

New frog species is world's smallest vertebrate

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This is a photograph of a paratype of *P. amanuensis* (LSUMZ 95004) on a US dime (diameter 17.91 mm). Credit: Rittmeyer EN, et al.
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LSU's Chris Austin recently discovered two new species of frogs in New Guinea, one of which is now the world's tiniest known vertebrate, averaging only 7.7 millimeters in size – less than one-third of an inch. It ousts *Paedocypris progenetica*, an Indonesian fish averaging more than 8 millimeters, from the record. Austin, leading a team of scientists from the United States including LSU graduate student Eric Rittmeyer, made the discovery during a three-month long expedition to the island of New Guinea, the world's largest and tallest tropical island.

"It was particularly difficult to locate *Paedophryne amauensis* due to its diminutive size and the males' high pitched insect-like mating call," said

Austin. "But it's a great find. [New Guinea](#) is a hotspot of biodiversity, and everything new we discover there adds another layer to our overall understanding of how biodiversity is generated and maintained."

Austin, curator of herpetology at LSU's Museum of Natural Science and associate professor of biological sciences, is no stranger to discovering new [species](#), having described numerous species previously unknown to science, including frogs, lizards and parasites.

These most recent species descriptions, which will be published in *PLoS ONE* on Jan. 11, highlight an interesting trend among the discovery of extremely small vertebrates. The research was supported by the National Science Foundation.

"The size limit of vertebrates, or creatures with backbones, is of considerable interest to biologists because little is understood about the functional constraints that come with extreme body size, whether large or small," said Austin.

With more than 60,000 vertebrates currently known to man, the largest being the blue whale with an average size of more than 25 meters (75 feet) and the smallest previously being a small Indonesian fish averaging around 8 millimeters, there was originally some thought that extreme size in vertebrates might be associated with aquatic species, as perhaps the buoyancy offers support and facilitates the development of extremism. However, both new species of frogs Austin described are terrestrial, suggesting that living in water is not necessary for small body size.

"The ecosystems these extremely small [frogs](#) occupy are very similar, primarily inhabiting leaf litter on the floor of tropical rainforest environments," said Austin. "We now believe that these creatures aren't just biological oddities, but instead represent a previously undocumented

ecological guild – they occupy a habitat niche that no other vertebrate does."

More information: Rittmeyer EN, Allison A, Grunndler MC, Thompson DK, Austin CC (2012) Ecological Guild Evolution and the Discovery of the World's Smallest Vertebrate. *PLoS ONE* 7(1): e29797. [doi:10.1371/journal.pone.0029797](https://doi.org/10.1371/journal.pone.0029797)

Provided by Louisiana State University

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