Amazon Assessment Report 2021

Cross-Chapter Box

Legacy from the Ancestors: Amazonian Biocultural Landscapes and Global Sustainability in a Post-COVID-19 World

View of the Ipatse village of the Kuikuro people in the Xingu Indigenous Territory, Brazilian Amazon, during the "Duhe" (Kuikuro language) or "Tawarawanã" (Kamayurá language) Festival (Photo: Takumã Kuikuro)

THE AMAZON WE WANT
Science Panel for the Amazon

SUSTAINABLE DEVELOPMENT SOLUTIONS NETWORK
A GLOBAL INITIATIVE FOR THE UNITED NATIONS

About the Science Panel for the Amazon (SPA)

The Science Panel for the Amazon is an unprecedented initiative convened under the auspices of the United Nations Sustainable Development Solutions Network (SDSN). The SPA is composed of over 200 preeminent scientists and researchers from the eight Amazonian countries, French Guiana, and global partners. These experts came together to debate, analyze, and assemble the accumulated knowledge of the scientific community, Indigenous peoples, and other stakeholders that live and work in the Amazon.

The Panel is inspired by the Leticia Pact for the Amazon. This is a first-of-its-kind Report which provides a comprehensive, objective, open, transparent, systematic, and rigorous scientific assessment of the state of the Amazon's ecosystems, current trends, and their implications for the long-term well-being of the region, as well as opportunities and policy relevant options for conservation and sustainable development.

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Cross-Chapter Box: Legacy from the Ancestors: Amazonian Biocultural Landscapes and Global Sustainability in a Post-COVID-19 World

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CC2.1 Introduction

Did you know that chocolate, peanuts, manioc, chili peppers, Brazil nut, açai, and many other regionally- and globally-important foods were first managed or domesticated by Amazonian Indigenous peoples? Here, we explain how Indigenous peoples have shaped forest landscapes across the Amazon, and why they remain key partners for preserving and sustainably using biodiversity.

Indigenous peoples have interacted with Amazonian ecosystems for thousands of years, in some cases shaping the species composition of forests to suit human needs without disrupting ecological services (Posey 1985; Balée 1989; Balée 2010; Levis *et al*. 2018; Flores and Levis 2021). Afro-descendant and riverine communities have also sustainably managed Amazonian landscapes. Such biocultural landscapes result from long-term co-evolution between biological, sociocultural and linguistic diversity (Heckenberger 2010; Athayde *et al*. 2017).

Indigenous and Afro-descendant management led to the domestication of globally-important crops and food-producing forest landscapes that provide sustenance and income to millions of people. These include cultivated crops like manioc (*Manihot esculenta*), peanuts (*Arachis hypogaea*), and chili peppers (*Capsicum* spp.), as well as dozens of forest products like chocolate *(Theobroma cacao*), Brazil nut (*Bertholletia excelsa*), açaí (*Euterpe* spp.), peach palm (*Bactris gasipaes*), guaraná (*Paullinia cupana*), and cupuaçu (*Theobroma grandiflorum*) (Clement *et al*. 2015; Fausto and Neves 2018; Neves and Heckenberger 2019).

Management strategies that have shaped Amazonian biocultural diversity since the ancient past, and that are still practiced by Indigenous peoples and local communities (IPLCs), include (Figure CC2.1):

1) Protection, transportation, and transplanting of useful species;
2) Attraction of animal dispersers;
3) Phenotype selection;
4) Fire management;
5) Soil improvement; and
6) Weeding (see Levis *et al*. 2018).

Current IPLCs' practices upon Amazonian ecosystems call for new approaches to biodiversity conservation that recognize IPLC's knowledge and rights and include them in management and policy making (Franco-Moraes *et al*. 2019; Shepard *et al*. 2020; Cunha *et al*. 2021). A growing recognition of the role of ancient and contemporary IPLCs in managing and protecting Amazonian biocultural landscapes that have become islands of forest cover, biodiversity, and detailed traditional knowledge that could provide solutions to global food security, climate stability, and bioeconomics to address overlapping environmental, economic, and health crises (Flores and Levis 2021; Chapter 30). Here, we provide three examples of Indigenous-led projects promoting sustainable development of Amazonian biocultural landscapes: the *Amazon Sacred Headwaters* initiative in Ecuador-Peru; the *Ally Guayusa Cooperative* in Ecuador; and the *Amazon Hopes Collective* in the Upper Xingu in Brazil.

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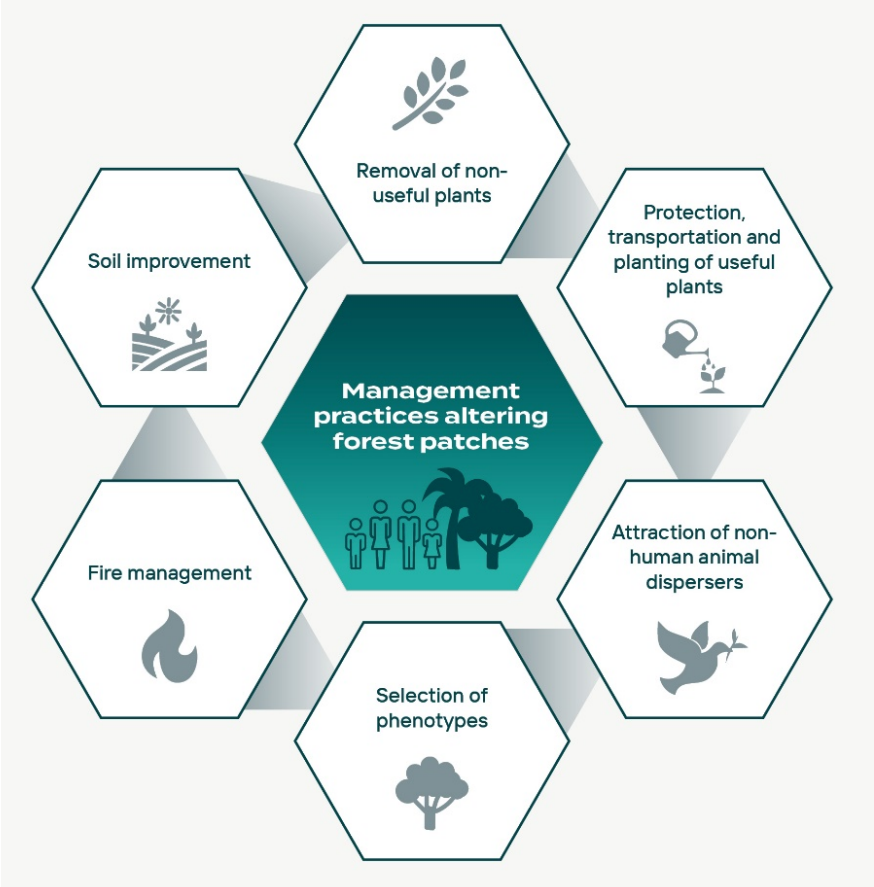

Figure CC2.1 Indigenous management practices impacting biocultural diversity and food production in the Amazon. Adapted from (Levis et al. 2018).

CC2.2 The Amazon Sacred Headwaters Initiative

The *Amazon Sacred Headwaters Initiative* is building a shared vision among different stakeholders to establish a bi-national protected region between Peru and Ecuador, off-limits to oil drilling and industrial resource extraction and governed in accordance with Indigenous principles of cooperation and a mutual human-Earth relationship.[1] The initiative is led by country-based and basin-wide Indigenous federations and associations,[2] in partnership with the Pachamama Alliance and Fundación Pachamama, who have joined efforts to permanently protect 30 million hectares (74 million acres) of tropical rainforests in the ancestral territory of over 20 Indigenous peoples, some living in voluntary isolation. It also harbors nearly 6 billion tons of carbon in undeveloped oil and gas reserves and standing forests. Similar to the "Green New Deal," the initiative seeks to promote renewable energy (mainly through community-solar initiatives), reduce fossil fuel dependence, and create a more just economic transition recognizing Indigenous knowledge and societies.

[1] Amazon Sacred Headwaters Initiative | Permanent protection for the Amazon.
[2] Confederation of Indigenous Nationalities of Ecuador (CONFENIAE); Asociación Interétnica de Desarrollo de la Selva Peruana (AIDESEP); Organización de los Pueblos Indígenas del Oriente (ORPIO) and Coordinadora de las Organizaciones Indígenas de la Cuenca Amazónica (COICA).

CC2.3 Ally Guayusa Cooperative

In Ecuador, the Kichwa Indigenous people established the *Ally Guayusa Cooperative*[3] to produce, harvest, process, and sell organic guayusa (*Ilex guayusa*) tea for local and international markets. With a population of 55,000, the Kichwa live in a territory of more than 1 million hectares between the Andean foothills and the Amazonian lowlands secured as a result of the 1992 Pastaza protest movement. Ongoing threats to their territory and culture include forest fires, large scale cattle ranching, road-building, industrial agriculture, illegal logging, mining, and oil and gas extraction. In response to these threats, Kichwa smallholder farmers, including strong women's leadership, are implementing innovative bioeconomy approaches for sustainable production and marketing of non-timber forest products. The Indigenous-owned business *Ally Guayusa* provides forest-based livelihoods while protecting biocultural diversity through partnerships with the Aliados Foundation and Lush Cosmetics Charity.

CC2.4 The Amazon Hopes Collective

The *Amazon Hopes Collective*[14] includes scholars, public agencies, and the Kuikuro Indigenous Association (AIKAX) of the Upper Xingu in Brazil. It builds on prior collaborative archeological research that documented large pre-Columbian populations with extensive landscape management (Heckenberger *et al*. 2008; Heckenberger 2020). The Upper Xingu and its Indigenous populations are threatened by encroachment from soy and cattle ranching, droughts, pollution, fires associated with climate change, and the COVID-19 pandemic. Collaborative biocultural heritage studies include state-of-the-art mapping technologies in the hands of Indigenous researchers that were adapted to monitor the COVID-19 pandemic using an ESRI ArcGIS dashboard. The Kuikuro are also applying these technologies to growing problems with forest fires caused by deforestation and climate change (Figure CC2.2). The project seeks to develop a "fire-wall'' by linking Indigenous peoples with the global community. These examples share common elements that can inspire pan-Amazonian and global policies:

- Strong Indigenous leadership and self-determination; valorization of Indigenous and local knowledge, languages, and biocultural practices; community and women's empowerment
- Coalitions and alliances between Indigenous peoples and diverse actors including scientists, governments, national and international NGOs, the private sector, and philanthropic organizations at local, regional, and global scales
- Integrated territorial management that sustains forest and river-based livelihoods, including economic solutions through the sustainable use of natural resources of local and global significance.

CC2.5 Recommendations

As resource scarcity, market engagement, and climate change have come to shape Amazonian livelihoods, Indigenous peoples and local communities have become key innovators in conservation and development projects, sustainable resource management, and territorial governance. The knowledge, products, and ecosystem services provided by Amazonian biocultural landscapes are intricately linked to global climate resiliency and to a post-carbon, post-COVID-19, equitable economy.

In this light, we close with four recommendations for policy-makers:

1. *Education and scientific communication*: Recognize Indigenous peoples' and local communities'

[3] https://news.mongabay.com/2020/05/ecuadors-kichwa-implement-innovative-approach-to-rainforest-conservation/
[4] More information on the project: https://www.pennywisefoundation.org/amazon-hopes-collective.html; https://storymaps.arcgis.com/stories/d13c50b64ada4e53856b3d4d64a08bcb

Figure CC2.2 Aspects of the Amazon Hopes Collective project, co-developed with the Kuikuro Indigenous Association (AIKAX) of the Upper Xingu in Brazil. Use of participatory mapping technologies for researching and monitoring biocultural heritage by Kuikuro young leaders, under the guidance of elders. A) Chief Afukaka Kuikuro talking about Kuikuro's territory and biocultural heritage. B) Huke Kuikuro and Bruno Moraes mapping houses on the new village using a differential GPS receptor. C) Kumessi Waurá (left) and Viola Kuikuro (right) mapping tree concentrations on an anthropogenic dark earth (egepe) area. D) Kumessi Waurá showing the monitoring app used during the COVID-19 Combat Project created by the Amazon Hopes Collective. Photos by AIKAX.

role in the formation, management, and protection of biocultural landscapes in the Amazon; strengthen intercultural education programs that protect Indigenous and local languages and territories (Chapter 33).

2. *Territorial rights*: Guaranteeing territorial rights for Indigenous peoples and local communities is among the most important strategies for protecting biodiversity and biocultural landscapes in the Amazon, with significant implications for regional and global climate stability, as well as water and food security.

3. *Participation of Indigenous peoples and local communities*: Amazonian countries are pluricultural democratic societies, and their governments must guarantee the participation of Indigenous peoples and local communities in all decisions affecting their territories and livelihoods, providing timely access to reliable information and respecting their social organization and decision-making processes as outlined in the International Labour Organization's (ILO) Convention 169,[5] the Escazu agreement,[6] and the Leticia pact.[7]

4. *Bioeconomy and sociobiodiversity*: The current development model based on resource extraction must evolve towards a bioeconomy that sustains forest- and river-based livelihoods and protects biocultural diversity. International diplomacy and private sector initiatives must discourage and/or prohibit economic practices

[5] https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C169
[6] https://www.cepal.org/en/escazuagreement
[7] https://es.mongabay.com/2019/09/cumbre-por-la-amazonia-colombia-pacto-de-leticia/

that result in deforestation, ecosystem degradation, and the violation of human and Indigenous rights.

CC2.6 References

Athayde S, Silva-Lugo J, Schmink M and Heckenberger M. 2017. The Same, but Different: Indigenous Knowledge Persistence and Change in the Brazilian Amazon. *Human Ecology* **45** (4): 533–544.

Balée W. 1989. The culture of Amazonian forests. Pages 1–21. In: Posey DA and Balée W, editors. Resource Management in Amazonia: Indigenous and Folk Strategies. New York Botanical Gardens, New York.

Balée W. 2013. Cultural forests of the Amazon: a historical ecology of people and their landscapes. Birminghan, The University of Alabama Press.

Clement CR, Denevan WM, M. J. Heckenberger MJ, *et al*. 2015. The domestication of Amazonia before European conquest. *Proceedings of the Royal Society of London B: Biological Sciences* **282** (1812):20150813.

Cunha MC, Magalhaes SB and Adams C. (orgs.). 2021. Povos Tradicionais e Biodiversidade no Brasil. Contribuições dos povos indígenas, quilombolas e comunidades tradicionais para a biodiversidade, políticas e ameaças. São Paulo: SBPC.

Fausto C and Neves E. 2018. Timeless Gardens: deep indigenous history and the making of biodiversity in the Amazon. In: Sanz N. 2018. Tropical Forest Conservation. Exploring Frameworks for Integrating Natural and Cultural Diversity for Sustainability, a Global Perspective Mexico: UNESCO.

Flores BM and Levis C. 2021. Ancient human-food feedback could boost tropical food security. *Science* **372** (6547): 1146-1147. DOI:10.1126/science.abh1806

Franco-Moraes J, Baniwa AFMB, Costa FRC *et al*. 2019. Historical landscape domestication in ancestral forests with nutrient-poor soils in northwestern Amazonia. *Forest Ecology and Management* **446**: 317-330.

Heckenberger M. 2020. Xingu Garden Cities: Amazonian Urban Landscapes, or What? In Landscapes of Preindustrial Urbanism, ed. Farhat G, pp. 225-261. Washington DC: Dumbarton Oaks.

Heckenberger MJ, Russell JC, Fausto C, *et al*. 2008. Pre-Columbian Urbanism, Anthropogenic Landscapes, and the Future of the Amazon. *Science* **321** (5893): 1214–17.

Levis C, Flores B, Moreira P, *et al*. 2018. How People Domesticated Amazonian Forests. *Frontiers in Ecology and Evolution* **5**:171.

Neves EG and Heckenberger MJ. 2019. The Call of the Wild: Rethinking Food Production in Ancient Amazonia. *Annual Review of Anthropology* **48**(1): 371-388.

Posey DA. 1985. Indigenous management of tropical forest ecosystems: the case of the Kayapó indians of the Brazilian Amazon. *Agroforest Syst* **3**: 139–158

Shepard GH Jr., Clement C, Lima HP, *et al*. 2020. Ancient and traditional agriculture in South America: Tropical lowlands. In R. Hazlitt (Ed.), Oxford Encylopedia of Agriculture and the Environment. Oxford: Oxford University Press.

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