

St. John Times  
August 2004

## FISH BAY REFLECTIONS

### **Shedding the Old Exoskeleton**

Moving on with my inventory of the wildlife in my Fish Bay house, I thought I was through researching scorpions for the moment and was ready to move on to looking at lizards, so I went back to the National Park bookstore to see if there was anything interesting on the type of anole lizards living here. When I came in, Deanna Somerville was at the desk. She said she had read my July article about scorpions and had an explanation for why I had found two apparently dead, intact, scorpion bodies lying on the floor in my house. (Later, I put them in the freezer to protect them from ants and general decay.)

Deanna suggested that they were not really dead scorpions, but the empty outsides left behind by growing scorpions when they shed. Since, like crabs and lobsters, scorpions have their skeletons on the outside, in order to achieve full growth they have to shed the old exoskeleton, or cuticle, and grow a new bigger one. She said spiders do that too, and she will sometimes find hollow spider bodies in the house. I have never seen that though; all the spiders I find in the corners seem to be alive.

I said the scorpions in my freezer looked pretty much like the live ones I had seen, not like something that had been used and then discarded. To convince me, Deanna went back to her office and brought out her own scorpion skeleton, which had been laminated rather than frozen for preservation purposes. I had to admit it looked pretty much like my guys, but a bit squashed from going through the laminating machine.

It seemed to make sense that scorpions would shed like lobsters, but it was hard for me to believe the discarded outside covering would be in such perfect condition after the growing scorpion broke out. I guess I was thinking about how old snake skins look, or how torn up the Incredible Hulk's clothes would get when his muscles started bulging out. Deanna said the same thing happens with spiny lobsters. On some beaches you can find small shells in perfect shape that have been shed by growing lobsters. She went back into the office and returned with another specimen to show me. This one was a lobster shell that had been shed and left on the beach. It was too small to be an adult, but way too big to laminate. They had it mounted in a clear plastic box, and indeed it did not seem to be damaged or missing any parts.

Back home I did some more Internet research on scorpions shedding. Apparently there is a hatch that opens up, starting around the mouth and side of the head. The hatch lifts up around the head area and the scorpion then pushes and crawls its way out. A new hard cuticle forms underneath and that helps loosen up and push away the old one. Sometimes a leg might not make it through the process and the scorpion has to grow a new one, but otherwise the shape of the old exoskeleton exactly matches that of the body.

I got my scorpion bodies out of the freezer and looked at them with new eyes, trying to determine whether they were really hollow facades, and feeling a bit resentful about perhaps having been taken in by their deceptive appearance. I looked at them through a magnifying glass and poked at them a bit with a needle, but did not see any evidence of a hatch. The big one seemed pretty solid, not like an empty husk. I didn't want to tear it apart to look, though, and I figured any guts it once had would have probably dried up by now anyway.

I read that scorpions might shed up to seven times before they reach maturity. Some shed according to the seasons, but the Bhutid scorpions here seem to shed depending on how much they have been getting to eat. If the big one in the freezer was just a shell, I hoped the live scorpion wasn't still in the house somewhere getting super-sized on bugs and mosquitoes.

I also read that mother scorpions give birth to live babies rather than laying eggs. They then carry the babies on their backs for a couple of weeks, until the babies shed the first time. After that they should be big enough to go out on their own. (One interesting note was that if food is scarce, the mothers will sometimes eat their own offspring, evidence that children should not assume that maternal instincts will always lead to self-sacrifice.)

There was also more about scorpions being fluorescent, so they glow under a black light. The outside part that is shed stays fluorescent, and it takes a couple of days for the new cuticle to develop that capacity. The fluorescence may be caused by calcium salts stored in the cuticle. One source suggested that rays from the moon bounce off the scorpions at night making them glow a bright blue/green, and attracting insects, though all this is invisible to the naked human eye. Too bad. It could be an entertaining evening show when the moon is full.