PERIGENES SIMILIS (HEMIPTERA: LYGAEOIDEA: RHYPAROCHROMIDAE) IN FLORIDA: NOTES ON HABITS AND HABITATS

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The myodochine rhyparochromid *Perigenes similis* Barber was described from a female collected at Brownsville, Tex. (Barber 1906). This relatively heavy-bodied myodochine (ca. 5.5-7.0 mm long) ranges in the eastern United States from central Virginia to Florida; west of the Mississippi River it is known from Iowa and Missouri west to New Mexico and Texas (Ashlock & Slater 1988; Slater & Baranowski 1990; Hoffman 1996). Slater and Baranowski (1990) analyzed the distribution of Floridian Lygaeoidea and categorized *P. similis* as a "southern U.S. species, including the Southwest," an element comprising only 6% of the state's lygaeoid fauna.

Perigenes similis can be distinguished from the more northern and morphologically similar *P. constrictus* (Say) by the second antennomere being subequal in length to the fourth antennomere (in *P. constrictus* antennomere II is 1.5 times longer than antennomere IV) (Slater & Baranowski 1990). Hoffman (1996), however, pointed out that the second antennomere can be as much as 1.2 times the length of the fourth in *P. similis* and that relative lengths of the antennal segments are not always reliable in distinguishing the two species. Males of *P. similis* have uniformly yellow femora, whereas males of *P. constrictus* have the profemora and apical fourth of the metafemora black (Froeschner 1944; Slater & Baranowski 1990; Hoffman 1996). The dorsal habitus of *P. similis* is illustrated by Slater and Baranowski (1990: Fig. 90).

Little biological information is available for *P. similis*. Adults are attracted to lights, and most of the numerous Floridian records are of adults collected "at light" or at blacklight traps (Hussey 1952; Slater & Baranowski 1990). Blatchley (1926) collected adults (as *P. constrictus*) in Florida by beating dead leaves of cabbage palmetto (*Sabal palmetto* [Walter] Schult. & Schult.) and by sifting weed debris. Adults have been taken in Missouri by sweeping weedy fields (Froeschner 1944) and in Virginia by sweeping grasses and sedges (Hoffman 1996). Habitats typically are ruderal exposed sites—fields, roadsides, and vacant lots—with an apparent preference for more mesic conditions than *P. constrictus* (Slater & Baranowski 1990). In Virginia, *P. similis* has been found in marshy areas and near standing water (Hoffman 1996). Collection dates range from early June to early October in Missouri (Froeschner 1944) and early June to late August in Virginia (Hoffman 1996). Adults can be collected in southern Florida nearly year round, with most records during May to September (Slater & Baranowski 1990). The literature on this species does not mention the nymphs.

Here I record the habitats in which nymphs and adults of *P. similis* were collected in Florida from March 2000 to April 2001 and provide notes on the habits and seasonality of this lygaeoid. Voucher material has been deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Material examined (all collections by the author; Roman numerals = nymphal instars): FLORIDA: Columbia Co., Sprite Loop, 0.1 km E. of Rt. 41, 3.2 km S. of Mikesville, 30°08.3'N, 82°57.1'W, 22 Mar. 2000, 1 II, 1 III, 3 IV, 1 V, ex crowns of *Muhlenbergia capillaris var. filipes* + 1 V ex crown of *Andropogon* sp. Hamilton Co., jct. Rt. 129 & SW 79 Terrace, 0.3 km N. of Suwannee River, 2 km NE. of Suwannee, 30°23.8'N, 82°56.0'W, 1 III, ex crown of *Andropogon* sp., 23 Mar. 2000; 1 ♂, 1 ♀, 2 III, 1 IV, 1 V, ex crowns of *Andropogon* sp., 27 May 2000; 2 ♂, 1 II, 1 III, 1 IV, 5 V, ex crowns of *Andropogon* sp. + 1 ♀, 1 V, sweeping *Coreopsis* sp. and *Gaillardia* sp., 2 June 2000; 1 ♂, ex crown of *Andropogon* sp., 29 Nov. 2000. Lake Co., Rt. 27, 11 km N of Groveland, 28°39.4'N, 81°51.2'W, 1 ♂, ex crown of *Andropogon* sp., 3 Mar. 2001. Suwannee Co., Rt. 129, McAlpin, 30°08.3'N, 82°57.1'W, 2 ♂, 3 ♀, 8 III, 5 IV, 5 V, ex crowns of *Andropogon* sp., 3-4 Mar. 2000; 3 ♂, 3 ♀, ca. 20 III-V, ex crowns of *Andropogon* sp., 23 Mar. 2000; 1 ♂, ex crown of *Andropogon* sp., 27 May 2000; 1 III, ex crown of *Andropogon* sp., 29 Nov. 2000; 1 I, 4 II, 4 III, 2 IV, 2 V, ex crowns of *Andropogon* sp., 2 Mar. 2001; 2 III, ex crowns of *Andropogon* sp., 21 Apr. 2001; Rt. 129, 1.2 km S. of O'Brien, 30°01.7'N, 82°56.6'W, 1 IV, ex crown of *Andropogon* sp., 4 Mar. 2000.

The field-type habitats from which *P. similis* was collected were ruderal sites along highways. Both sites that were sampled most frequently—one in the eastern Panhandle (Hamilton Co.) and the other in northern peninsular Florida (Suwannee Co., McAlpin)—have a rather sparse litter layer with only a few small (<0.25 m^2) patches of open sand. The site in Hamilton County, in an area of mesic flatwoods, has saw palmetto (*Serenoa repens* [W. Bartram] Small) within 25 m of the road, rank forbs scattered among broomsedge (bluestem) (*Andropogon* sp.) and other grasses, and a roadside planting of composites (blanketflower [*Gaillardia* sp.] and tickseed [*Coreopsis* sp.]). Vegetation near the highway, including some of the *Andropogon* plants that were sam-

pled, has now been eliminated by road construction. The site in Suwannee County can be described as disturbed sandhills. Plants at this site, in addition to *Andropogon*, include prickly-pear (*Opuntia humifusa* [Raf.] Raf.); bracken fern (*Pteridium aquilinum* [L.] Kühn); black medic (*Medicago lupulina* L.); forbs such as goldenrod (*Solidago* sp.), dog-fennel (*Eupatorium capillifolium* [Lam.] Small), and other composites; and blackberry or dewberry (*Rubus* sp.).

Except for an adult and a nymph of *P. similis* that were swept from the roadside planting of *Coreopsis* and *Gaillardia* in Suwannee County, all other individuals were beaten from the crowns of grasses. One collection was made from gulf hairawn (*Muhlenbergia capillaris* [Lam.] Trin. var. *filipes* [M. A. Curtis]), a grass that is sometimes given specific status, whereas all other collections were from bluestem or broomsedge (*Andropogon* spp.). The plant at the main sites in Hamilton and Suwannee counties probably is *A. tenuispatheus* (Nash) Nash, a species often listed as *A. glomeratus* (Walter) Britton et al. var. *pumilus* (Vasey) Vasey ex Dewey (e.g., Wunderlin 1998).

Perigenes constrictus inhabits the litter layer of exposed, ruderal sites in Connecticut (Sweet 1964); in Florida, *P. similis* also might be mainly geophilous. Nymphs of all instars and occasional (ca. 10) exuviae (cast skins were recognizable as *P. similis* by being setose) were beaten from crowns of *Andropogon*, suggesting that this lygaeoid's presence on grasses is more than accidental. The crowns of bunchgrasses would provide more moist conditions than the sandy substrate and might be typical of the mesic habitats from which this species has been recorded (Slater & Baranowski 1990; Hoffman 1996). Although rhyparochromids are characteristic of open, hot, xeric environments, some species show behaviors for minimizing their exposure to high temperatures of the substrate (Sweet 1964). The habitats occupied by *P. similis* in northern Florida do not qualify as open xeric sites in Sweet's (1964) classification; even so, the use of the basal stems and crowns of bunchgrasses might allow *P. similis* to avoid a substrate that is hot by day and to forage in the litter layer at night for seeds of grasses and forbs. The crowns of grasses also might offer some protection from predators.

Nymphs and adults of another myodochine rhyparochromid, *Paromius longulus* (Dallas), were beaten from *Andropogon* grasses at all sites from which *P. similis* was collected. The former lygaeoid is found on grasses rather than in the litter layer (Slater & Baranowski 1990; A. G. W., pers. obs.) and apparently feeds on such grasses. Whether the presumed seed-feeding *P. similis* feeds on the basal stems and new growth of grasses is not known. Nymphs and adults were beaten in March mainly from *Andropogon* plants with and without new growth at the base; they also were beaten from dead plants, both erect and sprawling on the ground, such plants apparently being used only for shelter.

Perigenes constrictus is bivoltine in Connecticut, the second-generation adults persisting until late autumn and the overwintering eggs hatching the following spring (Sweet 1964). Although my irregular collecting of *P. similis* does not allow the number of generations to be determined with confidence, this rhyparochromid appears to be at least bivoltine in northern Florida. The adults observed in early March are considered to represent those of a spring (first) generation; three fifth instars collected in early March 2000 eclosed within 24 hours. A prolonged period of egg hatch is suggested by the presence in early March of first through fourth instars along with fifth instars and adults. In the case of *P. constrictus*, Sweet's (1964) studies of egg diapause suggested a staggered hatch and "a protective spreading out of the spring eclosion." My collection of early instars of *P. similis* during March and in late May to early June suggests the production of a second generation. Whether another generation is produced during summer was not determined. Only a third instar and an adult were observed at the two principal collecting sites in late November.

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Summary

Adults and nymphs of all instars of *Perigenes similis*, a rhyparochromid lygaeoid, were beaten from the crowns of bunchgrasses, mainly *Andropogon* spp. (Poaceae), in Florida. Populations in the eastern Panhandle and the northern peninsula developed in ruderal sites (roadsides) of disturbed sandhills and mesic flatwoods and appeared to be at least bivoltine.

References Cited

Ashlock, P. D., and A. Slater. 1990. Family Lygaeidae Schilling, 1829. The seed bugs and chinch bugs. pp. 167-245 *in* T.J. Henry and R.C. Froeschner [eds.], Catalog of the Heteroptera, or true bugs, of Canada and the Continental United States. E. J. Brill, Leiden. 958 pp.

Barber, H. G. 1906. Hemiptera from southwestern Texas. Sci. Bull. Mus. Brooklyn Inst. Arts Sci. 1: 255-289.

Blatchley, W. S. 1926. Heteroptera or true bugs of eastern North America, with especial reference to the faunas of Indiana and Florida. Nature Publishing Co., Indianapolis. 1116 pp.

FROESCHNER, R. C. 1944. Contributions to a synopsis of the Hemiptera of Missouri, Pt. III. Lygaeidae, Pyrrhocoridae, Piesmidae, Tingidae, Enicocephalidae, Phymatidae, Ploiariidae, Reduviidae, Nabidae. American Midl. Nat. 31: 638-683.

HOFFMAN, R. L. 1996. The insects of Virginia. No. 14. Seed bugs of Virginia (Heteroptera: Lygaeidae). Virginia Museum of Natural History, Martinsville. 111 pp.

HUSSEY, R. F. 1952. Food plants and new records for some Hemiptera in Florida. Florida Entomol. 35: 117-118.

SLATER, J. A., AND R. M. BARANOWSKI. 1990. Lygaeidae of Florida (Hemiptera: Heteroptera). Arthropods of Florida and Neighboring Land Areas. Vol. 14. Florida Dep. Agric. Consum. Serv. Div. Plant Ind., Gainesville. 211 pp.

SWEET, M. H. 1964. The biology and ecology of the Rhyparochrominae of New England (Heteroptera: Lygaeidae). Pts. I, II. Entomol. Americana 43:1-124, 44: 1-201.

WUNDERLIN, R. P. 1998. Guide to the vascular plants of Florida. University Press of Florida, Gainesville. 806 pp.