

Name _____ Date _____
Literacy Lab #4: "Tiny Frog... Veertebrate" Living Environment: Comet 2011-2012

"Tiny frog claimed as world's smallest vertebrate"

Directions: Take a few minutes to read the article below either online (or on the back of this page.) Write responses to the statements or questions below. Cut/copy/paste is not allowed – use your own words and thoughts, based in research if needed.

Read more: <http://www.foxnews.com/us/2012/01/12/tiny-frog-claimed-as-worlds-smallest-vertebrate/print#ixzz1jFYRr6IA>

Fact-finding: List three facts that you learned in this article.

1.

2.

3.

Vocabulary: List and define three unfamiliar words in the space below.

Implications: What are your feelings about this "discovery"? Why is this type of research important/unimportant?

Tiny frog claimed as world's smallest vertebrate

Published January 12, 2012 | A

Associated Press



In this Aug. 2009 photo released by Louisiana State University, a frog sits on a U.S. dime in this photo taken by Louisiana State University herpetologist Christopher Austin near the Amau River in Papua, New Guinea.

A frog that can perch on the tip of your pinkie with room to spare has been claimed as the world's smallest vertebrate species, out-tinying a fish that got the title in 2006. But the discoverer of another weensy fish disputes the claim. A tempest in a thimble, some might say.

An article Wednesday in the journal PLoS One named *Paedophryne amauensis* (pee-doh-FRY-nee AM-OW-en-sis) as the world's smallest animal with a spine.

The adult frogs are about three-tenths of an inch long, and a millimeter or so smaller than a carp found on the Indonesian island of Sumatra. The frogs are so small that Louisiana State University herpetologist and environmental biologist Christopher Austin had to enlarge close-up photos to describe them.

But the males of a species of deep-sea anglerfish are about 2 mm smaller, said University of Washington ichthyologist Theodore Pietsch, who described them in 2006. The males don't have stomachs and live as parasites on 1.8-inch-long females.

Austin discovered the tiny frogs - along with another small frog species - in August 2009 while on a trip to Papua New Guinea to study the extreme diversity of the island's wildlife. He said he knew about the anglerfish but felt that average species size made more sense for comparison.

Steven J. Beaupre, a University of Arkansas scientist and president-elect of the American Society of Ichthyologists and Herpetologists, said many vertebrates have males and females of very different sizes, "so it is reasonable that the world's smallest vertebrate may end up being either the males or the females of some specific fish or amphibian species."

He said he doesn't pay attention to "tiniest" reports, but the frogs themselves are a significant discovery.

"The discovery of two new frog species comes as great news against the background of more prevalent accounts of tropical amphibian extinction," he wrote in an email.

Knowing about such tiny creatures and their ecology, he said, helps scientists "better understand the advantages and disadvantages of extreme small size and how such extremes evolve. Fundamentally, these tiny vertebrates provide a window on the principles that constrain animal design."

Austin said that since these frogs hatch out as hoppers rather than tadpoles and live on the ground, their existence contradicts the hypothesis that evolution at large and small extremes is linked to life in water.

At least 29 species of minuscule frogs in equatorial regions worldwide live in leaf litter or moss that is moist year-round and eat even tinier invertebrates, creating a previously unknown "ecological guild" of similar animals with similar life habits, he said.

"We realized these frogs were probably doing something incredibly different from what normal frogs do - invading this open niche of wet leaf litter that is full of really tiny insects that other frogs and possibly other creatures weren't eating," Austin said.

In August 2009, Austin and graduate student Eric Rittmeyer were collecting and recording the mating calls of frogs at night in a tropical forest near the village of Amau in eastern Papua New Guinea, when they heard a chorus of high-pitched "tinks."

"This frog has a call that doesn't sound like a frog at all. It sounds like an insect," he said. The calls seemed to surround them, and it took a while to be sure they were coming from the ground.

Since they couldn't locate the noise-maker, they snatched up some habitat, expecting to find a six-legger in it. "We found it by grabbing a whole handful of leaf litter and putting it into a clear plastic bag and very, very slowly going through that litter leaf by leaf by leaf until we saw that small frog hop off one of those leaves," he said.

Getting photos took some effort - the frogs can leap 30 times their own length. After hopping around for a bit, they settled down long enough for a close-up or two, Austin said.

Their expedition, sponsored by the National Science Foundation, later turned up another new species of tiny frog, found farther west along the island's coast. The other is closely related, but a millimeter or so larger, and it had a different call.

Austin estimated that they found 20 previously unknown species in New Guinea, which is such a hotspot of diversity that scientists figure they've described only about six-tenths of all the species living there.

Maurice Kottelat, a Swiss scientist who found the tiny carp called *Paedocypris progenetica*, wrote in an email that it's hard to compare frogs and fish, because they're measured differently: frogs from nose-tip to the excretory vent, and fish from nose to tail.

"It is not so interesting to know which is really the smallest. Tomorrow will bring another smallest anyway," he wrote.

He concluded a long email, "I have a great concern. It is not when will we discover the next smallest, but whether habitats where to discover them will still be there. Or how long will the habitats survive.

"Since the discovery of *Paedocypris* most of the fragile peat swamps that it inhabits have been destroyed."

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