

Unique frog helps amphibian conservation efforts

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A tropical frog – the only one of its kind in the world – is providing conservationists with exclusive insights into the genetic make-up of its closest endangered relatives.

University of Manchester scientists have allowed two critically endangered species of Central American Leaf frogs to interbreed, producing the unique [frog](#) – a hybrid of the two species. DNA tests using a harmless mouth swab showed that the two parent frogs were actually very closely related despite being different species.

The findings are important because DNA tests on frogs of the same species but from different geographical areas have revealed considerable genetic differences. The scientists therefore suggest that conservation efforts should not only focus on each endangered species of frog but also on different populations of the same frog species.

"Almost a third of the world's amphibians are threatened with extinction, so it is imperative that we identify distinct populations of critically endangered species before they are lost forever," said Andrew Gray, Curator of Herpetology at the University's Manchester Museum.

"Through allowing interbreeding, and using DNA samples taken from the frogs' mouth, this work investigates the amount of variation both between and within species. More importantly, it is helping determine where conservation efforts should be concentrated and highlighting that some populations of critically endangered amphibians are in desperate

need of further protection."

In the past, an animal's appearance, including its colouration, defined it. But phylogenetics – the study of evolutionary relatedness of species through genetics – is becoming increasingly important in helping biologists identify separate species in need of conservation.

The unique Leaf frog, which is maintained at the Manchester Museum, was bred from the two species *Agalychnis annae*, from Costa Rica and Panama, and *Agalychnis moreletii*, which is found in humid highland tropical forests ranging from southern Mexico to central Guatemala, El Salvador, Honduras and Belize.

"Allowing the interbreeding of amphibians has proven particularly useful in providing evidence for the inheritance of genes, including certain colour pattern traits," said Andrew. "The study has shown that the two species used to produce the hybrid frog are extremely closely related. However, they should continue to be considered as separate, both for classification and conservation purposes.

"It is also important to recognise the levels of variation in distinct populations of other closely related species. If conservation is our prime objective, it follows that separate populations of the same [species](#) should also be conserved for the future as distinct entities and future studies should focus on assessing the levels of variation in the different populations of these wonderful creatures."

More information: The study 'Notes on Hybridization in Leaf frogs of the genus *Agalychnis* (Anura, Hylidae, Phyllomedusinae)' is published in Cornell University and the National Science Institutes' online ArXiv.

Provided by University of Manchester

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