



Taxonomy as a political statement: the Brazilian case

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The catastrophic fire of the Museu Nacional do Rio de Janeiro in September of 2018 caused public commotion. Most of the collections deposited in the museum were completely destroyed, graduate students and professors lost their research, and decades of collecting efforts and funding were buried under the ashes (Kury *et al.* 2018). However, it rapidly turned into old news. After the first pledge of 55 million reais (US\$ 13.75 million at the time) for rebuilding the museum, the Brazilian Chamber of Deputies decreased in 22% this already insufficient amount (Ferreira 2019). The destruction of the Brazilian oldest Museum was the omen of a gloomy period for Brazilian science, notably for the research on biodiversity, which still seems to be far from over.

Year 2016 marked the end of the four-year cycle of increasing investments in Research and Development in Brazil (Marques 2019). Institutions' extinction, such as the Fundação Zoobotânica do Rio Grande do Sul (Correio do Povo 2018), and budget cuts in Research Foundations have happened ever since. Other Brazilian research institutes and foundations are also troubling, if not exasperating. Brazilian biodiversity science has entered an unparalleled period of crisis since the inauguration of the new Presidency by Jair M. Bolsonaro on January 1st, 2019. The rise of science denialism in the new federal government worsened this situation.

At the beginning of the current government, in April 2019, the Ministry of Science, Technology, Innovation and Communication froze 42% of its annual budget, restricted to 2.9 billion reais (US\$725.0 million at the time) (Angelo 2019), and the Ministry of Education retained ca. 25% of funding for federal universities (Escobar 2019). In May 2019, the Coordination for the Improvement of Higher Education Personnel (CAPES)—the Federal agency concerned with the training of Doctoral candidates, pre-doctoral short-term researchers, and Postdoctoral scholars— withheld over 3,000 postgraduate scholarships. Further cuts in scholarships happened in July and September 2019, and March 2020. Federal political authorities and opinion formers justified the budget cuts accusing the universities of holding left-wing proselytizing. Governmental priorities in science and technology are unclear and often based on ideological criteria (Andrade 2019; Savarese 2020; Silva 2021).

Science was undervalued in Brazil even on the edge of the COVID-19 pandemic: in March 2020, CAPES changed the criteria for distributing scholarships for graduate students. The criteria for scholarships were modified again in the beginning of 2021, and new cuts occurred. It is worth mentioning that the head of the agency was dismissed untimely last April after a 14 months-term; it was the third change in CAPES presidency in less than two and a half years. Such instability is unprecedented in the administration of Brazilian postgraduate studies. Almost daily, we witness the increasing collapse of our National Graduate System and science funding agencies (Andrade 2021).

Brazil's government proposed in 2021 the smallest budget for environmental protection in 13 years, although deforestation in Brazilian rainforest hit a 12-year high in 2020 (Silva Júnior *et al.* 2021); the budget proposal for the Ministry of the Environment and the agencies under its administration is 2.9 billion reais (US\$ 524 million), a 5.4% drop compared to that in 2020 (Spring 2021). Yet almost five dozen recently approved legislative acts aimed at deregulating, weakening, or directly dismantling environmental protection in Brazil (Vale *et al.* 2021). After a new rule, top officials of the Chico Mendes Institute for Biodiversity Conservation (ICMBio) now have the authority to censor publication of scientific studies emerging from the ICMBIO if these publications are conflicting with the federal administration (Escobar 2021). Scientific personnel and federal officers contradicting federal administration are being fired or reassigned (McEnzie *et al.* 2019; Brito 2021).

To remain a taxonomist in Brazil is tough. An example of the difficulties that Brazilian biodiversity science is recently

experiencing is the decreasing budget of ProTax, a federal program for training human resources in biological taxonomy. Launched in 2005 by a consortium between the National Council for Scientific and Technological Development (CNPq) and CAPES, ProTax aims to stimulate the country's installed taxonomic capacity. In 2010, the ProTax budget—for all the universities and research institutes in Brazil—was 12 million reais (US\$ 6.3 million at the time) (CNPq 2010). In 2015, the budget was cut in half (6 million reais or US\$ 2.2 million at the time) (CNPq 2015). The ProTax budget remained the same in 2020 (CNPq 2020), but the exchange rate in Brazil skyrocketed during the period and the total amount of the entire program retracted to a value close to a million dollars. As it is necessary to import equipment such as optical and histological equipment, a researcher at the beginning of her or his career is no longer able to minimally equip a new laboratory with the available funds. Even in local currency, given the inflationary impact from its inception, ProTax is but a shadow of its former self—the purchasing power of the program, in real terms, is 16% of the original 2010 budget.

More than a career option, taxonomy is a political statement against the dismantling of Brazilian science and the toxic milieu, obscurantist and contrary to critical thinking, that denies the importance of the natural world and reifies a sort of ethereal economy besides human beings. In Brazil, to maintain funding for biodiversity surveys and human resources, to ensure natural history museums, to maintain the stability of administrative management and policies to promote graduate education, and to guarantee the autonomy of universities and research institutes are the minimum conditions for not letting Brazilian megabiodiversity collapse under the siege of ignorance and greed.

Biological conservation should not be seen solely as a demand of Non-Governmental Organizations or utopic environmentalists. To understand and preserve biodiversity is a key issue for human survival (Wheeler *et al.* 2012; O'Connell *et al.* 2020). Taxonomy underpins every evolutionary and ecological research and is fundamental for responses to climate changes and sustaining human well-being (Dubois 2003). Studies on biodiversity exemplify an area often unrecognized as pivotal for Brazilian development, regardless of our well-known rich biodiversity (Boeger *et al.* 2015; The Brazil Flora Group 2018).

Recognizing and describing the biological diversity needs suitable funding and curating and maintaining of biological collections (Santos *et al.* 2016). We are part of the choir (*e.g.* Coleman & Radulovici 2020; Pinto *et al.* 2021) that advocates the continued involvement of the scientific community in promoting taxonomy and the need to expand professional positions for taxonomists worldwide. By doing so, we ultimately will be fostering the knowledge and conservation of biodiversity on which human well-being depends (UNSD 2005).

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