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TO PROTECT
THE AMAZON,
WE HAVE TO
REFOREST IT



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THE AMAZON RAINFOREST IS INDISPENSABLE TO GLOBAL CLIMATE STABILITY, BUT CONSERVATION EFFORTS OFTEN CLASH WITH THE ECONOMIC ASPIRATIONS OF THE PEOPLE WHO LIVE IN THE REGION. TO OVERCOME THIS DEADLOCK, BRAZIL NEEDS AN AMBITIOUS PROGRAM OF PRODUCTIVE REFORESTATION CAPABLE OF CREATING GREEN JOBS, QUICKLY AND AT SCALE.

By Salo Coslovsky and Beto Veríssimo

CONTEXT

Inspiration comes from Africa. In 2007, eleven African countries launched the Great Green Wall, a coordinated tree-planting effort to halt the advance of the Sahara. Over 13 years, these original proponents and several of their neighbors restored 20 million hectares across a belt stretching from Senegal to Ethiopia (Nature 2023). The effort consumed US\$2.5 billion and generated 350,000 jobs. Although the initiative fell short of its initial goals and results varied by country, the achievement demonstrates that large-scale forest restoration can yield substantial returns, even when initial conditions seem unfavorable.

KEY MESSAGES

- **THE AMAZON FACES A COSTLY STALEMATE, AS ENVIRONMENTAL PROTECTION CLASHES WITH LOCAL ECONOMIC NEEDS.** Without viable alternatives for large-scale employment, Amazon residents and their elected leaders continue defending forest-degrading activities, including extensive cattle ranching, wildcat gold mining, land grabbing, and illegal logging, as their path to prosperity.
- **WITHOUT LOCAL BUY-IN, ENVIRONMENTAL GAINS REMAIN FRAGILE AND SETBACKS HAVE ACCELERATED.** Between 2013 and 2024, the Amazon lost 4.6 million hectares beyond the 2012 baseline. The creation of protected areas has stalled, land grabbing has surged, and environmental laws have been systematically weakened at state and federal levels.
- **PRODUCTIVE REFORESTATION CAN BREAK THIS DEADLOCK.** Converting already-deforested, degraded, or abandoned lands into technologically advanced production systems, including agroforestry, perennial crops, planted forests, and ecological restoration, can simultaneously create green jobs, generate income, and protect remaining forests.
- **BRAZIL HAS A UNIQUE OPPORTUNITY TO SCALE PRODUCTIVE REFORESTATION.** Amazon-based producers already generate US\$7.2 billion annually from forest-friendly products, yet capture only 3% of total national and global demand. The region has approximately 35 million hectares that can be reforested without affecting current soy or cattle production.
- **SUCCESS REQUIRES ACTION ON FIVE FRONTS:** land tenure security, long-term financing, technology development, productive development policies, and government action. Early wins on these fronts will begin breaking the political deadlock, making further progress increasingly feasible.



The Brazilian Amazon faces serious challenges, including a growing spectrum of illegal activities such as wildcat gold mining, predatory logging, unauthorized deforestation, and organized crime. At the same time, its socioeconomic indicators lag far behind the national average. GDP per capita in the Brazilian Amazon is nearly one-third lower than in the rest of Brazil (Santos et al. 2025a), while average household income per capita stands at just 60% of that elsewhere in the country (Alfenas, Cavalcanti e Gonzaga 2020). The region's economic potential, however, remains significant thanks to the Amazon's vast territory, abundant water resources, and a population of 28 million composed predominantly of young people and working-age adults.

There is extensive debate about how to bring environmentally sustainable prosperity to that region, and two approaches stand out. On the social and environmental side, a vast array of organizations have been emphasizing community-based projects and small-scale enterprises, often established directly in the forest, as the best way to align conservation with economic production. These efforts are crucial for social assistance and environmental protection but have limited potential for scaling.

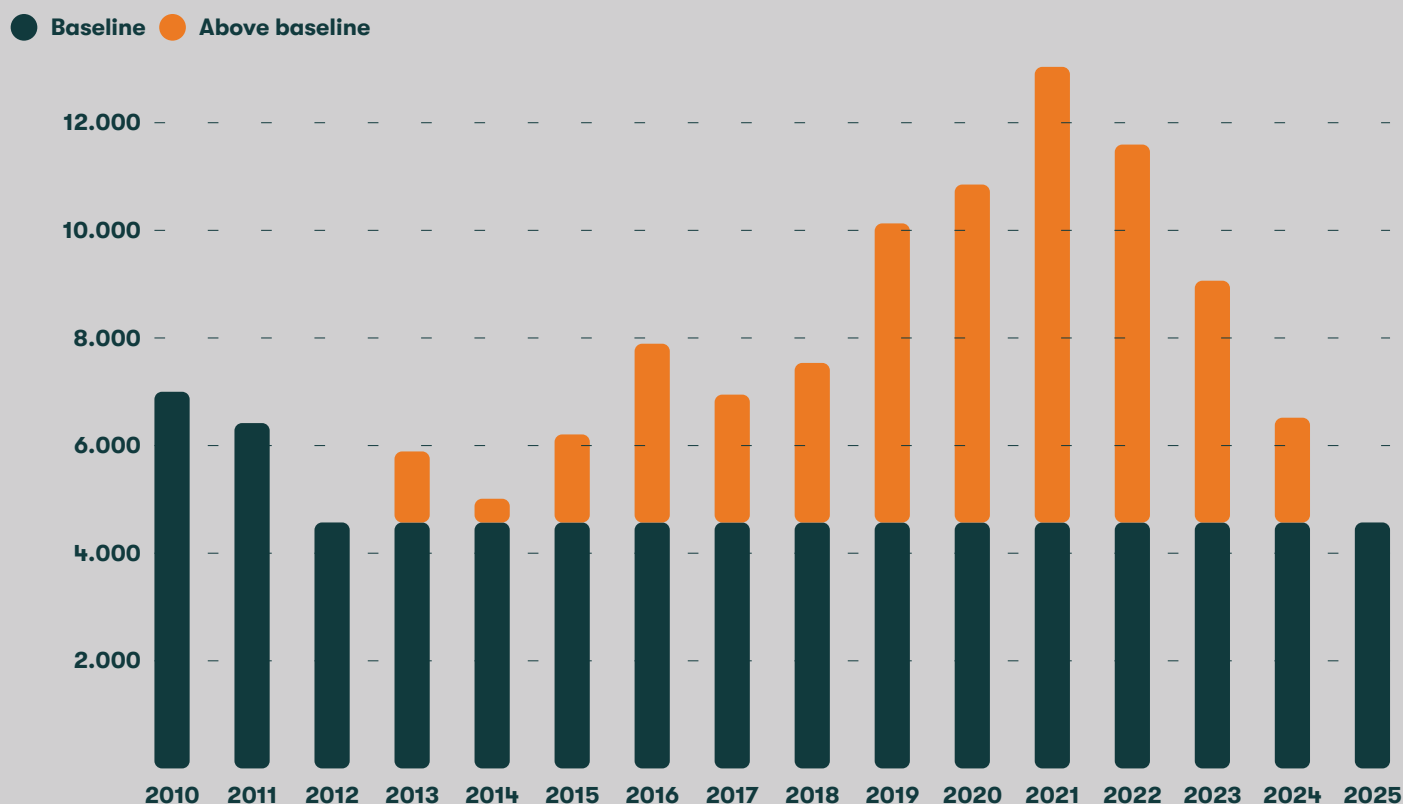
On the economic side, development banks, fund managers and financial institutions have been investing enormous effort into raising climate financing to support the so-called nature-based solutions. These efforts are praiseworthy, as environmental conservation can be costly and capital is essential to building viable businesses and paying for environmental services. Still, climate financing often lumps together initiatives that are intrinsically different. Some initiatives aim to conserve existing forests, with success measured in hectares protected. Others aim to foster economic development through forest-friendly enterprises, with success measured by jobs and income generated from sustainable production.

THE PROBLEM

This distinction matters because conservation and production work in fundamentally different ways. In conservation efforts, fundraising is hard, but implementation is relatively easy, whether that means enforcing penalties against those who deforest or rewarding those who prevent it from happening. For production, the dynamic reverses. Fundraising becomes easier, as profitable enterprises can repay their loans. Implementation, however, is hard, as the Amazon faces a severe shortage of enterprises capable of creating quality green jobs at scale. In the jargon of financiers, there is no “pipeline” or “deal flow” – a problem that an abundant supply of inexpensive capital cannot solve on its own.

As a result, conservation gets promoted in three ways: through top-down enforcement, bottom-up community projects, and market-based payments for environmental services. While crucial for protecting forests, these approaches do not create jobs or generate income at the scale the region demands. And without viable alternatives for large-scale green employment, Amazon residents will continue to insist that soy farming, cattle ranching, and other destructive activities remain their best path to prosperity.

Worse still, each side's insistence that only their approach is legitimate fuels a war of attrition that is costly for both sides, but especially damaging to the forest. The largest setback occurred between 2013 and 2024, when changes in national political alignment, coupled with ongoing local push back towards environmental regulations, enabled an additional 4.6 million hectares of native forests to be lost beyond what would have occurred had deforestation rates remained at its 2012 low (see figure 1).

FIGURE 1. Deforestation in the Amazon in excess of 2012's baseline (Km²/year)

SOURCE: SANTOS ET AL. 2025B

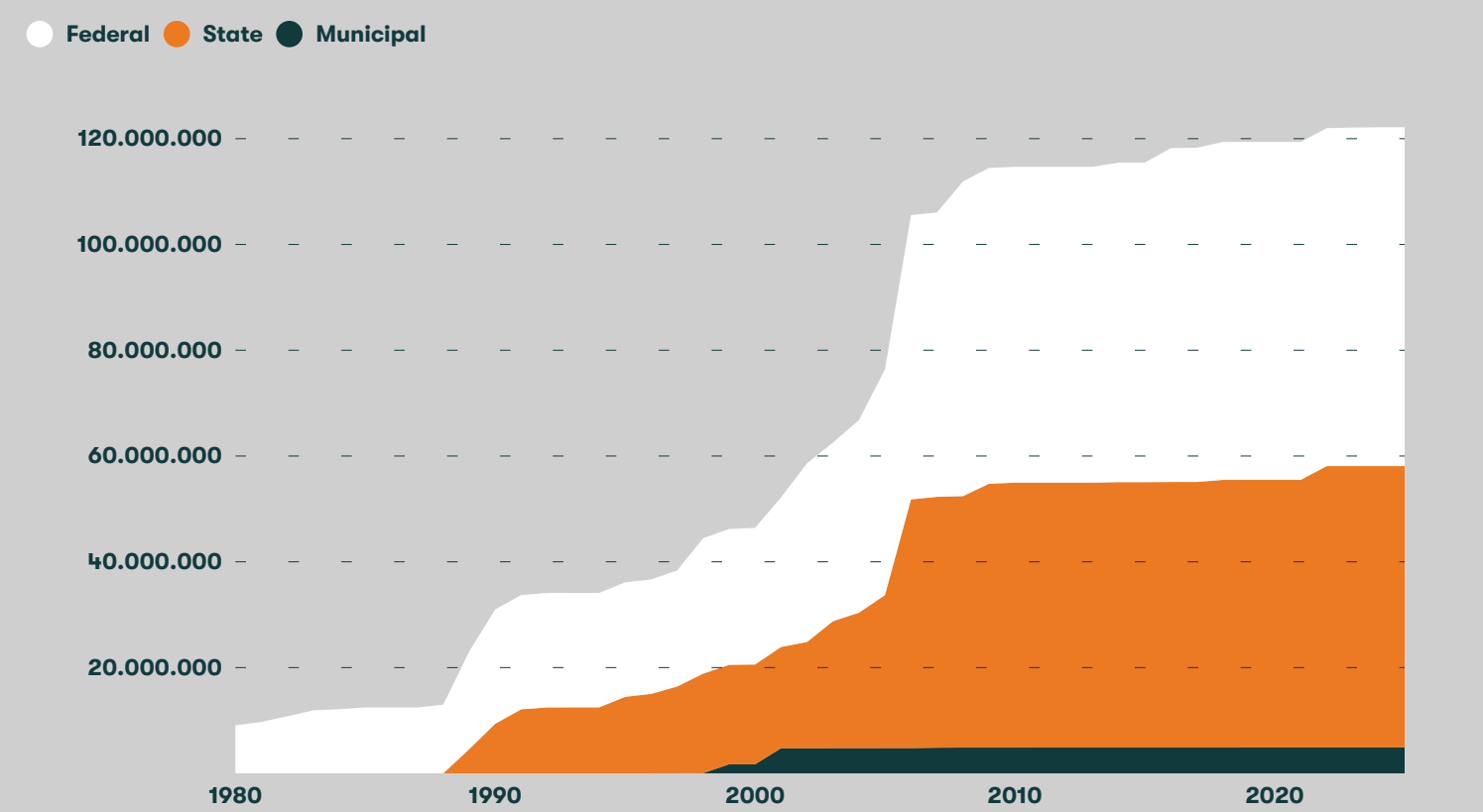
Adding to these losses, the creation of protected areas has mostly stalled (see figure 2), land grabbing of public forests has increased (Brito and Gomes 2022), and legislators have systematically weakened important environmental laws at both the state and national levels. Unless this stalemate is defused, protecting the forest will demand ever more effort, political will, and funding just to prevent backsliding, while advances will remain beyond reach.

The key to breaking the stalemate lies in adopting an ambitious program of productive reforestation. Productive reforestation converts already-deforested land and severely degraded pastures into technologically

advanced production systems that generate goods and services with strong market demand. Reforestation can include agroforestry systems anchored in perennial species like cacao, coffee, açai, and oil palm; tree farming with fast-growing species like eucalyptus and paricá for biomass, fiber, and other materials; and ecological restoration through natural regeneration or the planting of native tree species for carbon sequestration, selective timber extraction, and legal compliance.



FIGURE 2. Cumulative Area of Protected Areas in the Amazon (HECTARES OVER TIME)



SOURCE: BRASIL 2025²

Four elements converge to make productive reforestation the ideal strategy for the deforested Amazon.

- 1 First, productive reforestation builds on proven success and taps into existing demand. Businesses based in the Amazon already generate \$7.2 billion annually from products like açai, cacao, cassava, bananas, and palm oil (Coslovsky 2025). The global demand for these commodities is both longstanding and large. In 2024, businesses spent \$233 billion purchasing them. Yet the Amazon captures only 3% of this market across all segments (see Table 1).

Another major economic opportunity lies in the promising market for carbon removals and sequestration through forest restoration, whether via natural regeneration or the planting of native trees. Forest restoration is advantageous because it can be conducted alongside the production of more conventional products such as açai and shade-grown cacao.

² <https://dados.gov.br/dados/conjuntos-dados/unidadesdeconservacao>
³ <https://www.americasquarterly.org/article/belem-um-caminho-realista-para-o-sucesso/>



TABLE 1. Existing Total Demand and Amazon’s Supply, by Segment, 2024

SEGMENT	AMAZONIAN SUPPLY (US\$)	SEGMENT RELEVANCE FOR THE AMAZON	TOTAL DEMAND (US\$)	AMAZON’S MARKET SHARE
Premium Amazonian specialties (Brazilian market)	US\$41 million	0.6%	US\$41 million	100%
Standard non-timber forest products (Brazilian market)	US\$246 million	3.4%	US\$253 million	97%
Forest-friendly agricultural commodities (Brazilian market)	US\$6.5 billion	90%	US\$20,5 billion	32%
Forest-friendly agricultural commodities, fresh (international market)	US\$288 million	4.0%	US\$111.6 billion	0.3%
Forest-friendly agricultural commodities, processed (international market)	US\$137 million	1.9%	US\$101.5 billion	0.1%
Total	US\$7.2 billion	100%	US\$233.9 billion	3.1%

*Note: International market values are calculated using FOB prices; domestic market values use farm-gate prices

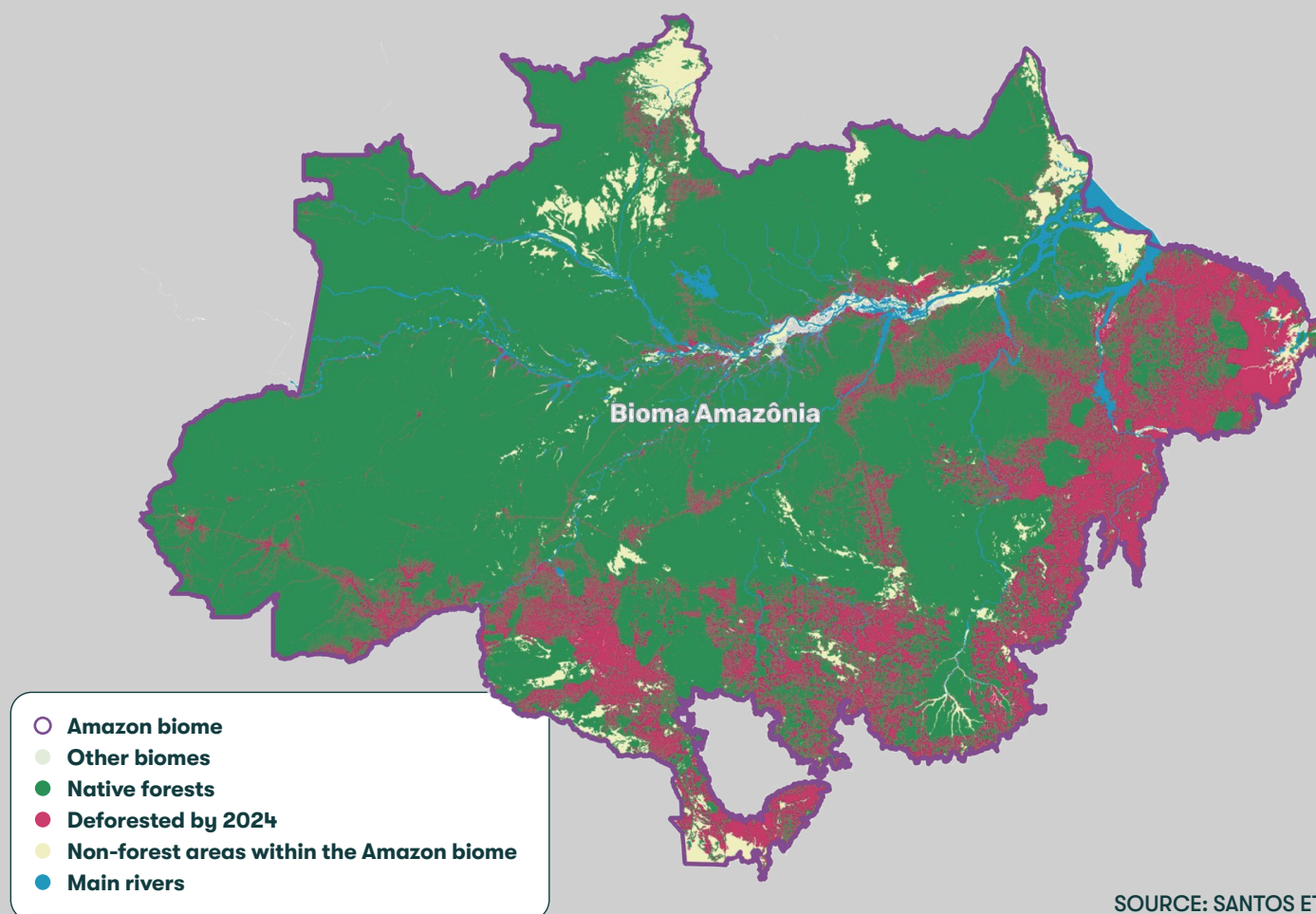
SOURCE: COSLOVSKY 2025



2. The Brazilian Amazon has an abundance of open and underutilized land. Over the decades, about 85 million hectares of native forests have been cleared (figure 3), a territory equivalent to the area of France and Italy combined. Remarkably, a significant portion of this land has since been abandoned or remains underutilized. Consequently, approximately 35 million hectares could be reforested without compromising current cattle ranching or its projected growth (Barreto, Pereira e Rocha 2024).
3. Modern rural production can add as much value and generate better jobs than manufacturing

(Sabel 2017). While some people still view factories as the sole lever of economic development, the world has changed. Today, the share of the population employed in manufacturing has fallen even in China. Meanwhile, agriculture has become more technology-intensive, requiring modern equipment, skilled personnel, and specialized services. Indeed, the best rural production systems operate like open-air factories, generating quality jobs both in the countryside and in urban areas. And this applies not only to a capital-intensive monoculture like soy but also to labor-intensive operations that would constitute the bulk of productive reforestation.

FIGURE 3. Deforested areas in the Brazilian Amazon



SOURCE: SANTOS ET AL. 2025A



4. Accumulated experience has taught us how to design more effective regional development programs. To start, we've learned that unconditional subsidies rarely work. We've also learned that regions prosper when their businesses face market competition but receive targeted, temporary support. Above all, progress happens when government acts as the conductor of an orchestra that may start dissonant but learns quickly and soon finds its harmony.

CHALLENGES AND RECOMMENDATIONS

As with any ambitious initiative, there are obstacles to overcome. The first is resolving land tenure issues. On one hand, Brazil must provide full legal protection to public forests to close the deforestation frontier and prevent land grabbing. On the other, the country needs to regularize private lands in areas that have been deforested long ago. Without secure property rights, major investments will not materialize.

The second challenge concerns access to long-term financing. One possibility is creating mechanisms where financing is guaranteed by advance sales of the commodities and the carbon credits generated through reforestation.

The third challenge is technological development, both in training people to perform more complex and valuable activities, and in creating equipment and processes that enable productive reforestation at scale, with high efficiency and low cost.

The proposed policy is an ambitious program for productive reforestation, spearheaded by the national government, and organized around five pillars:

1. Improve land tenure

- Strengthen legal protections for public forests to close the deforestation frontier and prevent land grabbing.

- Regularize private properties in areas that were deforested long ago. Without legal certainty, productive reforestation investments will not scale⁴.

2. Expand access to long-term financing

- Use advance sales contracts, including for carbon credits, as loan guarantees.
- Create mechanisms to finance the ramp-up period (3 to 7 years), when revenues are low or nonexistent. The necessary capital exists; what's missing are financial vehicles to channel it effectively.

3. Develop technology and local capacity

- Train workers in the specialized skills required for productive reforestation, including agroforestry techniques, sustainable forest management, advanced crop management, and the operation of modern agricultural equipment.
- Encourage the development of machinery well-adapted to the Amazon environment. The main challenge is not planting trees, it's planting them with speed, scale, reliability and low cost.

4. Reorient productive development policies

- Support promising enterprises with temporary and targeted assistance.
- Prioritize already-established value chains (cacao, coffee, açai, bananas, palm, fibers). Currently, the Amazon captures only 3% of a total market already worth US\$233 billion per year in forest-friendly products.

⁴ The opposite dynamic is also at play. Without green jobs, the current political stalemate will continue to prevent progress in protecting public forests or regularizing private land titles



5. Plan a state-coordinated program

- Government coordination is essential for productive reforestation to gain momentum and achieve scale.
- The federal government should act as the conductor of an orchestra, adjusting incentives, providing public goods and shared sectoral resources, and encouraging healthy competition while learning continuously from its experience.

We have no time to waste. Brazil urgently needs an ambitious program for productive reforestation in the Amazon, with clear targets for creating green jobs in viable enterprises, at scale. Reforesting already-deforested and degraded areas brings enormous advantages to the regional economy, boosting land productivity while delivering major environmental benefits to the country and the world. Brazil has already demonstrated its ability to bring technology to rural production in other locations. Now it needs to implement in the Amazon the kind of initiative that has revitalized regions once thought incapable of transformation.



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ABOUT AMAZÔNIA 2030

The AMAZÔNIA 2030 project is an initiative of Brazilian researchers to develop a sustainable development plan for the Brazilian Amazon. Our goal is to provide conditions for the region to reach higher levels of economic and human development and achieve sustainable use of natural resources by 2030.

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