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Hyperolius tuberilinguis. Photo: Louis Du Preez.

National Conservation Status Assessment of Brazilian Amphibian Species

By ¹Yeda Bataus & ²Luis Fernando Marin da Fonte



Fig. 1: Workshop in 2012. Photo: RAN/ICMBio Collection.

Brazil is signatory to the Convention on Biological Diversity (CBD), a global agreement on sustainable use, conservation and equitable sharing of the benefits derived from biodiversity. One of the commitments made by the parties was to assess the conservation status of their biodiversity until 2014 and, following that, to establish conservation policies, especially regarding Threatened species.

Therefore, in 2009, in association with the International Union for Conservation of Nature (IUCN), the Brazilian government initiated the national assessment process of its fauna through its environmental agency *Instituto Chico Mendes de Conservação da Biodiversidade* (ICMBio). For amphibians, coordination of extinction risk assessment was led by *Centro Nacional de Pesquisa e Conservação de Répteis e Anfíbios* (RAN), with Yeda Bataus (ICMBio amphibian and reptile coordinator) and Dr. Célio F.B. Haddad (taxon coordinator, Universidade Estadual Paulista, UNESP) linking researchers and RAN, and helping directly in the development of activities.

The assessment process followed these steps: (i) online public consultation, allowing feedback from scientists on topics such as species habits and habitats; (ii) workshops with invited experts, to assess the conservation status of the species (Fig. 1); and (iii) validation process, with the collaboration of specialists in the IUCN Red List methodology. In total, 973 Brazilian amphibian species were assessed, with the participation of 46 assessors (representing 29 research and/or educational Brazilian institutions) at five workshops (mean of 20 experts/meeting).

As a result of the biodiversity assessment process, at the end of 2014 two national regulations were published by the Ministry of Environment (Administrative Directives MMA 444/2014 and 445/2014), listing Threatened terrestrial and aquatic Brazilian fauna.

The current national process differs from that conducted in the early 2000s (resulting in the Normative Ruling MMA 03/2003), when presumably just Threatened species were assessed and 627 species (including 16 amphibians) were considered to be Threatened or Extinct (1). This time, all Brazilian vertebrate species (and some selectively chosen invertebrates) known to date (June 2014) were assessed. From 12,256 assessed taxa, 1,173 (9.57%) were considered to be Threatened (2, 3).

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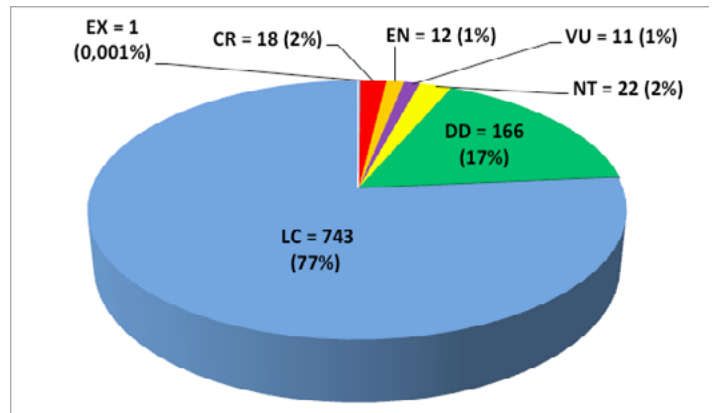


Fig. 2: Number (and percentage) of nationally Threatened amphibian species by category, according to the National List of Brazilian Threatened Fauna (Administrative Directives MMA 444/2014) (CR = Critically Endangered, EN = Endangered, VU = Vulnerable, EX = Extinct, NT = Near Threatened, DD = Data Deficient, LC = Least Concern).

Of those 973 assessed amphibian species, 41 (40 Anura and one Caudata) were considered to be nationally Threatened [18 Critically Endangered (CR), 12 Endangered (EN), 11 Vulnerable (VU)] and one (*Phrynomedusa fimbriata*) Extinct (EX). Furthermore, 22 species were listed as Near Threatened (NT), 166 as Data Deficient (DD) and 743 as Least Concern (LC) (Fig. 2).

Although the number of amphibians recorded in Brazil has increased substantially between 2004 and 2014 (from 751 to 1026 species) (4, 5), this fact alone cannot explain the growth of 176% in the number of Threatened species in the country. Indeed, the observed increment might be explained by both improvements in application of the assessment methodology and the rise of environmental disturbances.

It is noteworthy that most of the Threatened species occur in the Atlantic Forest biome (Fig. 3), mainly in the southeastern region, one of the most deforested areas of Brazil and where about 70% of the country's population lives. These species are threatened especially due to the ongoing loss and fragmentation of habitat, decrease of habitat quality and genetic isolation caused by disturbances such as conversion of natural areas into pastures for livestock and monoculture plantations, construction of dams, etc.

Another commitment made by Brazil as signatory of the CBD is to carry out Action Plans that encompass all the Threatened species, aiming at their protection and improvement of their conservation status. Of the 41 Threatened amphibians, 37 (90%) are covered by

National Action Plans (like *Melanophryniscus admirabilis*, Fig. 4) developed jointly with the participation of civil, public and private institutions and coordinated by RAN/ICMBio. Future challenges for the Brazilian government and society include maintaining the assessment process, including these in Action Plans and, above all, implementing the actions defined in those plans.

The results of the national Brazilian assessment process will inform the update of global amphibian assessments in The IUCN Red List of Threatened Species, where currently 834 Brazilian amphibian species have been assessed (against 973 in the Brazilian process).

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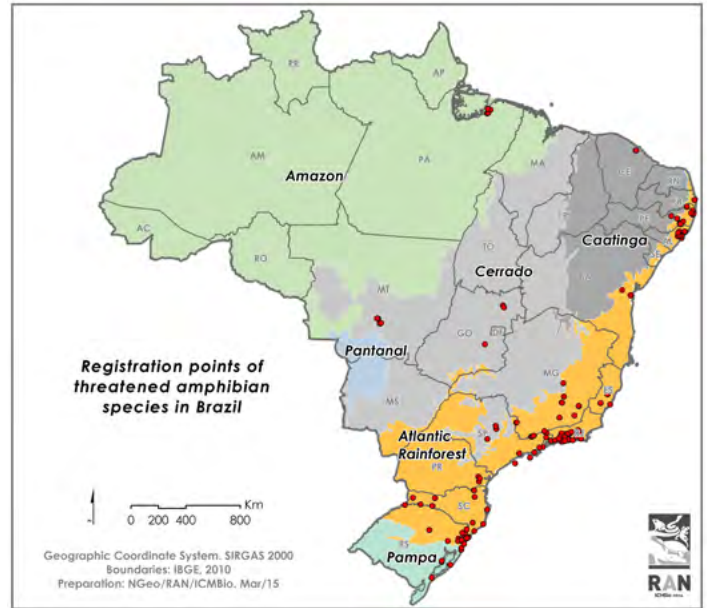


Fig. 3: Distribution map of nationally Threatened amphibians in Brazil, by biome and federal unit.



Fig. 4: *Melanophryniscus admirabilis*, Critically Endangered (CR). Photo: Luis Fernando Marin da Fonte.