

NOTE

Fitchia aptera Stål (Hemiptera: Reduviidae):
Seasonal History and Habits in Mid-Appalachian Shale Barrens

Fitchia aptera Stål is an infrequently collected though widely distributed harpactorine reduviid. Adults are 9–14 mm long, elongate, and dull yellow, with a dark longitudinal stripe on either side of the abdominal midline; this dorsal stripe is conspicuous in the brachypterous morph. Slater and Baranowski (1978. How to Know the True Bugs, W. C. Brown, Dubuque, Iowa. 256 pp.) illustrated the brachypterous and macropterous forms. *Fitchia aptera* can be confused with the only other member of this Nearctic genus, *F. spinosula* Stål; characters traditionally used to distinguish the two sympatric species—including presence or absence of prothoracic spines—are unreliable (McPherson et al. 1992. Florida Entomologist 75: 222–230). McPherson et al. (1992) redescribed the adults and provided additional characters to separate these species.

DeCoursey (1963. Bulletin of the Brooklyn Entomological Society 58: 151–156) described and illustrated the immature stages and determined their duration by rearing *F. aptera* in the laboratory (“room temperature,” RH not stated); nymphs were fed small flies and homopterans. DeCoursey (1963) reported mean development (egg to adult) of 60 days (range 51–67; n not stated) and found that *F. aptera* has only four nymphal instars. Swadener and Yonke (1973. Journal of the Kansas Entomological Society 46: 123–136) reared this reduviid in the laboratory (21°C night, 29°C day; 40–60% RH), reporting that total development averaged 70 days (range 60.5–74.5; n = 134 eggs, n = 3 instar IV). They also confirmed the presence of only four instars.

In contrast to the availability of biological data from laboratory studies, little is known about the habits of *F. aptera* in nature. Readio (1927. University of Kansas Science

Bulletin 17: 5–291) did not treat the bionomics of this species in his studies on reduviid biology. This mainly ground-dwelling assassin bug occurs by day at the bases of grass clumps in old fields, the adults overwintering under boards, stones, or at roots of grasses. Adults occasionally can be swept from tall grasses in early evening. Nymphs are found on the ground, mainly in grassy areas (DeCoursey 1963). Hagerty and McPherson (2000. Great Lakes Entomologist 32: 133–160) reviewed additional collection records and in Illinois reported an adult at the roots of a grass clump, three adults from sweeping herbaceous vegetation, and another adult from sweeping a grassy field.

Here I give notes on the seasonality of *F. aptera* in shale barrens and outcrops in the mid-Appalachians. Collections and observations were made while inventorying the plant bug (Hemiptera: Miridae) fauna of moss phlox (*Phlox subulata* L.) during 1989–1995. Mats of this prostrate perennial (family Polemoniaceae) were shaken over a white tray (Wheeler. 1995a. Proceedings of the Entomological Society of Washington 97: 435–451), and adults and all instars of *F. aptera* were collected; nymphs were determined to instar in the laboratory, using DeCoursey’s (1963) descriptions. Voucher specimens, including nymphs, are deposited in the National Museum of Natural History, Smithsonian Institution, Washington, D.C.

Unless otherwise stated, *F. aptera* was collected from mats of moss phlox at the following localities. The numbers of nymphs (Roman numerals = instars) and adults (A) are given parenthetically after other collection data.

Maryland: Allegany Co., Country Club shale barren, 2.5 km NE of Cumberland, 2 July 1994 (1 III). Pennsylvania: Bedford

Co., shale slope, Rt 56 E of Fishertown, 24 June 1990 (1 I); shale slope, Rt. 96 NE of Ryot, 24 June 1990 (2 I) & 10 May 1992 (1 A). Virginia: Bath Co., Fort Lewis shale barren, Rt. 678 at Cowpasture River, 26 June 1994 (1 I); Highland Co., Head Waters shale barren nr. jct. Rts. 250 & 616, 23 June 1990 (7 I–II), 25 Aug. 1990 (1 IV; 2 A ex undet. sprawling plant), 10 July 1993 (3 II; 2 II ex base of *Eriogonum allenii* S. Wats), 1 Aug. 1993 (2 II, 1 III), 26 June 1994 (1 I, 1 II), 6 Aug. 1994 (1 II, 1 III), 26 Aug. 1994 (1 IV); Rockbridge Co., Furnace Mountain shale barren, ca. 3 km S of Natural Bridge Station, 24 May 1995 (1 I, 1A ex *Antennaria plantaginifolia* (L.) Richardson); Rockingham Co., shale slope, For. Rd. 87, W of Fulks Run, 19 May 1994 (1 A; 1 A at base of *Tephrosia virginiana* (L.) Pers.), 25 June 1994 (1 I); Shenandoah Co., Short Mountain shale barren, ca. 4.6 km SE of Mount Jackson, 10 July 1993 (1 III). West Virginia: Greenbrier Co., shale slope, Whites Draft Rd., Alvon, 4 July 1994 (1 II); Hampshire Co., shale bank, Rt. 29, 5.6 km N of Slanesville, 30 June 1990 (1 II); Hardy Co., shale bank, Mathias, 30 June 1990 (1 II).

Insect-plant associations in shale barrens have been little studied (e.g., Wheeler 1995a; Braunschweig et al. 1999. pp. 83–98. In Anderson, R. C. et al., eds., *Savannas, Barrens, and Rock Outcrop Communities of North America*. Cambridge University Press, UK), but these xeric communities of high soil-surface temperatures (sometimes 50–60°C; Braunschweig et al. 1999) harbor great insect richness (Wheeler 1995a, b. *Virginia Journal of Science* 46: 148). The predacious *F. aptera* can be added to the diverse insect fauna of moss phlox in mid-Appalachian shale barrens and outcrops (Wheeler 1995a, b). All collections were from the Valley and Ridge physiographic province except the one in Rockbridge Co., Va., which was from the Blue Ridge province. According to McPherson et al. (1992), Maryland, Virginia, and West Virginia are new state records.

Only small numbers of *F. aptera* were

found during any 45–60 minutes' sampling of moss phlox, the seven early instars on 23 June 1990 representing the most individuals in any sample. Adults, all brachypters ($n = 6$), were found at four sites where nymphs were present; nymphs at other sites probably also were *F. aptera* rather than *F. spinosula*.

Overwintered adults were found under mats of moss phlox, at the base of *Tephrosia virginiana*, or among stolons of *Antennaria plantaginifolia* during May in shale barrens and outcrops. Except for the late-May collection in Rockbridge Co., Va., first instars were not observed before late June despite intensive sampling of moss phlox during April, May, and early June (Wheeler 1995a). An early instar was observed feeding on an immature isopod at the Head Waters shale barren in Virginia in late June. Third and fourth instars were present from early July to late August, suggesting a rather late-season, univoltine life cycle. Two adults found in late August likely were those of a new, rather than overwintered, generation. No nymphs or adults were observed during sampling of moss phlox in September and early October.

In Connecticut, DeCoursey (1963) reported that overwintered adults of *F. aptera* become active in April. An adult collected in early April in Missouri did not oviposit in the laboratory until mid-May and continued to lay eggs until mid-July (Swadener and Yonke 1973). Such observations, coupled with mean development of 60 (DeCoursey 1963) or 70 days (Swadener and Yonke 1973), also suggest that *F. aptera* is a relatively late-season reduviid.

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