

The toad and the plant

A researcher in the field of Environmental Conservation reported how the construction of a hydroelectric power plant was stopped due to a little toad species that only exists in a very small area in Southern Brazil

by Yuri Correa

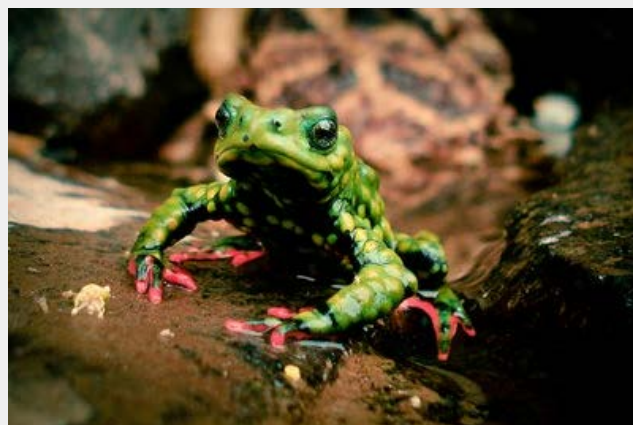
The red-belly toad was discovered in Arvorezinha at the highlands of Serra Gaúcha in Rio Grande do Sul state, in 2006, by researchers on amphibious preservation. The small blaze-colored toad size is between 2,5 and 4 cm and it only exists in a range of 700m along Forqueta river, at the exact place where a power plant was to be constructed. By 2010, Rio Grande do Sul state government had issued a permit for a power plant construction in that same location. Such permit aroused a clash that led to the creation of a preservation project from within the Herpetology Laboratory at the Federal University of Rio Grande do Sul, which focuses on identifying, preserving and studying amphibious species.

For over a year, biologist and PhD student Luis Fernando Marin has participated in the expeditions with the group assigned to observe the red-belly. Researchers have estimated through collected data that there are nearly one thousand individuals of such species. As the toads have patterned spots, those spots serve as an identity mark. They are all photographed and whenever another one is captured, its patterned spots are compared to the recorded ones in order to determine if the last one had already been registered. Whether or not the patterns repeat in a certain space or season, a relatively precise formula is applied to determine the population of a certain area.

It has also been discovered that the red-belly is vitally connected to its ecosystem. Luis Fernando explained that some animals have either more or less environmental plasticity, namely the ability to adapt to different habitat frames, such as the toads that succeed in living in the cities. However, the red-belly has evolved to live within the specific area along the Forqueta river that comprises a small waterfall called Perau de Janeiro, which is a landmark of the region, making difficult to preserve the species due to the number of people who visit the place. The researcher noticed that the red-belly lives especially on the river bed and depends on seasonal floods to reproduce. If the power plant had been built, the river would have been flooded and dried on a daily basis, according to the necessities of power generation. Such a sudden change wouldn't allow the red-belly to adapt quickly enough to prevent extinction.

Luis remarked that the species' value is mostly symbolic, for its participation on species interactions is not so expressive due to its low population. 'Concerning preservation, there are what is called umbrella species and flagship species. When preserved, umbrella species sustain an entire ecosystem around them, while flagship species have more of a political role.' He explained that flagship species usually comprehend beautiful and exotic animals such as the Hyacinth macaw, the Golden lion tamarin and, in this case, the Red-belly toad. These animals are given activistic relevance because people are empathetic towards them. In addition, a single occurrence of government authorization to put in danger any of those animals would broaden the risk to other species which could also end by being disrespected.

In 2013, the International Union for Conservation of Nature (IUCN) recognized the red-belly as an endangered species based on data collected by UFRGS' project. Yet, despite the global outreach of IUCN's statement, on a national and regional basis the risk acknowledgement only came in 2014 and 2015, which led to the permit constraint. This was achieved through the cooperation between researchers of the University and the Curiaca Institution who mediated the interactions with governmental authorities, making pressure on them, talked to the communities and demanded politicians to take action. For this purpose, both initiatives had the endorsement of the Chico Mendes Institution



Red-belly toad only exists in a range of 700 meters along Forqueta River, in the city known as Arvorezinha, RS. Photograph by publication department

for Biodiversity (ICMBio), a branch of IBAMA, which served the project as its official voice since, according to Luis, the State Foundation for Ambiental Protection (FEPAM), the organization responsible for the permit, didn't seem to be willing to assume either position on the dispute. Luis stated that FEPAM also renders account to politicians about environmental technical safety, which could be the reason for its neutrality.

Marin said that from that point on, his goal is to turn the area around the Forqueta river into a conservation park, a legally protected area that comprehends what he called a "dampening zone", the ratio around a central point that also has to be preserved. He believes he is able to engage on behalf of the preservation cause even more now he is part of IUCN group of amphibious specialists. IUCN called him to start this project after receiving his research data on the red-belly. In Brazil, the group had been 'quiescent' for years, hence Marin's debut marked a new rise – he explained there are similar task forces managed by IUCN acting in different areas throughout the world. Through recent mapping, researchers have listed nearly 400 people working on amphibious preservation in Brazil.

The companies behind the power plant project have tried to retaliate on the media, accusing the biologists to use a toad to block regional economic development. The attention attracted to the case has also rebounded on the conservation project, for the red-belly is a beautiful and eye-catching animal in an environment which is limited to such a small area, which caused a rush of visitors and Arvorezinha residents who had no idea of its existence to capture the animal inappropriately. Nonetheless, Luis seems to be satisfied with the result of their efforts as he stated that never before he had heard of a project the extent of a power plant being restrained due to a toad species, what he considers to be a victory. In addition, he remarked that in such difficult times when even the Zoo and the Botanical Foundation are about to be closed, despite of comprising a considerable number of species and important fostering environmental research, these apparently small "steps forward" are achievements people should be proud of.

Source: FONTE, Luis Fernando Marin da et al. The times they are a-changing: how a multi-institutional effort stopped the construction of a hydroelectric power plant that threatened a critically endangered red-belly toad in southern Brazil. *Froglog*, v. 22, n. 4, 2014.

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