



Ananeus gemma

AS SEEN ON THE WEB

By Kerri DeRosier Photographs by Jim Berrian

IF YOU LIVE IN SAN DIEGO, YOU'VE SEEN THESE BIG BROWN SPIDERS HANGING AROUND IN THE MIDDLE OF THEIR HUGE WEBS BETWEEN TREES, BETWEEN HOUSES, BETWEEN EAVES AND TREES—ACROSS SIDEWALKS.

Their bellies usually have a black patch in the center surrounded by a white bracket, and a pair of yellow bands at the base.

Even though they're starting to emerge right now, we begin to notice our furry friends at the end of summer, especially at dusk. They create webs that can span ten feet, and they hang upside down in the middle, or "hub," waiting for a juicy meal. The females are bigger than the males, and some grow as big as quarters, silver dollars, golf balls . . . well, they can get pretty big, which is why they're so easy to spot.

The one in your yard could be a *Neoscona crucifera*—or it could be *Araneus diadematus*, or *Araneus gemma*—all spiders in the orb-weaving family.

The truth is, it's really hard to identify specific species of spiders without getting too close for most of our comfort zones. And most of them don't have familiar names, like "Itsy Bitsy." That's why most of us just call them "garden spiders" instead of memorizing genus and species names.

"A garden spider is any spider in the garden," said Jim Berrian, an arachnologist and high school biology teacher who has worked or volunteered for the San Diego Natural History Museum since 1976. A herpetologist by training, Berrian's first task when he transferred to entomology was to classify the Museum's collection of 2,000 to 3,000 spiders. Since then, he's added over 700 spiders to the collection, and has discovered possibly four new species.

But what separates *Neoscona crucifera* from *Araneus diadematus*, for example? They're both orb weavers, which means that they make intricate, vertical webs, and they have similar markings on their underbellies. Color and markings alone aren't enough of a distinction. "Imagine trying to identify the make and model of a car . . . by the color!" said Rod Crawford, Curator of Arachnids at Washington's Burke Museum.

Spiders are classified into families by their structure. Arachnologists look at their eye arrangements (most spiders have eight eyes, some have six), the hairs on their legs, spines, the structure of the spinnerets (where the spider's silk comes from), and the claws at the end of their legs. Those characteristics determine the families, but to determine a species, you need to look at the shape and structure of the sex organs.

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With over 37,000 species of spiders in the world, one could spend years under the scope trying to sort out who's who. That's just what Berrian is trying to do. He's currently working on a geographic study of spiders in San Diego County. "We don't have a clue if we have endangered species here, or where the spiders occur," said Berrian. San Diego County has over 430 species of spiders, and he's still counting. Berrian is also doing a spider survey of Baja California, Mexico.



Araneus andrewsi

"There are only two field guides on spiders helpful for our area and both of them are geared mostly for the east coast," said Berrian. He's creating a guide to San Diego spiders "to educate people about what's dangerous, and what's not."

His long-term project is to create a spider atlas showing the areas where spiders can be found, complete with pictures.

We really don't know much about these creatures at all, which is why there are so many myths attached to them. Crawford has a web site called "Spider Myths" (washington.edu/burkemuseum/spidermyth) that dispels many myths about spiders.

Here are a few from the site that you may be embarrassed to find out are NOT true:

1. Spiders come into houses in the fall to get out of the cold.

Crawford argues that spiders that live in houses are not the same species as those that live outside. Spiders you find in the home are especially adapted for indoor conditions, and have been living this lifestyle since the days of the Roman Empire.

2. "I'm a spideritarian. I don't kill them. I let them back outside."

See myth #1. Letting it out isn't doing it any favors. Indoor spiders aren't harmful; they're doing YOU a favor by eating pests that you don't want around. Says Crawford, "Just wave as they go by."

3. Spiders in the home are a danger to children and pets.

Remember: even your toddler is too big for a spider to eat. And anyway, spiders aren't bloodsuckers like the mosquito. Crawford says that spiders have no reason to bite a human or any other animal too large for them to eat. Even if they do manage to get a bite in, the majority of spiders don't have venom that could harm you.

4. I have this huge swelling on my leg. I must have been bitten by a brown recluse!

Let's clarify something: there are no populations of brown recluse spiders in California. Rick Vetter, M.S., staff research associate in the Department of Entomology, University of California, Riverside, has an entire web page devoted to myths specific to the brown recluse spider, and has published articles in medical jour-

nals about the spider. Vetter uses the word "populations" because a handful of them have been found here, but their origin has been traced to places where you CAN find them, such as areas of the south and Midwest.

Says Vetter: "Although there is the chance a brown recluse could be in California, that one little spider is not responsible for the several hundred brown recluse spider bite diagnoses that have been made in California and the probability of being bitten by a brown recluse in California is realistically zero."

Back to our hairy friend hanging between the trees. For the sake of argument, let's say that she is *Neoscona crucifera*. If she's big, she's close to the end of her life cycle, which is one year. By late fall, she will lay her eggs in a fluffy yellow egg sac in a rolled up leaf, and will die soon after the eggs hatch.

If you're interested in seeing what she's been dining on, look under her web. Instead of injecting their venom with fangs, orb weavers actually "vomit" digestive fluid over the prey, making a kind of "digestive soup of enzymes," according to Berrian. It turns their prey's insides into a liquid, which they suck out. What's left is a shell of their prey's former self, which drops to the ground.

You can also tell if she's had a successful night by looking at the number of holes in her web. When she catches prey, she tears a hole in the web during the process. Not a problem. She creates a new web every night after eating the old one. Although they do a lot of



Neoscona crucifera



Neoscona crucifera

damage to the insect world, these spiders are harmless to humans.

So what's the point of knowing about what's living in your front yard? It's like getting to know the neighbors. It's better to know them by name. It's also good to know that these garden spiders can't hurt you (and don't want to).

Berrian gets lots of e-mail from people asking about a certain spider, and whether it's dangerous. "I've had people drop them off at my house, too," said Berrian. If you find a spider specimen that you want a spider specialist to look at, don't send it via snail mail. Says Crawford: "A little reflection should lead anyone to realize that letters in envelopes, even padded or cardboard ones, go through heavy-duty canceling machines in the post office, and any spider that is not pro-

tected in a rigid box or bottle will be crushed to powder. Powdered spiders are seldom identifiable!" The best way to gift wrap a spider? Catch it and put it in a jar or a vial filled with alcohol.

Berrian is more than happy to respond to spider queries but he prefers pictures over vague descriptions like: "he's brown and as big as a quarter!" You can e-mail Berrian at bcspiders@aol.com.

As Berrian said, there are only a few guide books to spiders available. He suggested *How to know the Spiders* by BJ Kaston, and *Spiders and their Kin* by Herbert Levi.

Crawford also recommended the Levi book, and, he said, "Oddly enough, the excellent European field guide by Michael Roberts is useful for U.S. urban spiders because most are introduced from Europe!" The guide is called *Collins Field Guide-Spiders of Britain and Northern Europe*, by Michael J. Roberts.

Many arachnologists are anxiously awaiting the arrival of *Spiders of North America, an Identification Manual*, an illustrated guide to the 68 spider families found in North America. It's due out in July 2005. Check for availability at the American Arachnological Society's web site at americanarachnology.org.

Read more about spiders in San Diego at sdnhm.org/research/entomology/sdspider.html and sdnhm.org/fieldguide/inverts.

Want to learn more about spiders and other "monsters" in your backyard? Don't forget to visit our newest exhibition

BACKYARD MONSTERS

at the Museum through January 1, 2006.