

Help restore Brazil's governance of globally important ecosystem services

To the Editor — Since 2005, successful conservation policies have made Brazil a global example of environmental governance, in particular expanding Protected Areas and Indigenous Lands, developing advanced monitoring systems to detect vegetation loss, and intervening in soy and beef supply chains¹. Now, the administration of president Jair Bolsonaro is dismantling the country's social–

environmental policies², jeopardizing the governance of globally important ecosystem services³ (Supplementary Table 1).

Brazil is a country with an immense responsibility towards humanity. First, because it contains the largest portion of the Amazon rainforest, a critical element stabilizing the Earth's climate system⁴. Second, its well-conserved terrestrial ecosystems store immense amounts of

carbon and 12% of global water resources⁵. Third, its terrestrial and marine ecosystems harbour 10% of the world's biodiversity⁵, including many species useful for food, medicine and construction (Fig. 1). Moreover, Brazil's cultural diversity includes over 300 ethnic groups that preserve ancient Indigenous Ecological Knowledge⁵ and have historically provided essential services for societies^{5,6}.

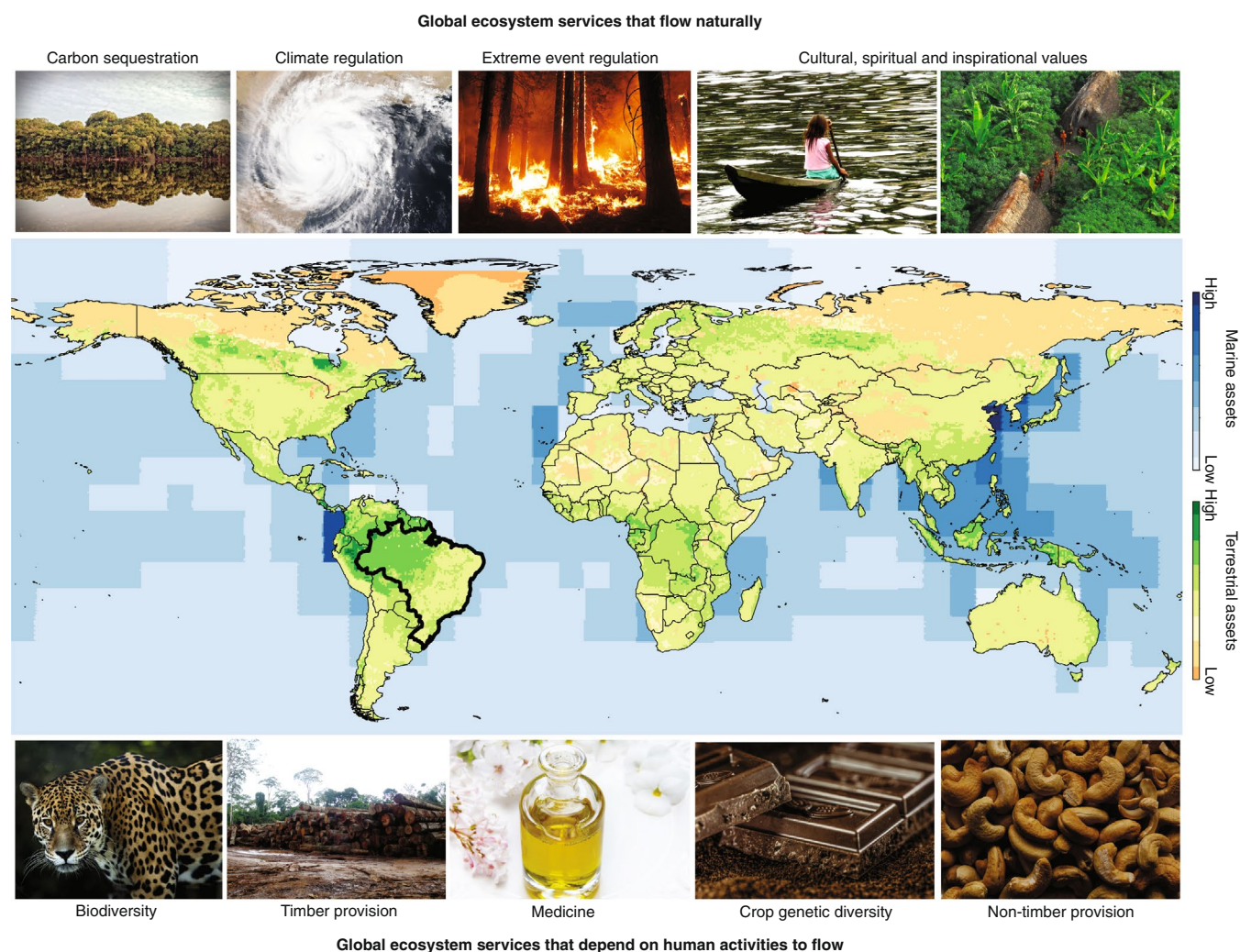


Fig. 1 | Ecosystem services as opportunities for global sustainable development. Compared to other countries, Brazil has large amounts of ecosystem assets, as shown by the global map of terrestrial and marine ecosystem assets. Map adapted with permission from ref. ¹⁰, United Nations Environment Program (UNEP). Credit: Carbon sequestration, Banksia films; climate regulation, extreme event regulation, biodiversity, medicine, crop genetic diversity and non-timber provision, Pixabay; cultural, spiritual and inspirational values, Bernardo M. Flores (left image) and Gleilson Miranda / Governo do Acre, Flickr, under a Creative Commons license CC BY 2.0 (right image); timber provision, Carolina Lewis.

To help Brazil restore a resilient and participatory governance system, we suggest three main priorities aligned with the Convention on Biological Diversity (CBD, Aichi Targets), the United Nations Sustainable Development Goals (SDGs) and the Paris Agreement.

Develop sustainable agro-industry

Biodiversity and ecosystem losses in Brazil are mainly driven by commodity production, implying that the agribusiness sector has a pivotal role in determining the fate of ecosystem assets⁷. The enhancement of productivity without further ecosystem loss could be achieved by: (1) promoting the strategic use of incentives to expand biodiversity-based production systems and low carbon agriculture; (2) eco-certification; (3) strengthening local public systems for sustainable agricultural development; (4) strengthening local public systems for pesticide use control; and (5) investing in science, biotechnology and innovation based on native biological diversity.

Protect and restore terrestrial, freshwater and marine ecosystems

It is essential to invest in the protection of well-conserved ecosystems and the restoration of degraded ones to enhance ecosystem assets^{5,6}. This requires: (1) implementing, maintaining and expanding protected areas; (2) strengthening the resilience of ecosystems and local societies to global changes; (3) strengthening the public system for socio-environmental management at all levels, to enforce environmental laws; (4) promoting the sustainable management of biodiversity and ecosystem assets by local communities inside and outside of Protected Areas; and (5) developing supply and value chains of locally managed biodiversity assets with sustainable infrastructure logistics that connect remote communities and markets.

Strengthen indigenous and traditional peoples' rights

Indigenous peoples and traditional communities have been interacting with their environments for millennia, playing a fundamental role in ensuring the protection of ecosystems^{5,6}. To maintain their participation in environmental governance requires: (1) the constitutional demarcation and non-intrusion of indigenous and traditional lands; (2) strengthening the resilience of indigenous food production systems; (3) protecting cultures and their local ecological knowledge; (4) effectively including indigenous and traditional

peoples in decision-making and public socio-environmental management; and (5) strengthening public policies for indigenous peoples and traditional communities.

The global consequences of the newly degraded governance system in Brazil imply that all stakeholders share a common interest: making Brazil's ecosystems resilient. International markets can exert pressure on how farmers produce commodities in Brazil¹, helping to place the country in the global trend towards sustainable agriculture⁸. Countries can support companies committed to SDGs through strategic use of incentives, while state and municipal governments in Brazil can stimulate the production of sustainable and biodiversity-based agriculture, attracting external investments⁹. Opportunities also lie in new political connections, such as the [Brazilian Coalition on Climate, Forests and Agriculture](#), as well as the [Parliamentary Fronts for the Environment](#) (222 members), [Indigenous Rights](#) (237 members) and [Science](#) (207 members). Among Brazilians, 91% want stronger policies for nature conservation⁹, implying that integrating policies with global targets, such as the SDGs and the Aichi Targets, is of public interest. Recent scientific efforts can help boost participatory governance, such as the MapBiom project, the Plataforma Brasileira de Biodiversidade e Serviços Ecossistêmicos (BPBES)⁵ and the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)⁶, which are continuously assessing the status of biodiversity and ecosystem assets.

The 1,230 signatories of this essay, who represent a broad cross-section of the Brazilian science community, as well as indigenous and traditional community members, call on international trading partners, state and municipal governments, members of parliament and concerned citizens to pressure the Brazilian government to reverse its destructive agenda and support this constructive agenda, before humanity loses critical ecosystem services. □

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Author contributions

C.L. and B.M.F. conceived and designed the work; C.L., B.M.F., G.G.M., A.P.M., J.V.C.-S., P.B.A., N.P., M.H. and C.R.C. interpreted the data; C.L. and B.M.F. drafted the work and G.G.M., A.P.M., J.V.C.-S., P.B.A., N.P., M.H. and C.R.C. substantively revised it.

Competing interests

The authors declare no competing interests.

Additional information

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