

## Coyle's Purseweb Spider

*Sphodros coylei*

Contributor: Robert J. Wolff, Ph.D.

### DESCRIPTION

#### Taxonomy and Basic Description

Purseweb spiders of the family Atypidae (“atypical tarantulas”) are members of the primitive mygalomorphs. The atypical tarantulas consist of only two genera; in the United States these are *Sphodros* and *Atypus*, and in Europe, Asia and Africa only *Atypus*. These are spiders in the suborder Orthognatha of the order Araneae. The related mygalomorphs in South Carolina include trapdoor and folding trapdoor spiders; all are rarely found. This may be due in part to their secretive habits, but is primarily due to their apparent need for fairly undisturbed woodland habitat with a good soil/leaf litter cover.

This species account is based on a single male found wandering in leaf litter in a woodland area within the boundaries of the town of Clemson, Pickens County, South Carolina. The genus as a whole is usually dark colored, with the carapace and legs appearing hairless and shiny. The legs may be similar or reddish in color. The abdomen has short hairs, and the spinnerets extend noticeably beyond the abdomen. The males are sometimes brightly colored and may be found wandering around looking for females in their tubes when mature, but the reddish-brown or dark-colored females are rarely found outside of the web. Atypical tarantulas have huge chelicerae for their size and relatively long spinnerets.

*Atypus* spiders live in silken tubes parallel to the surface of the ground, while *Sphodros* species usually prop their tubes against a tree trunk. A *Sphodros* web is very unique, consisting of a tube of silk, which extends out of the soil burrow up the side of a tree to about six inches. The web may be covered with dirt and other debris.

#### Status

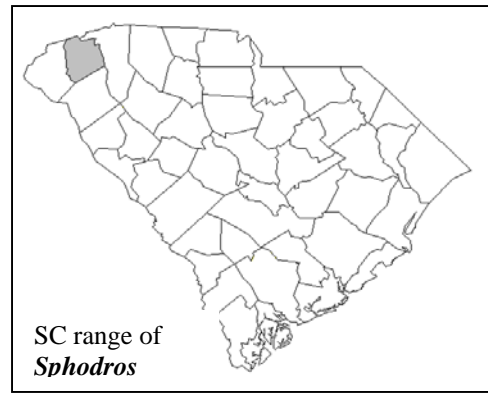
Known only from its type locality in Clemson, it is important to study this and surrounding areas to see if this species still exists and determine its distribution and population size. Pickens County is one of the most studied counties in the state of South Carolina for its arthropods, but being so poorly known, it might be assumed that *S. coylei* is endangered. While this might prove to be a valid assumption, dedicated research directed toward this species' ecology, range and distribution is needed to determine its actual status.



Photo of *Sphodros coylei* web,  
courtesy SDSU 2004

## POPULATION DISTRIBUTION AND SIZE

Two additional species of trapdoor spiders in the same genera, *Sphodros atlanticus* and *S. rufipes*, have been reported from both North Carolina and Georgia, but not from South Carolina. An additional sister species, *S. niger*, has been reported from North Carolina, while *S. bicolor* has been reported from six counties in the coastal plain and lower piedmont of North Carolina.



## HABITAT AND NATURAL COMMUNITY REQUIREMENTS

Coyle's purseweb spider is a predator. Purseweb spiders dig burrows at the base of trees and then build their unique web, tube-like in construction, up the side of the tree extending upward as far as six inches. The spider usually stays hidden in the web, biting through to capture insects that walk or land on the web. Because of these habits, undisturbed woodlands are critical for members of this genus. Future study should be directed at clearly defining these habitat requirements as they are largely unknown at this point.

## CHALLENGES

The greatest impact that affects all purseweb spiders, as well as other soil dwelling mygalomorph spiders, is habitat destruction, especially through urbanization and deforestation. While the specific habitat requirements, including the size of the forested area, leaf litter, soil type and soil condition are all unknown, the apparent rarity of these spiders indicates that they probably require fairly extensive habitat areas to assure species survival. Males leave their webs following maturity and wander to find females to mate with, but it is completely unknown how far they travel. Isolated populations may become non-viable if either the males fail to find females, or if the isolated populations are unable to sustain the inbreeding.

The impact of exotic, invasive species such as the red imported fire ant (*Solenopsis invicta*) may also have a significantly negative impact on these spiders that typically have little mobility. An additional challenge for this species is kudzu; this creeping vine suffocates the soil underneath the trees it climbs and grows on.

Our lack of knowledge regarding the spiders of South Carolina may be one of the challenges that might prevent us from protecting species.

For a more complete discussion, see Gertsch and Platnick (1980).

## CONSERVATION ACCOMPLISHMENTS

Any protection of large forested areas should help to assure habitat quality. Contiguous forest areas are vital to allow the continued survival of purseweb spiders and their mygalomorph relatives. The protection of the Jocassee Natural Gorges area along the South and North Carolina borders might be critical for several species of spiders.

## CONSERVATION RECOMMENDATIONS

- Conduct surveys to determine the distribution of Coyle's purseweb spider in South Carolina.
- Explore the need to list Coyle's purseweb spider in South Carolina, based on survey results.
- Protect critical habitats for Coyle's purseweb spider from development and further habitat degradation by following best management practices.
- Promote land stewardship practices through educational programs.
- Expand education programs to include the importance of spiders in ecosystems throughout South Carolina.

## MEASURES OF SUCCESS

Further study may prove these species to be relatively rare, but with stable populations. New habitat information may also change assumptions, such as some species being able to survive in grassy areas (Wolff, pers. obs.). Both Virginia and Connecticut each list a purseweb spider on their endangered/threatened list of arthropods.

## LITERATURE CITED

- Gaddy, L.L. and J.C. Morse, 1985. Common Spiders of South Carolina, with an annotated checklist. Clemson University, SC Agricultural Experiment Station, Technical Bull. 1094:1-182.
- Gertsch, W.J. and N.I. Platnick, 1980. A revision of the American species of the family Atypidae (Araneae: Mygalymorphae). Amer. Mus. Novitates. 1704:1-39.