

slightly smaller and project almost directly rearward. The spiracular slits are scarcely evident on the distal ridges of the wedge-shaped lobes; the button is distinct and of the same color as the lobes. The anal plate is visible as a small, mid-ventral, slightly darker circle.

Three other parasites were encountered in this study. One adult of the relatively uncommon tachinid fly *Phasiopus flavus* Coquillett was reared from the larva of an unidentified species of *Tabanus* (not *T. trimaculatus*). Many specimens of the well-known pupal parasite *Trichopria tabanivora* Fouts (Hymenoptera: Diapriidae) were obtained from pupae of *Tabanus fairchildi* Stone, a new host record. The parasitized larvae were so numerous and from so many areas in East Tennessee as to indicate that this parasite plays an important role in controlling *T. fairchildi* in the region. Three very small dipteran larvae, as yet unidentified, were taken from a *Chrysops* pupa. This is the first report of a dipteran parasite of a tabanid pupa.

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#### LITERATURE CITED

- Greene, C. T. 1937. The pupa of *Mycocera tabanicora* Hall. Proc. U. S. Natl. Mus. 84(3012):217-218, 1 fig. (fig. 27).
- Hall, D. G. 1937. New muscoid flies (Diptera) in the United States National Museum. Proc. U. S. Natl. Mus. 84(3011): 201-216, 8 figs. (figs. 19-26).
- Hays, K. L. 1958. Descriptions of the larva and adult female of *Phorostoma tabanicora* (Hall) (Diptera: Larvaevoridae) and notes on the biology of the species. Ann. Ent. Soc. Amer. 51:552-553, 5 figs.
- James, H. G. 1963. Larval habitats, development, and parasites of some Tabanidae (Diptera) in southern Ontario. Canad. Ent. 95:1223-1232.
- Jones, C. M. and D. W. Anthony. 1964. The Tabanidae (Diptera) of Florida. U. S. Dept. Agric. Tech. Bull. 1295:1-85.
- Jones, T. H. and W. G. Bradley. 1923. Observations on Tabanidae (Diptera) in Louisiana. Jour. Econ. Ent. 16:307-312.
- Philip, C. B. 1931. The Tabanidae (horseflies) of Minnesota, with special reference to their biologies and taxonomy. Minn. Agric. Expt. Sta. Bull. 80. 132pp., 4 pls, 3 figs.
- Tashior, H. and H. H. Schwardt. 1953. Some natural enemies of horse flies in New York. Jour. Econ. Ent. 46:680-681.
- U. S. Department of Agriculture Handbook No. 276. 1965. A catalog of the Diptera of America north of Mexico, 1696pp.

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### NEW DISTRIBUTION RECORDS FOR AQUATIC NEUROPTERANS, SISYRIDAE (SPONGILLA-FLIES) IN THE TENNESSEE RIVER DRAINAGE<sup>1</sup>

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#### ABSTRACT

Occurrence of Sisyridae in the Tennessee River drainage is rare. Examination of literature relative to the aquatic fauna of the area did not reveal a locality record for this family. Examination of hundreds of stations throughout the Valley over the past ten years had not revealed a single specimen of this family until 1966. In the course of a study in Elk River, mile 27, Tennessee, a single Sisyridae was found. The specimen was recognized as belonging to the Sisyridae, but was too young to identify to genus. In October 1967 a sample from Tennessee River mile 296.6, Wheeler Reservoir, Alabama, revealed six specimens of *Climacia areolaris* (Hagen) larvae. The largest specimen was 4mm in length. Specimens were found on colonies of *Spongilla* sp. On November 15, 1967, a specimen of *Climacia areolaris* was collected at Clinch River, mile 44.3, in Tennessee.

The family, Sisyridae, contains the only aquatic representatives of the Order Neuroptera. There are two spine-like aquatic, Nearctic genera of Sisyridae, *Sisyra* and *Climacea*. *Sisyra* has dorsum with setae but without conspicuous tubercles. *Climacea* has conspicuous tubercles bearing setae. *Climacea areolaris* (Hagen), has 2-3 spine-like processes at the base of setae (Fig. 1). This is the only species of the genus *Climacea* in eastern North America that can be distinguished. First-instar larvae do not have gills, are usually found in the water,

not on sponge. Second-instars are usually found on sponge and have jointed tracheal gills on abdominal segments 1 through 7. Third-instar larvae are migrating instars which may or may not be found on sponge (Brown 1952).

Occurrence of Sisyridae in the Tennessee River drainage is rare. Examination of literature did not reveal a record for this family. Consultation with some workers in the area revealed that specimens have been found, but neither records nor specimens were retained. Examination of hundreds of stations throughout the Valley over the past ten years had not revealed a single specimen of Sisyridae until 1966. In the course of a study in Elk River, mile 27, Tennessee, a single, early instar was found. The specimen was recognized as belonging to the Sisyridae but was too young to recognize to genus.

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