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LETTER TO THE EDITOR

Brazil's leading environmental agency and aquatic biodiversity threatened by federal decree

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Brazil is home to great biodiversity, which requires effective conservation policies to safeguard it. However, the current government, led by Jair Bolsonaro, has dismantled key environmental institutions and regulatory frameworks (Thomaz et al. 2020, Azevedo-Santos et al. 2021), exposing biodiversity to growing threats. For instance, the government has changed high-level staff, budgets, and office duties of Brazil's leading environmental agency, IBAMA. In December 14th, 2020, the government issued Decree N^{o} 10.576/2020, which overrides previous legislation (Nº 4.895, of November 25, 2003) and excludes IBAMA from the Environmental Licensing for new aquaculture projects. The Decree simplifies the licensing process, which now requires only an authorization by the Secretariat of Aquaculture and Fisheries (SAF) of the Ministry of Agriculture Livestock and Food Supply, with the participation of the National Water Agency (ANA). None of these agencies have expertise to deal with these environmental issues.

Although the Decree refers to 'sustainable development' (Art. 2), it will encourage unsustainable aquaculture (Charvet et al. 2021). Because SAF is mainly concerned with food production, this decree circumvents sound environmental legislation to foster economic activities. According to the Annual Report on Aquaculture Production in Union Waters (MAPA), conducted by SAF, Brazil's aquaculture activity has great potential to develop, especially in reservoirs of Hydroelectric Plants (HP's), where ANA has calculated a production capacity of 3.929 million tons of fish per year (MAPA 2020). In addition to the HP's, the report mentions the potential for expansion in federal rivers, territorial sea, and the exclusive economic zone.

Also, this new legislation will facilitate the production of non-native organisms in Union domain waters, such as the Nile tilapia (*Oreochromis niloticus* Linnaeus, 1758), which has been pushed by a growing aquaculture sector, despite strong objections from the scientific community (Cassemiro et al. 2017, Charvet et al. 2021). The common escape of non-native organisms from aquaculture farms is a major source of impacts to aquatic ecosystems (Casimiro et al. 2018), including habitat modification,

competition and predation, the introduction of new pathogens and parasites, and genetic erosion (Lockwood et al. 2009, Bezerra et al. 2019).

The spread of aquaculture facilities across the country can have serious implications, once Brazil has the largest hydrographic network and the highest fish diversity in the world (Reis et al. 2016). The impacts may even reach river basins where invasive species are still absent, such as some river systems in the Amazon basin and along the Atlantic coast. Additionally, the spread of aquaculture facilities will inevitably affect freshwater environments of neighboring countries. Over 60% of the national territory is located within river basins that share river networks with those countries through 83 border or transboundary rivers (SAE 2013).

Changes in legislation conflict with Art. 59 of Brazil's Constitution (1988) and its National Environmental Policy (Law Nº 6.938, of August 31, 1981), as well as with international agreements, such as the Escazú Agreement (2018) and the Convention on Biological Diversity (1992). This Convention will revise the treaty in 2021 (Azevedo-Santos et al. 2021), showing that current policies in Brazil go against global trends in environmental sustainability. The transfer of attributions from IBAMA to the SAF opens a dangerous precedent for other economic activities such as mining, hydropower and agribusiness, which are leading threats to aquatic ecosystems and may be favored by similar amendments in legislation.

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RMD and AAA conceptualized and lead this letter; RMD, RMT, GHZA, TML, LHT and LAE wrote the first version of this letter; AAA, FMP and LC provided useful insights to the construction of the manuscript; All authors contributed and approved the final version of this letter.