Georgia's Purseweb and Trapdoor Spiders

Male blue purseweb spider (Daniel D. Dye II)

By Dirk J. Stevenson

In Georgia, trapdoor and purseweb spiders are found statewide. Called mygalomorphs (the species are of the infraorder *Mygalomorphae*), these arachnids are ground-dwellers related to tarantulas.

Here's a quick look at both.

Purseweb Spiders

Adult red-legged purseweb spider on its tube (Daniel D. Dye II)

Three species of purseweb spiders (family Atypidae, genus *Sphodros*) are known to occur in the state. Each builds tough silken tubes carefully disguised with bits of lichen and moss. The tubes extend up the sides of tree trunks, with the bottoms ending a few inches underground, in damp soil. The tubes serve as shelter and hunting stations. The spiders spend most of their lives in them.

Arachnologists enjoy describing the gruesome hunting strategy used by purseweb spiders. When an insect or other potential prey walks over the exposed portion of the tube, the spider, sensing vibrations, attacks from within the tube, impaling the prey with enormous fangs thrust through the tube wall. Once the prey is subdued, the spider cuts a slit in the tube and pulls the insect inside to consume at its leisure. The fastidious spider then stitches up the hole.

The bottoms of many purseweb tubes I have excavated were littered with arthropod remains, including the chitonous parts of millipedes and beetles.

Recent Georgia surveys for purseweb spiders conducted by well-known Florida-based herpetologist Paul Moler and I focused on the status and distribution of the red-legged purseweb spider (*Sphodros rufipes*) and blue purseweb spider (*Sphodros abboti*) species. We found the red-legged purseweb widely distributed throughout the Coastal Plain and portions of the Piedmont, albeit confined to pockets of intact mesic forest habitats, often close to water. Numerous records are known from the Atlanta area.

Look for this spider's tubes in healthy, deciduous forests. We found impressive tubes – up to a foot long for some mature red-legged (*S. rufipes*) females – on hardwood tree species including American beech, southern magnolia, swamp chestnut oak and sweet gum, with varied densities of tubes per site.

The range of the blue purseweb, mostly limited to the northern third of Florida, barely extends into southern Georgia. The northmost populations documented are near Valdosta and Thomasville. Although

a rare spider in Georgia, in Florida the hammock-loving blue purseweb often occurs in impressive densities, with up to several hundred tubes per hectare and commonly multiple tubes on the same tree.

Like all mygalomorphs, purseweb spiders are docile and have little interest in biting humans, unless harassed. They can be safely handled, although when I am holding one, particularly a large female, I try not to focus on the enormous fangs!

Sexually mature males, which are rarely encountered except during their meandering searches for females, possess striking colors: tomato-red legs contrast with a jet-black body in the red-legged purseweb; blue pursewebs are metallic blue-black. These colors are likely aposematic – serving to repel predators – and spider biologists consider them to be wasp mimics.

Trapdoor Spiders

Adult female trapdoor spider at Griffin Ridge WMA (Dirk J. Stevenson)

Georgia's trapdoor spiders (eight species in three families) build silk-lined burrows underground with a trapdoor at the surface. The *Ummidia* species – females can be up to 2 inches long, making them the largest mygalomorph spiders in the state – are so shiny black they appear varnished.

Even the trapdoors to their burrows are impressive: solid, cork-like, well-camouflaged and about an inch in diameter. And while some may be familiar with the tarantula hawks of the American West, other spider wasp species (*Pompilidae*) are major predators of trapdoor spiders and figure prominently in the defenses evolved by this group. The following, from a species account by the late Howard K. Wallace Sr. and G.B. Edwards, describes how *Ummidia* respond when their burrow entrances are probed by wasps and other predators. "The burrow is only about 4-6 inches deep, and the spider depends on brute strength for protection. When disturbed, she inserts her fangs into holes in the door and holds on to the sides of the burrow with all eight legs."

Ummidia are found statewide in Georgia. When I recently found a mature female it was, well, a moving experience. I muttered to myself, "She's enormous, gorgeous, horrifying." According to Rebecca Godwin, an Auburn University Ph.D. candidate studying *Ummidia*, generally speaking "the venoms of trapdoor spiders in the U.S. are not particularly strong and most people equate trapdoor spider bites to something like a bee sting."

Godwin has been studying *Ummidia* in North, Central and South America for several years with the intent of producing a thorough taxonomic revision on the group. So far it appears there are potentially dozens of undescribed species in the U.S. alone, based on specimens she has borrowed from natural history museums and spiders the public has contributed. "I'm always willing to take additional specimens of *Ummidia* from anyone who would like to send them to me!" says Godwin. *(Found a live Ummidia trapdoor spider and want to contribute the specimen? Email Dirk Stevenson for details, eelmoccasin@yahoo.com.)*

By comparison, the trapdoors of Georgia's trapdoor spiders in the genus *Myrmekiaphila* (family Euctenizidae) are smaller, much thinner and wafer-like. Some *Mrymekiaphila* species are tricksters and have side tunnels, also blocked with doors, that branch off the main stem.

The state is also home to two species of odd mygalomorphs known as ravine trapdoor spiders (genus *Cyclocosmia*). My recent surveys documented one of these, the Torreya trapdoor spider (*C. torreya*) in the Coastal Plain of southeastern Georgia, well outside its known range.

Torreya trapdoor spiders fit their abdomens against the walls of their burrows to keep out predators and flooding rains. (Daniel D. Dye II)

These compact, tank-like spiders are a favorite of arachnologists, and it's easy to understand why: Their bizarre, manhole cover-like abdomens are abruptly truncated and end in a heavily sclerotized disc. The disc fits tightly against the wall of their burrows and are essentially false trapdoors that help keep predators and flooding rains from their homes. A small genus with an unusual relict distribution, *Cyclocosmia* species are known only from the southeastern U.S., Mexico and southeast Asia.

Dirk J. Stevenson is a naturalist and owner of Altamaha Environmental Consulting in Hinesville.