Chapter 34 In Brief

Boosting relations between the Amazon forest and its globalizing cities

Rio Negro na região da vila do Cacau Pirêra, em Iranduba, Amazonas (Foto: Raphael Alves/Amazônia Real)

THE AMAZON WE WANT
Science Panel for the Amazon

Boosting the relations between the Amazon forest and globalizing cities

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Key Messages & Recommendations

1) The myths of civility *versus* savagery, and of the inexhaustibility of the Amazon's natural resources, contribute to physical and cultural dis- or misconnections between many urban and rural residents in the Amazon.

2) In areas where physical dis- or misconnections exist, such as those related to local economies, food security, healthcare, schooling, and green urban infrastructure, they could be ameliorated with well-planned, participatory actions beneficial to both rural and urban dwellers. Some of these actions could involve rural populations in a regionally-developed bioeconomy, fostering small-scale food production in peri-urban areas, subsidizing healthcare professionals and infrastructure in small cities, establishing education hubs in rural areas, increasing urban green infrastructure, and operationalizing the concept of "smart cities, smart forests".

3) Strengthening urbanites' cultural connection to the forest and its people can be encouraged by concerted interventions in various sectors such as tourism, sports, and the visual arts; this would win people's hearts and minds over to protecting the forest and securing its future.

4) Considering the great influence of cities on rural areas (through the exchange of people, goods, and services), balance should be sought in rural-urban influence and power dynamics, through actions related to local economies, food provision, knowledge and education, healthcare, green infrastructure, and the flow of information.

5) Cultural gaps between the forest and rural people and urban populations should be drastically narrowed through interventions in different cultural sectors, including cinema, sport, and the visual

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arts. Existing, successful rural-urban bonds, such as those around food and festivals, can serve as good starting points to narrow these gaps. Refounding Amazonian culture, in the context of urbanized populations, is important not only for policy makers and traditional populations, but to society in general, including urban- and forest-dwellers.

Abstract By providing a brief and non-authoritative analysis of the physical and cultural relations between rural (forest) and urban areas in the Amazon, we identify several points for improvement, such as economic incentives to encourage health-care professionals to serve the countryside, implementing peri-urban agricultural belts to improve urban food security, increasing access to urban green spaces, and investing in innovation around the "smart cities, smart forests" concept. Perhaps most importantly, this would include mobilizing human, financial, and institutional resources to bolster cultural, spiritual, and affective bonds between urban and forest inhabitants.

Introduction Historically, occupation and urbanization of the Amazon followed complex, multifaceted, and oftentimes contradicting paths (see Chapter 14). Despite the important rural-urban connections described in Chapter 14, from the point of view of social, demographic, and economic forms of use and occupation, the relationship between "rural" and "urban" has been distancing itself from the idea of an "agricultural frontier"[1], as a limitable and detectable process between the supposed two worlds. The concepts of "urbanized forest"[2] or "rural cities"[3] are two interconnected examples of this recognition.

In a broad sense, three factors contribute to urban and rural disconnects in the Brazilian Amazon: (1) the relationship between "settlement" and *sertão* (hinterland) in the processes of European colonization[4–6]; (2) the myth of the inexhaustibility of Amazonian natural resources[7,8]; and (3) globalization and its disruption of social, economic, and political dynamics[9,10].

Rural-urban (dis)connection today The three factors above (occupation/*sertão,* civility/savagery, and the myth of inexhaustible resources) persist to the present day and are reflected in the region's development policies and economic and cultural forces. These antagonistic relationships contribute to rural-urban divides, and prevent the spread of a culture based on care for forests and their inhabitants. This is heightened by contemporary society, which is endowed with high mobility and located within the scope of globalized cities[11].

The concept of globalized cities, reviewed by Brenner[12], is meant here as "the planetary 'fabric' or 'web' of urbanized spaces[13] ... with well-defined urban hierarchies conditioned by supranational forces ... through which corporations coordinate their production and investment activities." It is also viewed "as an arena of contestation in which competing social forces and interests, from transnational firms, developers and corporate elites to workers, residents and social movements – struggle over issues of urban design, land use and public space." Today this encompasses not only economic flows but also "engages with a broad range of globalized or globalizing vectors – including ... new social, cultural, political, ecological, media and diasporic networks as well." In this sense it affects people's subjectivity by promoting a set of global, permanently networked set of communal standards at the expense of local culture. All the subtleties in these definitions are applicable to the cities in the Amazon region (Figure 34.1).

When experiencing a world that promotes the values of selfishness, consumption, and individualism over the collective good, individuals become increasingly insensitive to situations and matters that are not linked to their direct daily experience, such as the Amazon forest's condition. In this sense, both "invisible" environmental problems (e.g., global climate change) and the conditions for building an emotional bond with nature are seriously compromised. The perception of urban areas tends to be different for forest-dwelling Indigenous peoples and local communities (IPLCs). "Urbanization" for Indigenous people is often perceived as opportunistic;
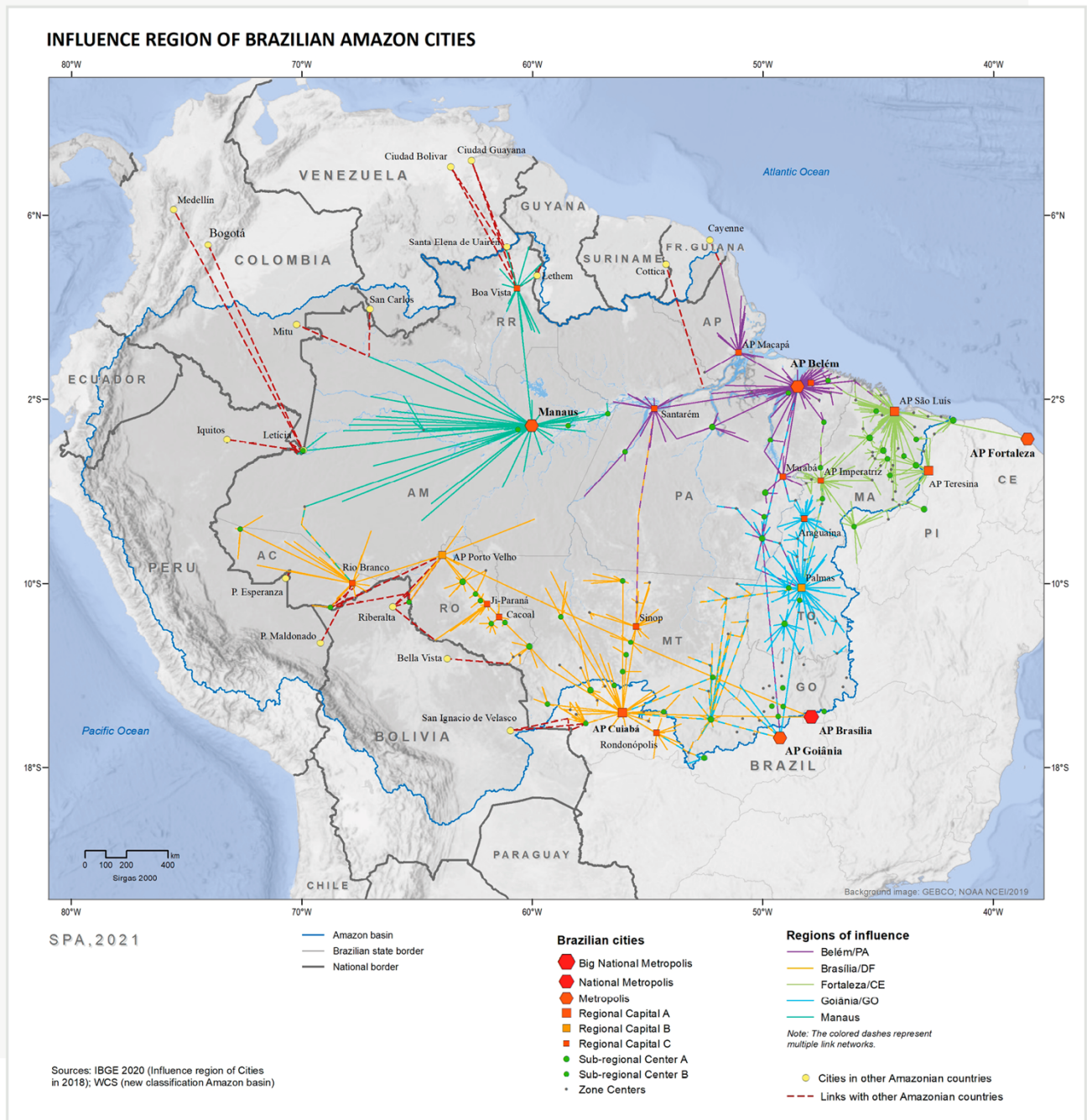
Figure 34.1 Spatial influence of large and medium-sized cities of the Brazilian Amazon. Notice the influence of Manaus over a large fraction of the western Amazon, including some foreign cities.

characterized by better prospects for employment, schooling, and political work; and as a means of escaping village conflicts.

The urban forest The Brazilian Amazon is urban, as more than 75% of its population is located in cities. The Brazilian geographer Bertha Becker described

the Amazon as an "urbanized forest"[2,14]. The concept of an "urban forest" is key to understanding the dominant social, cultural, economic, and political influences in the region (Figure 34.1). Amazonian cities, which exert influence over rural and forested areas, are generally devoid of the essential infrastructure upon which health and well-being depend, such as sewage and water treatment, adequate energy services, and waste management[15]. For example, about 86% of municipalities in the Brazilian Amazon do not have sewage treatment[16].

Apart from the cultural and physical aspects of these rural-urban exchanges, there are intrinsic dependence relations, or "misrelations", when it comes to trade in food and manufactured goods. Amazonian cities are seen as spaces that connect the region to global markets through key trading hubs in cities such as Manaus, Iquitos, and Belém[2] (Figure 34.1).

Physical rural-urban (dis)connections Approximately 80% of Amazonian cities have less than 50,000 inhabitants. These small cities, "despite having a fragile economy, strong dependence on subsidies offered by the central governments, and low capacity in offering key services and equipment such as education, health and sanitation, play an important role in the Amazon urban network"[17]. They represent the possibility for families to improve their lives through access to urban services and employment opportunities. However, there are some caveats and opportunities for improving connections between the forest and rural communities from the point of view of "physical" relations, i.e., the access, trade, and utilization of material goods, services (including ecosystem services), and information.

Formal and informal economies The region's informal economy, based on subsistence activities, the extraction of raw materials, and casual labor, is abundant and linked to national and international formal economies[18]. These linkages take place in the Amazon where the informal and formal economies intersect in relationships that can be perceived either as symbiotic or corrupt. Such a perception is, in some circumstances, actor-dependent, varying, for

example, between urban legalists and forest dwellers who want to overcome bureaucracy[19].

In order to obtain more money for their exports, Amazonian countries are forced to extract increasingly more resources, in an ecologically unequal exchange[20,21]. However, while nutritionally-adequate calories are exported at low prices (in an unequal calorie exchange[22]), expensive calories with low nutritional content (e.g., highly processed foods) are imported. Countries and regions that import raw Amazonian goods add value through processing and benefit from the consumption of these commodities, while negative environmental spillovers remain in the Amazon region. This has a double impact since the growing trade in primary products generates social and environmental damage in the places where they are produced or extracted – generally rural areas.

Some cities have resisted the pressures of globalization by developing alternative forest economies which diversify income and improve relations between cities and rural areas. State policies could stimulate growth in this space and encourage urban valuation of the forest. The development of a vibrant bioeconomy (see Chapter 29) based on respect for traditional production processes is an excellent alternative model for economic development of the Amazon region as a whole.

Food security A large proportion (~80%) of food bought and sold in the cities of the Brazilian Amazon is produced by smallholders (or settlers)[23], who often sell their products at street fairs in the region's small cities[24]. Recent analyses of sustainable rural development in the Brazilian Amazon indicate that there is a substantial reduction in deforestation and increased income when the six following enabling conditions are met: (1) governance over land tenure, (2) appropriate technical assistance, (3) access to credit, (4) access to transportation infrastructure, (5) access to urban markets, often with the support of local governments, and (6) recognition of and compensation for the ecosystem services provided by keeping forests standing[24,25].

It is remarkable that at least 4 of these points (2, 3, 4 and 5) depend on urban institutions and urban-to-rural infrastructure. Both the provision of appropriate technical assistance and the provision of credit lines for smallholders depend on reliable communication infrastructure to support frequent exchanges between farmers and urban service providers.

Producing food in peri-urban areas could be a way to raise farmers' incomes, promote forest conservation, and provide high-quality food to urban populations (see Chapter 14). IPLCs should be actively favored in the establishment, expansion, or maintenance of such production belts, given their extensive expertise in the region's agriculture[26,27] (see Chapters 8-13).

Health systems Rapid social change and an increasingly globalized lifestyle have led to changes in diet, nutrition, and physical activity which are driving increases in obesity, diabetes,[28,29] and cardiovascular disease[30,31]. These changes also place increasing pressure on local natural resources such as soils, wildlife, and timber, leading to negative feedbacks between environmental degradation and poor health[32,33] (see Chapter 21). Programs to improve the region's health include statewide vaccination campaigns, efforts by the World Health Organization in the 1970's to train community health workers[32], boats to deliver healthcare services such as the Amazon Hope project and the Abaré hospital-boat in Pará, and the construction of rural clinics.

In addition to the aforementioned itinerant healthcare initiatives and the strengthening of telemedicine, subsidy and incentive programs are important to encourage more healthcare professionals to serve the region's small cities and rural settlements. This is tied to improvements in living conditions and well-being in the countryside to make it more attractive to healthcare professionals and the providers of other essential services, such as education. Investment in rural healthcare infrastructure is also needed, including specialized equipment to support increased local treatment. Last but not least, all local populations - rural and urban – need to understand, maintain, and use the resources

already available to them. For example, in Ecuador SachaWarmi[34] produces videos that explain the use of medicinal plants.

Knowledge infrastructure and human capital
When dealing with education in the Amazon, our focus is on the interior and the countryside, where public policies have yet to be implemented, and where basic formal education and its three major stages (early childhood education, elementary education, and high school), arrive in a limited way and with serious problems, such as the scarcity and precariousness of physical spaces.

In 2010, the Amazônia Sustentável Foundation (FAS) began construction on nine Conservation and Sustainability Centers (NCS, for their acronym in Portuguese), within the conservation units where the institution operates. Designed to offer high-quality education in remote areas, FAS also trains teachers, develops educational materials, and improves upon methodologies, all with a focus on sustainability.

Three recommendations to support forest-city interaction with regards to education can be made based on the FAS experience. (1) Physical hubs for face-to-face education should be established in remote locations, (2) physical hubs should be supported by ICT technologies for greater access to teachers and content, and (3) programs should train community members to be teachers, since they already know the realities on the ground.

Green infrastructure for nature-based solutions
Green infrastructure is an increasingly employed concept for the planning of urban and rural landscapes and can be understood as "the connected network of multifunctional, predominantly unbuilt, spaces that support both ecological and social activities and processes"[35].

There is vast scholarly evidence on the benefits of greening urban spaces, including improved physical and mental health and lowering of air and surface temperature maxima and variation (Figure 34.2)[37,38].
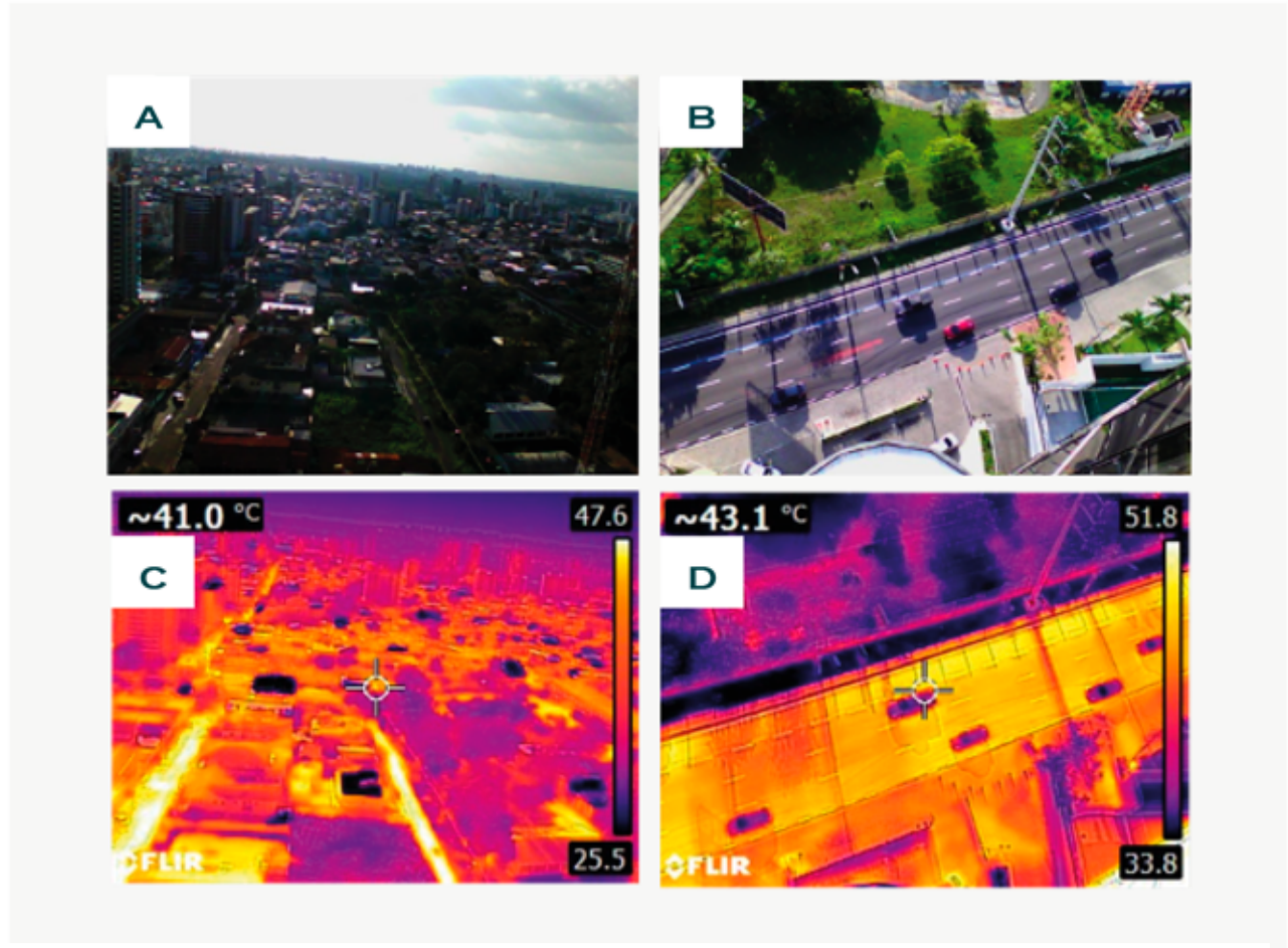
Figure 34.2 Visible (A, B) and thermal infrared (C, D) pictures taken from locations in Manaus (Brazil) in October 2016 as examples of poor insulation and (air-conditioning) energy conservation in buildings (A, C) and cars (B, D) and the importance of vegetation to ameliorate urban temperatures. The top left number denotes the temperature at the target in the center of the image[36].

There are, however, practical barriers to greening Amazonian cities to the level needed to realize these benefits. One is the lack of tax incentives to encourage the planting and preservation of trees and support the services needed to manage high tree coverage. A second is that increasingly constrained city budgets prevent municipalities from implementing robust city planning, including green infrastructure. Thirdly, state and federal governments should provide financial and technical assistance to small and medium cities with an interest in green infrastructure. Finally, the co-benefits of these investments must be documented and promoted, in a participatory way.

Information (smart cities, smart forests) Internet expansion has undeniably improved communication between small settlements and large urban centers, and supports a diverse array of sectors, including entertainment[39], agriculture[40], and telemedicine[41]. Nevertheless, when looking across Latin America the digital divide is strongest in the Amazon. While 72% of households in the Brazilian Amazon have internet, in urban areas it is 83% compared to only 33% in rural areas[42].

Improving the digital divide is vital for the exchange of information between rural and urban areas. Transitioning to "smart cities" (e.g., cities that use

sensors and technology to improve the management of resources and services[43]) could boost rural-urban relations, especially when paired with the concept of "smart forests," or highly-technologized forest sites. Sensors in forest areas can collect, process, and analyze data to manage environmental changes, such as anticipating fires or tracking forest resources in real time. This would also improve understanding of the forest, and could involve urban people in its care[44].

Connecting culturally with the forest One of the major challenges facing humanity today stems from the fact that we have lost the vital connection between humans and the rest of the living world that sustains us[45]. This is as true in the Amazon — whose human population is increasingly urban and globalized — as it is elsewhere. It is of paramount importance for the well-being of our planet and for the survival of humanity that we conserve the forest, not only to maintain biological and carbon assets, but also from a cultural point of view.

Practitioner reflections on reconnections Amazonians who live in and understand the forest are mobilizing politically[46]. Compared to forest-dwellers, urban Amazonians have a different mindset, set of values, and inherited culture. Urbanites should not simply appropriate IPLCs' culture, but rather redesign their own culture with greater respect for the forest, in a way that is informed by forest people and their ways of life.

What follows is a compendium of testimonials from cultural practitioners from ten different cultural sectors: architecture and urbanism, cinema, education, health and healing, music, journalism, spirituality, sport, tourism, and the visual arts. Preference was given to non-academics, as well as to maintain gender and geographic balance.

Laurent Troost talks about an "encounter of people with nature" inside through better urban planning (architecture), whereas Zienhe Castro (cinema) discusses the "connections" and "exchange" which cinema can promote.

Markus Zangas (education) talks about providing our children with "opportunities to be in nature", and the great "pajé" Mapulu Kamayurá (health) makes an invitation for "you (to) come to the forest to help" secure the existence of what she sees as the "pharmacy of the world" for the current and next generations.

Nadino Kalapucha (music), talks about a "walk in unison" and the power that music has to establish or strengthen our relationship with the forest, and Sônia Bridi (journalism) suggests that showing the "infinite beauty of our planet" on television is key to reestablishing what she calls "the lost connection" with the forest.

Manari Unishigua (spirituality), the akameno (authority) of the Sápara nation, urges all to look at the forest from the perspective of the "spiritual world", where life is suitable, with no diseases, doubts, or complications. Complementary to that spiritual vision, James Junior (sport) and Pedro Nassar (tourism), advocate that feeling, exercising, and placing our physical bodies inside the forest, either for sport or tourism, boosts the "affectional bond" between the forest and people.

Denilson Baniwa (visual arts) brilliantly concludes the argument by saying that, in fact, "everything is people" in the forest, which leads us to the conclusion that we, in fact, are the forest (Figure 34.3).

Rather than offering an authoritative statement on how to foster bonds between urban and forest populations, this set of testimonials aims to open a dialogue, especially considering that many other cultural sectors, such as fashion, literature, and cuisine, are not considered here. We understand this exercise as key to disseminating the scientific messages of this report to non-academic societal spheres. Testimonials are available on the Panel website at https://www.theamazonwewant.org.

Recommendations: Paving the way for transformation We attempt to understand rural-urban relations in the Amazon region and possibilities for their improvement, both from the physical and cultural
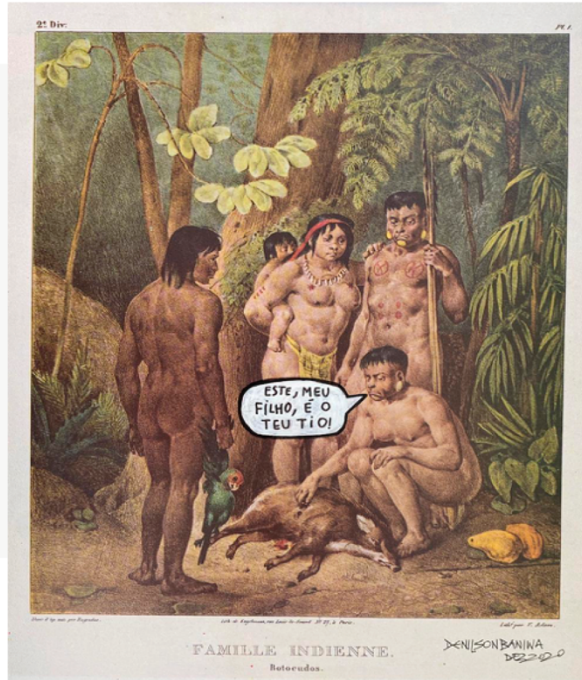
Figure 34.3 Denilson Baniwa "Everything is people", 2020, acrylic photo print, 32x24cm.

perspectives. While different sectors were analyzed separately, addressing them together in a holistic manner is desirable. For example, there cannot be a stronger link between rural and urbanized areas regarding food production without a new culture of urban planning in the Amazon. Alternatively, promoting sustainable tourism and sport in the forest is easier when there is also access to healthcare in rural areas. Both policymakers and society in general (including urban- and forest-dwellers) need to promote these changes, bearing in mind that sustainability in the Amazon region has been and will continue to be shaped by its growing urban network and its connection to forest people and landscapes. As Baba Dioum has said, "In the end, we will conserve only what we love, we will love only what we understand, and we will understand only what we are taught"[47].

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