



Light as a penny and no longer than two small batteries, *Notiosorex cockrumi* has been named to honor UA Professor Emeritus E. Lendell Cockrum. (Photo: Robert Baker)

New Species of Desert Shrew Found in Southern Arizona

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Not since 1977 has a new mammal species been discovered in Arizona. But a Texas Tech University professor recently identified a new species of desert shrew that he first caught in the Santa Rita Mountains nearly 40 years ago, when he was a University of Arizona graduate student.

TTU Professor Robert Baker has named the newly identified mammal species *Notiosorex cockrumi* in honor of UA Professor Emeritus E. Lendell Cockrum.

"I can't help but have a bit of an ego trip about it," Cockrum said. "Thank goodness no one has named a skunk after me." A subspecies of mouse found in Kansas has also been named for Cockrum.

The *N. cockrumi* shrew is among the smallest mammals in

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Arizona. It weighs only as much as a penny and is about the length of two AAA batteries. The only Arizona mammals that are smaller are the dwarf shrew, found at high elevations in central and northern parts of the state, and the Western Pipistrelle bat.

Like other shrew species, desert shrews have a high surface area-to-volume ratio and lose body heat quickly. To compensate, they have a high metabolic rate. Unless they eat often, they will starve to death. Desert shrews are vicious predators. To satisfy their rapacious appetites, they devour juicy insects, such as crickets, and the occasional small mouse, which is about five to 10 times their own size. They paralyze their prey by biting the base of its skull.

Baker caught the unidentified shrew in the Santa Ritas in 1966. The mountain range is home to a known species of desert shrew, *N. crawfordi*, found in habitat from Texas to southeastern and south central Arizona. Baker found that the unidentified shrew had a chromosome morphology, or karyotype, different from that of *N. crawfordi*.

"In 1966 it was not thought that the karyotype differed much within a single species," Baker said. "After I graduated from UA, I caught some specimens of *N. crawfordi* from west Texas near Lubbock. I prepared chromosomes from those specimens, and they were quite different from the Santa Rita material.

"Over the next 30 years, I kept thinking that I've got to get back and look at those shrews. I did that starting in about 1999. By then, there were much more sophisticated methods to provide information that might tell us if two species actually were involved in our sample."

Yar Petryszyn, who manages the UA mammal collection, and Bill Radke, a researcher in Tombstone, Ariz., provided Baker with tissue samples from enough shrews to conduct a complete genetic analysis.

Baker compared the gene sequences of the two shrews and confirmed that *N. cockrumi* DNA is different from *N. crawfordi* DNA. Although the two species share habitat, they do not interbreed, he discovered.

If any other new species are to be discovered in Arizona, it will most likely be a species that has evolved as a small, isolated population, Petryszyn said. "Home ranges are small, so you end up with isolated species," he said. Examples of isolated populations in Arizona that have become either a new subspecies or species include, respectively, the red squirrel and the long-tailed vole. Both are found in the White Mountains.

Baker said he named the new species *N. cockrumi* to honor Cockrum for his lifetime of research on mammals and for his commitment to students in mammalogy and general biology. Baker published a scientific report of the new species in the June 20, 2003 issue of the Occasional Papers of the Museum of Texas Tech University.

"In 1965-67 I was a graduate student at the University of Arizona working on a Ph.D. with Dr. Cockrum," Baker said. "Dr. Cockrum gave me a good education and was very supportive. It's a way of saying 'thank you for what you have done for me.'"

"I always wanted to name a species after Dr. Cockrum," Baker added. "I'm really pleased. The probability of finding an undescribed species of mammal that lives in Arizona is very low. When I think about this, I grin. I grin a lot."

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