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Purse-web spiders (Atypidae) in Virginia (Araneida: Mygalomorphae)

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Even professional naturalists are often surprised to learn that the group of spiders commonly called "tarantulas" is represented in Virginia by a number of species in three families. At least one species is statewide and locally abundant, although like the others it is rarely seen because of secretive habits. The recent utilization of static, quantitative collecting techniques has greatly amplified our previously rudimentary knowledge of Virginia mygalomorphs, and provides a useful baseline insight into these interesting arachnids.

Spiders of the small Holarctic family Atypidae are commonly referred to as "purse-web spiders" because their capture webs have the form of cylindrical silken tubes lying along the ground and/or extended vertically on a tree trunk (the latter being typical of the Nearctic species). They are not sticky, and the spider, waiting inside, depends on its speed and alertness to get to the place where an insect is slowed or delayed in crossing. The spider's chelicerae are distinctly elongated to facilitate an upward or outward stab through the web into the victim, which is then dragged inside to be consumed at leisure. The tom entryway is later repaired.

Knowledge of American atypids was synthesized recently by Gertsch & Platnick (1980), who accounted

for eight species (four of them described as new). One species, known only from Philadelphia, was referred to the otherwise exclusively Palearctic genus *Atypus*, the other seven placed in *Sphodros*, a taxon endemic in southern and eastern United States. Except for *S. abbotti* in northern Florida and *S. niger* in the northern tier of states, these species were known only from widely scattered localities, one or a few per state. Only three species, *S. rufipes*, *S. atlanticus*, and *S. niger*, were known from Virginia, each from only a single locality.

It is now possible to provide a number of additional records for the last two species named, and to add a fourth *Sphodros* to the fauna of Virginia (as well as vastly augmenting the known range of that species). The ready availability of the excellent synopsis by Gertsch & Platnick obviates the need for diagnoses and illustrations at this time. All four species are basically piceous or black; males of *S. rutipes* are easy to recognize because their legs are mostly a vivid carmine red, but males of the other three (and females of all four) must be distinguished by technical characters. The genus itself can be identified at sight by means of the long, porrect chelicerae, the basal segment of which is half or more as long as the cephalothorax. The cheliceral fang, on the ventral

side, is correspondingly long and slender.

Distributional Data

Sphodros rufipes (Latreille). The red-legged purse-web spider, formerly known by the name *Atypus bicolor* Lucas, occurs chiefly in the Coastal Plain from Rhode Island to Texas, and north to southern Illinois (with a few disjunct localities in the southern Appalachians). It was found at Falls Church, Fairfax County, many decades ago by Nathan Banks, and no subsequent material has come to my attention. More recent finds in Virginia are very desirable.

Sphodros niger (Hentz). This species is the most northern of the genus, with records scattered from Massachusetts and southern Ontario to Minnesota and Kansas, south through the Appalachians almost to Georgia. Gertsch & Platnick (1980: 35) saw but one Virginia specimen, a male found by me 3 miles south of Vesuvius, Rockbridge Co., on 24 June 1956 (AMNH). It is now possible to provide four additional localities:

Augusta Co.: on forest service road near Spring Pond, 3 miles SW of Sherando, one male found by Kurt A. Buhlmann and me on 26 May 1987 (VMNH); ca. 5 miles west of Stokesville, George Washington National Forest, 14 males from pitfall traps cleared on 17 June 1989, Barry Flamm (VMNH). Pittsylvania Co.: pitfall site along South Branch of Sandy River, ca. 3 miles east-northeast of Axton, one male taken during trapping period 15 June-15 July 1992 (VMNH). Prince Edward Co.:

Hampden-Sydney College, two immature females found in web at base of pine tree on college campus by William A. Shear on 29 November 1989 (VMNH). The cephalothorax, sternum, and legs of these juvenile spiders are testaceous light brown.

Existing records for *S. niger* suggest that, in going southward through Virginia, its range becomes confined to the mountains and western Piedmont. The two North Carolina localities cited by Gertsch & Platnick (1988) are in the Blue Ridge province.

Sphodros atlanticus Gertsch & Platnick. Unrecognized prior to 1980, this spider is among the least-known members of its genus, with single records for Virginia, southern Illinois, and northern Georgia, and two for North Carolina. The Virginia specimen was taken at Fredericksburg, 30 May 1917 (AMNH).

It is now possible to record *S. atlanticus* from several localities in eastern and south-central Virginia, where it is apparently common in its preferred biotopes. City of Virginia Beach: Little Creek Amphibious Base, three males from pitfall cleared 22 June 1989, Virginia Division of Natural Heritage survey (VMNH). City of Chesapeake:

Fentress Naval Air Station, one male from pitfall cleared 6 June 1989, VDNH survey (VMNH). Isle of Wight Co.: pine barren study site 4 miles south of Zuni, one male from pitfall cleared 24 May 1985, C. A. Pague (VMNH). Greensville Co.: 3 miles southwest of Skippers along Cattail Creek, three males from pitfall cleared 30 May 1990, J. C. Mitchell (VMNH). Mecklenburg Co.: 4 miles southeast of Boydton, one male from pitfall along Va. Rte. 692, cleared 16 June 1990, J. C. Mitchell (VMNH). King George Co.: Naval Weapons Laboratory, Dahlgren, one male from pitfall in wet mixed forest, cleared 26 June 1991, VDNH survey, via Kurt Buhlmann (VMNH). Pittsylvania Co.: floodplain of South Prong Sandy River, ca. 4 miles northeast of Axton, one male from pitfall site in rich, loamy tulip poplar woods, cleared 15 June 1992, VMNH survey (VMNH).

It is noteworthy that from March to November, 1991, the Virginia Museum of Natural History operated a pitfall array in a thin woods of black locust about 3 miles southeast of Mitchell's Mecklenburg County site, without obtaining a single *Sphodros*. Apparently *S. atlanticus* must be fairly stenotopic as well as somewhat restricted in its period of male surface activity. The capture of this species in western Pittsylvania County implies a generally extensive distribution across much of the Piedmont, east of a line connecting Martinsville and Fairfax. The tarsi and metatarsi of the most recently preserved specimen are distinctly red in color rather than orange, confirming the supposition made by Gertsch & Platnick (1980: 29).

Sphodros coylei Gertsch & Platnick. Heretofore, *S. coylei* has been the rarest of American mygalomorph spiders, known only from the original two type specimens found at Clemson, South Carolina, in April 1977. It was therefore a pleasant surprise to discover the species among pitfall samples taken at several sites in eastern and south-central Virginia. City of Virginia Beach: Seashore State Park, 37 males taken from pitfalls on 1 March, 14 April, 1 May 1989, 1 male from pitfalls on 9 April and 22 May 1990, all VDNH survey (VMNH). Isle of Wight Co.: pine barren 4 mi south of Zuni, one male from pitfall, 24 May 1985, C. A. Pague (VMNH). York Co.: Cheatham Annex Naval Supply Depot, east of Williamsburg, three males from pitfall on 16 April 1990, VDNH survey (VMNH 2, AMNH 1). King George Co.:

Naval Weapons Laboratory, Dahlgren, one male from pitfall in wet mixed woods, cleared 26 June 1991, VDNH survey via Kurt Buhlmann (VMNH). Pittsylvania Co.: Lacy Farm, ca. 4 miles ENE of Axton along South Prong Sandy River, 4 males from pitfall 23 April 1992 (VMNH).

Within Seashore State Park, *S. coylei* has been taken in pitfalls placed in habitats characterized as "dune,"

"scrub," and "mesic woods." The site near Zuni is in a dry sandy region in pine woods, that in York County in fairly moist woods. At the Lacy Farm site, this species occurred in a low moist sandy floodplain with tulip poplar canopy. *Sphodros coylei* apparently is not particularly fastidious in habitat preferences.

These new localities not only establish the species as a member of the Virginia spider fauna, but extend its known range some 650 km northeast of the type locality. There can be no doubt that *S. coylei* occurs over much of North Carolina and northern Georgia as well. The Dahlgren site establishes it at the Potomac River, raising an interesting question: is this estuary the definitive northern limit of the species' range, or will future sampling reveal its presence in southern Maryland?

Seasonal activity of males

As with many other kinds of fossorial spiders, females of *Sphodros* tend to be essentially sedentary and are rarely taken in pitfall traps. During the mating season, males wander widely in search of females and are therefore far more likely to be trapped.

This season of male surface activity is fairly characteristic with respect to three of the Virginia species (information is unavailable for *S. rufipes*). Available collection dates and captures are in Table 1.

It is interesting to note that males of *S. niger* and *S. atlanticus*, which are apparently allopatric, are active at about the same time, basically about four weeks from late May to late June. On the other hand, males of *S. atlanticus* and *S. coylei*, which are sympatric if not syn-

topic, largely are allochronous. *Sphodros coylei* is active from late March to late June, but the major pulse of movements (as indicated by the largest samples) occurred during mid-April in both 1989 and 1990. Captures on the other dates listed are ones and twos. The species are quite different in size: males of *S. atlanticus* averaging about 50% larger than those of *S. coylei*.

The three species discussed above have been found to co-occupy only a single site, that in western Pittsylvania County, where a very clear-cut temporal displacement is evident *S. coylei* was taken during the time interval 29 March-23 April; *S. atlanticus* from 13 May to 15 June; *S. niger* between 15 June and 14 July.

Acknowledgments

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Literature Cited

Gertsch, W., J., and N. I. Platnick. 1980. A revision of the American spiders of the family Atypidae (Araneae, Mygalomorphae), American Museum Novitates 2704: 1-39.

Table 1. Male seasonal surface activity of purse-web spiders in Virginia. Dates are the last day of two-week or onemonth sampling periods.

Species	March		April			May		June		July
<i>niger</i>						25	26	16	17	14
<i>atlanticus</i>						24	27 30	6	15 16	22 26
<i>coylei</i>	29 31	9	14 16	23	1	22 23 24	26			