remains) suggests, however, that this was not a new autonomous system in relation to the previous ways of life.

These populations were experiencing more sedentary lifeways and, in some cases, benefiting from long distances networks that provided resources from very diverse niches across the Amazon. Technological similarities in the ways of producing and decorating ceramic vessels appear to be good markers of long-distance relationships. Ceramics of a style classified by archaeologists as Pocó appear with similar dates in areas located thousands of kilometres from each other (Neves et al., 2014). These settlements had higher population numbers and demonstrated more capacity to exploit resources over the following millennia.

The archaeological sites dated from around the year 1,000 A.D. in almost all of Amazonia demonstrate evidence of large occupations. The size of these sites associated with the density of material can be interpreted as the populational apex of the region before the 19th Century (Moraes and Neves, 2012; Moraes, 2015). The process that led to this situation started a few hundred years before the Christian era, when large populations started to enhance their trading networks, this probably also led to a higher number of migrations and the expansion of territories that were occupied.

Simultaneously another phenomenon reappears with great intensity, the locations that these large populations inhabited underwent transformations in the structure of the Amazonian soil. Archaeological sites from this period sometimes contain hundreds of hectares of TPI. We also have sufficient evidence to believe that these populations had intensified their agricultural production possibilities, but not necessarily in the TPI. In fact, some archaeological sites from this period in Suriname (Rostain, 2008) and in the Bolivian Llanos de Mojos (Erickson, 2008) indicate the presence of extensive areas of

artificial raised field associated with management of soil, water and aquatic fauna.

On the Marajó Island, in the mouth of the Amazon river, there is evidence that large contemporary mounds were built for reasons of water management and settlement. These mounds, known as the *Marajoara Tesos* were used as housing and ceremonial platforms (Meggers, 1957; Roosevelt, 1991), and the local economy relied mainly on the exploitation and management of the aquatic fauna (Schaan, 2008).

In the Central Amazon, near where today is the city of Manaus, were uncovered some of the largest TPI sites known in the Amazon. In these places evidence of several domesticated plants being used were found (Cascon, 2010; Silva et al., 2016). However, the importance of using (millennially managed) wild plants, aquatic and terrestrial fauna (Prestes Carneiro et al., 2015) still seems extremely important (Moraes, 2015).

These populations seemed to be taking advantage of ecological niches and connecting routes amongst these niches were built to compose increasingly complex and efficient systems for the maintenance of large populations.

The symbolic and probably political importance of controlling these niches led to the appearance of noticeable evidence of conflicts in some areas of the Amazon (Moraes and Neves, 2012). Different ways of occupying space, building villages, exploiting resources, making pottery begin to overlap at the same large sites of anthropogenic dark earth (Heckenberger et al., 1999; Lima, 2008; Moraes, 2013). In some of these sites, evidence of ditch construction and defensive palisades appears (Neves, 2009; Moraes and Neves, 2012).

At this same period some archaeologists suggest that human settlements in the Amazon can be considered as a type of urbanism (Heckenberger et al., 2008). An urbanism different from that of other parts of the world, a kind of “garden city” (Heckenberger et al., 2008). This type of urbanism was defined by Michael Heckenberger (2005) in the Upper Xingu region and takes into account a number of elements such as: continuity and size, although the format of the villages remained the same over 1000 years, the size of the villages around the year 1000 A.D. were more than 10 times the size of the present day villages; the presence of large networks, in this region great roads are still built and cared for, they connect different villages, these routes, besides being more numerous in the past, could reach more than 10m

wide; the estimated population density was higher than the estimates for the Greek city-states, which are held as the cities that defined urban planning patterns for European civilizations.

There is not enough archaeological data to clearly address the consequences of these events (urbanism and conflict) but the fact is that the archaeological record shows a decrease in population in some parts of the Amazon in the period right after the year 1000 A.D. (Moraes, 2013, 2015).

Even though the villages encountered by Europeans in the 16th, 17th and 18th centuries were not as large as the ones around the 10th century, they were large enough to be called “cities” by the first explorers.

Once again, this new, more sedentary way of life did not become the only Amazonian way of life.

5. The recent past and the present in Amazonia

For a great number of historians and other social scientists⁷ the arrival of Europeans in the sixteenth century would mark the end of this millennial systems of human development in the Amazon. Some archaeologists, historical ecologists and anthropologists differ from this perspective quite drastically. No one disregards the dramatic impacts this event has caused and still causing in and for native populations.

It is important to remember that a few internal events had somehow disrupted some ways of life of some of the Amazonian populations before the 16th century. When Europeans arrived, the archaeological record presents evidence that the Amazonian populations, especially those closest to the main channel of the Amazon River, were resuming their growth curve, but they were not as large as the ones in the year one 1000 A.D.. Europeans quickly brought mayhem and ended the possibilities for integrated exploitation of different ecological niches and the use of networks of long-distance relationships were weakened by violence and disease. The maintenance of most of the major human settlements was then compromised, some estimates say that indigenous societies that came into direct contact with Europeans had a mortality rate close to 90%, that is, new forms of survival had to emerge.

Here it is important to return to the idea of co-existence of several Amazonian human settlements

7. As an example of this situation, even though Laws in Brazil demand that Indigenous History be taught in schools, most books start “History” in the year 1500, when Brazil was allegedly “discovered”. Indigenous populations are still being presented as “second class” citizens who have been living in the “past”.

systems, to understand that even with the disintegration caused by colonialism, this did not end of the Amazonian way of life.

As has been presented by many historical ecologist (such as Balée, 2002), the Amazonian human exploitation system has not favored the domestication of plants and animals. Despite having domesticated important species in the Amazon system, the strategy was the domestication of the entire environment, the creation of managed ecological niches involving animals and plants. This strategy led human beings to be less dependent and at the same time the imposition of maintenance of these plants and animals was less time consuming, but this did not necessarily lower the productivity (Image 2).

Throughout the 12 thousand years of history of human interaction with the Amazon we have learned that the oldest strategies were never abandoned in order to favor the technological innovations that were emerging. This means that, faced with external and internal pressures, these populations were much more flexible and likely to continue existing.

In this story of coexistences, the occupations in the past and the impact of European colonization had a direct influence on how Amazonia is occupied nowadays. For instance, all large Amazonian cities are in fact continuities of large indigenous villages, religious Catholic missions were created in these large centers in order to “recruit” more souls. Later on, these missions were transformed in villages and then cities.

Another impact that is quite hard to be measured

is how the TPI affects traditional villages today. The characteristics of the TPI make it a fertile land and those dependent of small farming plots seek it to plant corn, watermelon, cacao trees, etc. These productions are for family use and sale purposes and have small impact on the archaeological site itself.

Nowadays, there are still some native populations that continue to deny the need to contact the different national Amazonian societies (Brazil, Peru, Bolivia, etc.). Choosing a strategy based on hunting and gathering remains a possible and successful alternative for the maintenance of an Amazonian life. This is not to say that these populations are degenerate remnants of the ancient Amazon “civilizations” of the past as von Martius (1982) asserted, or that they are primitive hunter-gatherers like those first comers of twelve thousand years ago. On the contrary, it means that the cumulative and millenarian Amazonian management system remains efficient for these populations.

Along with European populations came an enormous number of Africans, who were brought by force and against their will, but who nowadays represent a large part of the Brazilian population. In some areas, they struggle to have their communities recognized as “maroon communities” (O’Dwyer, 2010). In many cases, these communities came to existence as an effort from African descendants and indigenous populations to resist and flee from slavery. In Amazonia the maroon communities inherited knowledge from Amazonian indigenous communities about how to live in the region and benefit from this long history of forest domestication.



Image 2: This large Samauma was photographed in the Aripuanã River (Brazil), it is on top of a large archaeological site (with abundant Terra Preta and ceramic sherds). It is a good example of the forest’s resilience in previously traditionally occupied area. Photo: C. Moraes.

6. Conclusion: the future of Amazonia

Contemporaneity gives signs that we may be nearing the end of this human-environment/ or human-nature coupled Amazonian system, not because of its internal capacity for maintaining itself, but because of the increasingly overwhelming external pressures that the Amazon is suffering. As we have rapidly tried to demonstrate in the human-environment system is a self-sustained system that has had a long lifetime and it would be even longer if not for the external pressure. In this scenario, allies are ever more difficult. On one hand, global capitalism, which is increasingly prone to natural resources, advances over the Amazon with the justification that it is necessary to bring “modernity and civilization” to a vast wild and unproductive environment. International capitalism is increasingly empowered to make decisions about future policies for the Amazon. Large-scale farms are not concerned, most of the time, with TPI they usually look for chemical fertilizers to enhance productivity in any type of soil. But as time passes the land becomes completely sterile and they end up buying or just taking new lands, in the end this repeated action is resulting in traditional populations being expelled from their own land.

On the other hand, a large part of the environmentalists diverges from the perspective of exploitation of natural resources, but not from the perspective of the Amazon being a wild environment. The traditional populations of the Amazon are little heard by both sides of this power struggle. There is every reason to believe that many are giving up considering to understand a system that has been operating for at least 12,000 years and that had far more positive than negative impacts, for the establishment of human systems as well as the conservation and promotion of the environment.

In order to understand the Amazon, it is necessary to think about human ecology (Moran, 1993) and not the dichotomy between nature and culture that predominates in Western conceptions. And actions towards changing the value systems predominant nowadays must be put to practice with urgency.

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