Reverse the neglect of the Cerrado

Main Text: The Cerrado biome in Brazil is the most biodiverse savanna in the world (1) and has a key role in stabilizing both the local and global climate, storing carbon, and providing freshwater to the country (2). Yet, the Cerrado has little protection and is being converted for agriculture at an alarming rate. Recently released official data reveal that, in 2022, deforestation in the biome rose for the third consecutive year (3). The area cleared was 25% higher than the previous year, reaching 10,689 km² (3), rivaling the rates of deforestation in the Brazilian Amazon (12,052 km²), despite the Cerrado being only half the size (3). Almost three-quarters of that conversion took place in the MATOPIBA agricultural frontier, where nearly 25% of Cerrado's soybean harvest is planted (4). The current high rates of conversion even put future agricultural production in the Cerrado at risk. The loss of the Cerrado has contributed to extreme climate events over the last decade (5), which increased surface-sensible heat flux and reduced evapotranspiration, crop yields, and threaten the feasibility of multi-cropping systems (6), as well as exacerbated land concentration and farmers' indebtedness.

The Cerrado is currently excluded from leading agribusiness sustainability efforts - notably the Soy Moratorium, a successful multi-stakeholder zero-deforestation agreement that applies only to the Amazon biome. Moreover, new legal proposals are set to make the situation worse - both domestic bills, such as 2633/2020, 510/2021, and 337/2022, and international regulation. The new European Commission's due-diligence legislation on the import of deforestation-free products adopts a strict forest definition that leaves 74% of the biome unprotected (7), arguably leaving the Cerrado as a 'sacrifice zone' for agricultural development.

Possible science-based efforts to this strengthening already exist. The re-establishment and expansion of the Plan for Prevention and Control of Deforestation in Brazilian Biomes (PPCD; Decree 11,367/2023) – is a good start. The PPCD, as initially applied in the Amazon (known as the PPCDAm), was a policy that contributed to decreasing deforestation in the Amazon by 84% from 2004 to 2012. The PPCD aims to establish sustainable productive activities, environmental monitoring and control, land and territorial ordering, and normative-economic instruments for reducing deforestation and CO_2 emissions, in line with national commitments made under the Paris Agreement and the United Nations Conference of the Parties. However, implementing the PPCD in the Cerrado depends on biome-specific policies that involve: (i) coordinated efforts across municipal, state, and federal governments; (ii) increasing the number of agents that enforce environmental laws, and (iii) including farmers in policy designs.

The PPCD is focused on reducing illegal deforestation only. However, the Cerrado has more than 330,000 km² of vegetation which may still legally be cleared (surpluses of the so-called 'Legal Reserve') (8). Market-led efforts, such as the Soy Moratorium, which would exclude farmers who clear vegetation from the market would be effective (4) but have low legitimacy among some stakeholder groups (9). Alternatively, landowners who preserve beyond the legal obligation (20-35% of their property) can be compensated through existing Payments for Ecosystem Services (PES) policies (law 14,119/2021). The Cerrado Conservation Mechanism, an initiative of the Brazilian Association of Vegetable Oils Industry (ABIOVE), and the Funding for Soy Farmers in the Cerrado Initiative, for example, financially compensates producers who conserve above the legal requirements rates.

While PES is a promising mechanism for conservation, there remains a concern that it perpetuates a "right to clear", may erode more traditional conservation efforts in the future, and that its cost-effectiveness is unproven in a context where farmers have long-term

expectations of profits from soy production (9). Stronger legal protections could help counteract these market forces. Internationally, due-diligence legislation should urgently be extended to encompass savannas and other non-forest biomes. Nationally, traditional conservation strategies, such as stricter regulation and law enforcement for vegetation clearance on private property, investment in expanding and better monitoring recognized Protected Areas and Indigenous Lands need to be resurrected to protect the Cerrado's remaining native vegetation, preventing conversion, and maintain ecosystem services.

Stricter protections should be complemented with territorial planning focused on forming ecological corridors and recovering degraded pasturelands (which make up 27% of pasture today) (10). Cerrado-focused advanced research institutions can fuel such planning. The fund for environmental protection discussed at COP27 may finance the creation of such institutions and the promotion of biome-wide policies.

Ultimately, curbing the alarming loss of the Cerrado requires expanding international and domestic legal protections, reestablishing effective law enforcement, promoting PES policies, restoring degraded lands, and stimulating sustainable management in already-cleared lands. Hence, this moment requires a diplomatic nature-based discussion directed to reverse the neglect of the Cerrado to avoid environmental and socioeconomic crises with international repercussions.

References and Notes

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