

'Hog-nosed rat' discovered in Indonesia

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The Hog-nosed rat, *Hyorhinomys stuempkei*, discovered by LSU Museum of Natural Science Mammal Curator Jake Esselstyn and colleagues on Sulawesi Island, Indonesia. Credit: Photo by Kevin C. Rowe, Senior Curator of Mammals, Museum Victoria.

Museum of Natural Science Curator of Mammals Jake Esselstyn at Louisiana State University and his international collaborators have

discovered a new genus and species on a remote, mountainous island in Indonesia. This new discovery is the third new genus described by this group of scientists since 2012, and identifies a rodent with features never seen by the scientific community before.

On the second morning of their field season in 2013, Esselstyn and Museum Victoria Senior Curator of Mammals Kevin Rowe set out in opposite directions from their field camp to check their traps. Unbeknownst to each other, they both caught the same type of animal in their respective traps and immediately knew they were looking at a new species.

"We had never seen anything like this. It was obviously a new species. We came back to camp and were both surprised that the other one had it as well," Esselstyn said.

The animal is a shrew rat with a large, flat, pink nose and forward-facing nostrils for which they named the Hog-nosed rat, or *Hyorhinomys stuempkei*. With extremely large ears, long hind legs that may be used for hopping, long white incisors and very long urogenital hairs, the Hog-nosed rat is so genetically different from any other species that the scientists described it as a new genus. This discovery is the cover story of the *Journal of Mammalogy* this month.

Long incisors are a trait of shrew rats. But the Hog-nosed rat has especially long incisors. Another distinct characteristic of the Hog-nosed rat is that it lacks a jaw muscle attachment point found in most mammals called the coronoid process on the dentary bone.

"I don't know of any other rodents that have lost the coronoid process completely," Esselstyn said.

The loss of the coronoid process indicates a weak jaw musculature and a

diet that does not require vigorous chewing. The scientists found that the new species eats earthworms and beetle larvae.

Challenging Study Site

The island of Sulawesi in Indonesia is geographically complex, mountainous and challenging to scientifically sample. Little research has been conducted on the island since the early 20th century.

"On Sulawesi, there is a lot of ground to cover and most of it hasn't been surveyed before, especially at high elevation," Esselstyn said.

He and his collaborators from Australia and Indonesia have been studying the region since 2010. Inundated by constant rain, the study site for this discovery was a moss-covered habitat on Mt. Dako at about 1,600 meters elevation and a two-day trek from the nearest village.

"There's a lot of biogeographic complexity at Sulawesi. So we're not too surprised that we're finding new things. But our team has been a bit surprised by the degree to which these animals are really novel. They are not just subtly different organisms, but really charismatically different," Rowe said.



The hog-nosed rat pictured in a photograph released by Australia's Museum Victoria on October 6, 2015

The scientists described the Few-toothed shrew rat, or *Paucidentomys vermidax*, in 2012. One of the reasons why scientists have thought that rodents have been evolutionarily successful is they have incisors for gnawing and molars for grinding.

"However, this rat we described in 2012, doesn't have molars and they really can't gnaw because of the shape of their incisors. Interestingly, this species has lost the two things that we think made rodents successful," Esselstyn said.

In 2014, the scientists described the Sulawesi water rat, *Waiomys mamasae*, which was known to villagers and their guides but not to the scientific community. Villagers use this animal as a talisman to protect their homes against fire.

"Our guides didn't tell us right away that they had caught it. We were asleep and they were up late at night discussing whether they should give it to us or keep it for themselves. We were very glad that they eventually decided to give it to us, because otherwise we would have left and never had known about this animal," he said.

These animals Esselstyn and his colleagues have described are new species within new genera, because the animals could not be placed within any existing group. After sequencing the DNA from the specimens, the scientists had the molecular evidence to confirm the species' unique distinctions.

More information: A hog-nosed shrew rat (Rodentia: Muridae) from Sulawesi Island, Indonesia, *Journal of Mammalogy*
jmammal.oxfordjournals.org/content/96/5

Provided by Louisiana State University

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