



FSC Case Study on Ecosystem Services: Brazil

Linking Companies with Forests: Restoring Carbon and Biodiversity in the Amazon



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Introduction to Verified Impact

The Forest Stewardship Council™ (FSC®) is pleased to introduce its updated Verified Impact solution. Formerly known as the Ecosystem Services solution, Verified Impact is a collaborative solution by FSC that matches private- and public-sector businesses to ecosystem services projects in FSC-certified forests under a sponsorship model.

FSC's Verified Impact framework empowers forest stewards to monitor, conserve, and improve the ecosystem services delivered by managed forests. In doing so, high-quality climate and nature data can be captured to show measurable impacts of valuable environmental and/or social change, incentivising sponsorship of the steward's efforts. The framework covers five types of ecosystem services, from which high-integrity data can be extracted for sponsors to use – carbon sequestration, biodiversity conservation, watershed services, soil conservation, and recreational services.

To highlight the real-world applications of Verified Impact, FSC is sharing case studies to illustrate how this solution has tapped into an intersection of business and environmental interests to bring benefits to both company sponsors and forest stewards.

These projects show that:

- Ecosystem services of **sustainably managed forests** can help society **fight the climate crisis** and **biodiversity loss**.
- The impact of ecosystem services is measurable, meaning **businesses can tangibly show a return on their investment** as sponsors of sustainable forestry projects.
- **Credible, quality data** around ecosystem services impact can contribute to companies' Corporate Social Responsibility (**CSR**) efforts or Environmental, Social, and Governance (**ESG**) strategies.
- Sponsorship of ecosystem services projects attaches much-deserved value to sustainable forestry, enabling forest stewards to continue their efforts to **restore and conserve the world's forests**.
- **Businesses of any size can participate** in ecosystem services projects, because different projects require multiple or single sponsors, or are ideal for support from larger corporates or smaller companies.



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Brazil Project Context

Improving carbon stock and biodiversity in a community-managed Amazonian forest

Key Takeaways

In one of the **smaller Verified Impact projects**, FSC connected Brazil's Amazonbai co-operative of small-scale açai producers with **3 business sponsors**. The impact that Amazonbai achieved across two ecosystem services was audited and verified in 2022 and again in 2023.



3 BUSINESS SPONSORS

The ongoing project aims to restore and conserve the **carbon sequestration and storage capabilities** and **species biodiversity** across a managed forest area of **2,449.12 hectares** in the Bailique Archipelago of Amapá, at the mouth of the Amazon River.



2,449.12
HECTARES

There were **402 hectares more forest cover** in 2023, compared with 2016, providing habitat and food to a stabilised count of **259 species**, including vulnerable species such as jaguar, the giant anteater, and white-snouted and black-billed toucans.



259
SPECIES

In 2023, there were **28,276 tons more carbon stock** than in 2016. This increase amounts to the capture of 103,679 tons of CO₂e (carbon dioxide equivalent), which is how much 22,539 cars would emit annually.



CO₂e CAPTURE EQUAL TO
22,539
CARS' EMISSIONS

Set up in Brazil in 2013, Amazonbai (licence code FSC-C131371) is a co-operative of small-scale açai producers from local communities within the Bailique Archipelago of Amapá, at the mouth of the Amazon River. The co-operative was established to promote sustainable forestry, as demand for açai continues to grow, putting added pressure on the forest groves.

At last measure in 2023, the co-operative's 132 members managed the ecosystem services of an FSC-certified area of 2449.12 hectares, where they control every aspect of production, from sustainable harvesting to berry processing.

To sustain a high level of production, maintaining forest cover is critical. However, **human activity** such as unsustainable livestock farming and mining degrade forested areas, threatening the livelihoods of local communities. Loss of forest cover also poses a **risk to biodiversity**, especially to the most vulnerable of the 259 species the forest is estimated to home, such as jaguar and the giant anteater. Additionally, environmental degradation **weakens the forest's ability to capture and store carbon** from the atmosphere, which is critical for microclimate regulation.

Amazonbai must also comply with Brazil's Forest Code legislation, which defines Permanent Preservation Areas (PPAs) as "areas of vegetation... designated for protection because they... [are] critical to the preservation of essential ecosystem functions"¹. In the state of Amapá¹ where Amazonbai operates, some of the vegetation is defined as a PPA.

¹ Climate Policy Initiative (2015) Brazil's new forest code part i: how to navigate the complexity (Available at <https://www.climatepolicyinitiative.org/wp-content/uploads/2015/11/Policy-Brief-Part-I-How-to-Navigate-the-Complexity.pdf>; accessed 15 January 2024)







Snapshot of Progress

The FSC Verified Impact framework enabled Amazonbai to tackle the loss of biodiversity and carbon stock. The co-operative did so by focusing on two ecosystem services (ES), namely ES 1.6 (conservation of species diversity) and ES 2.1 (conservation of forest carbon stock).

After meeting its ES objectives, Amazonbai had its impacts verified by an independent third party in 2022 and again in 2023. See the Project Overview table below for the highlights, with an exploration of various steps taken outlined in subsequent sections.

Project Overview: Amazonbai

Verification validity period	5 years (2022 to 2027)
Desired ES outcomes	<p>ES 1.6 Conservation of species diversity Outcome: maintain and conserve 259 listed species by minimizing impacts on habitat from human activities in region.</p> <p>ES 2.1 Conservation of forest carbon stocks Outcome: maintain and conserve forest carbon stock.</p>
Results of ES, validated	<ul style="list-style-type: none"> 259 fauna species have been maintained during the measured years from 2016–2023. Available habitat area of canopy forests was 402 hectares greater in the management unit in 2023 compared to 2016. Compared with 2016, carbon stock improved in 2023 with an additional 103,679 tons of CO₂e sequestered from the atmosphere by the forest. ES 1.6 and ES 2.1 outcomes met.

Small-scale Project Sponsorship

Many of the stewards who oversee forests' crucial ecosystem services are smallholders, Indigenous Peoples' communities, or public-private associations who need financial support to ensure the long-term viability of their projects. This is where FSC's Verified Impact solution is beneficial, as it connects interested businesses to aligned ecosystem services projects. There is a spectrum of projects addressing different ecosystem services across management units of varying sizes – from vast tracts of forest requiring large or multiple sponsors, to small and low-intensity managed forests ideal for a single small business to sponsor.

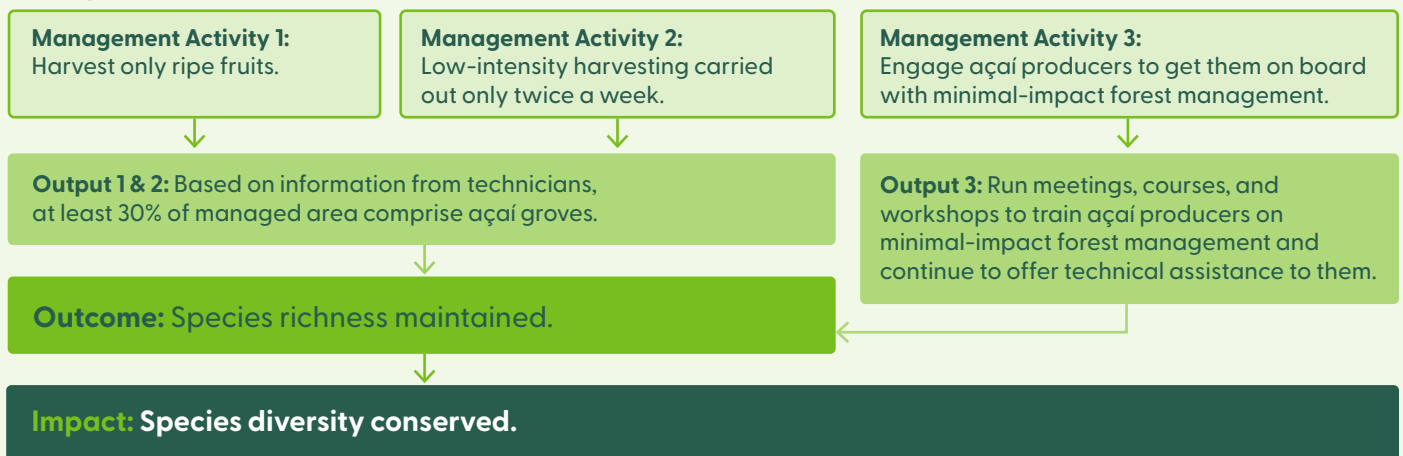
This project in Brazil is an example of one of the low-intensity initiatives under the Verified Impact banner, focused on ecosystem services across a smaller tract of land that's under 2,500 hectares. To date, Amazonbai has attracted the sponsorship of three sponsors, including a Brazil-based professional-cleaning-product manufacturer.

Shaping Two Theories of Change

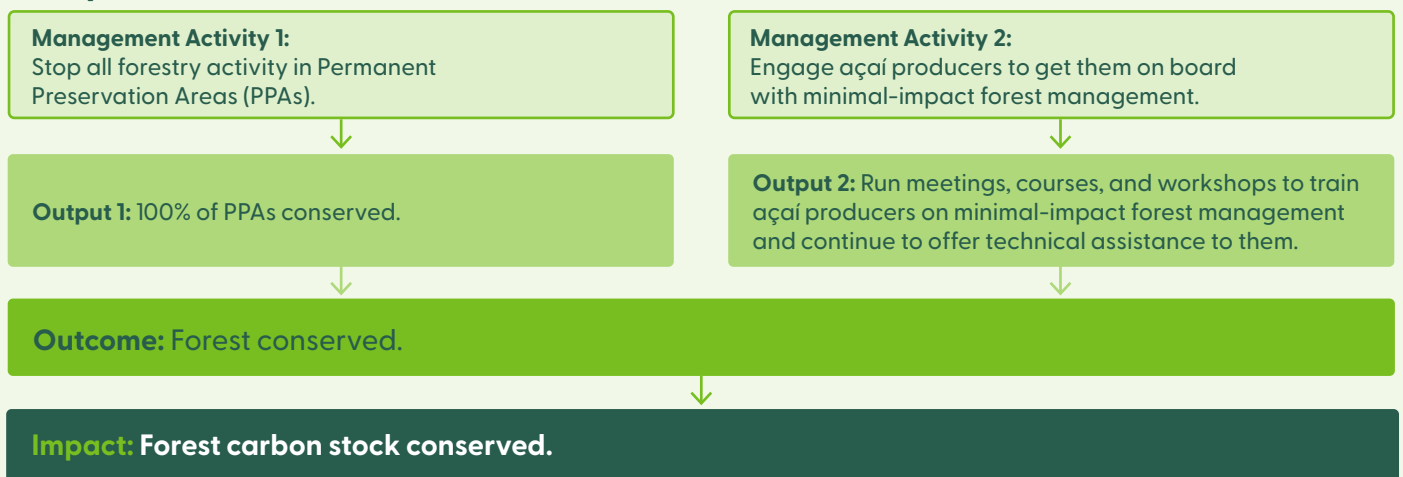
A Theory of Change (ToC) is a plan put forward to FSC by the forest steward. It details a chain of results over time that show how the steward expects their management activities to contribute to a desired impact. Amazonbai submitted two ToC plans under the Verified Impact framework. With a clear direction charted through this planning, the co-operative was able to deliver the desired impact for conserving the forest's species diversity and carbon stock. These ToCs can be seen below:

Amazonbai's Theories of Change

Ecosystem Service 1.6



Ecosystem Service 2.1



Selecting Management Activities

To achieve their desired outputs, Amazonbai focused on four Management Activities (bolded below). These actions were chosen to deliver impact across two Ecosystem Services (ES), namely ES 1.6 (conserving species biodiversity) and ES 2.1 (conservation of forest carbon stocks).

Carbon stocks are protected by conserving forest cover, which is why Amazonbai's efforts for ES 2.1 centred on **stopping forestry activity in PPAs**. Another activity – **educating and training local açai producers** – helps the co-operative meet both ES 1.6 and ES 2.1 goals. Since 2019, Amazonbai's technical assistance team has engaged with community members on minimal-impact forest management, encouraging producers to avoid “machinery, pesticides or fertilizers”.

Amazonbai has also found correlation studies useful for Theory of Change mapping, leveraging scientific literature such as Pessoa et al. (2017), Nunes (2017), and Souza et al. (2018). These sources highlight the link between the availability of fruit and the abundance of fauna species who rely on this resource as food. Areas of açai groves subjected to intense management have lower species richness, which Amazonbai is actively rallying against. For this reason, the co-operative's focus on biodiversity preservation is linked to protection of açai groves through two activities: **only harvesting ripe fruits and confining low-intensity harvesting to twice a week**.

Methodology Sources for Delivering Outcomes

To accurately compare progress of ecosystem services between 2016 and 2023, Amazonbai relied upon various methodologies. The team was guided by suggestions within the FSC Ecosystem Services Procedure: Impact Demonstration and Market Tools (FSC-PRO-30-006) document and, as previously indicated, also leveraged various scientific works to develop a comparison proxy. Amazonbai also made use of the Avenza Maps application and ArcGIS software to identify and map their management unit. To calculate forested areas within this unit, the co-operative sourced land cover and use maps from the MapBiomass platform.

Impactful Results

Compared with 2016, we see an increase in 2023 in both forest cover and carbon stock. In 2023, forest cover was 402 hectares greater, and carbon stock grew by 28,276 tons (103,679 tons of CO₂e).

Between 2016 and 2018, the trend was a decrease in forest cover and carbon stock year on year. With Beira Amazonas producers joining Amazonbai in 2019, practise of responsible forest management intensified, which has reversed the former trends. By 2023, forest cover levels had improved and stabilised alongside the desired level of species richness at 259 species. By 2023, the forest's ability to sequester and store carbon from the atmosphere had also grown and stabilised. To demonstrate the power that forests can have in mitigating climate change, consider that the increased 103,679 tons of CO₂e sequestered in 2023 is equal to the annual greenhouse gas emissions² from 22,539 cars.

Through this case study, we can see tangible results that Amazonbai delivered using FSC's Verified Impact. This project not only demonstrates the important link between quality habitats and biodiversity, but also how forests can be effective carbon sinks that bolster the health of the surrounding ecosystem in a way that positively impacts not only biodiversity levels but also social enrichment of local communities.

² United States Environmental Protection Agency (nd) Greenhouse Gas Equivalencies Calculator (Available at <https://www.epa.gov/energy/greenhouse-gas-equivalencies-calculator#results>; accessed 15 January 2024).



Find Out More

To learn how your business can benefit from our Verified Impact solution, contact FSC via ecosystems@fsc.org.

For more information on the business case for supporting Verified Impact, read our three-part blog series entitled "[Unite in the Forest Fight](#)".

