

A NEW METHOD FOR COLLECTING ADULT PHRYGANEID CADDISFLIES (TRICHOPTERA: PHRYGANEIDAE)¹

David E. Bowles^{2, 3}, Karl Stephan⁴, Michael L. Mathis⁵

ABSTRACT: A fermented molasses trap was used to collect several specimens of the caddisfly genus *Ptilostomis* (Trichoptera: Phryganeidae). Molasses bait traps are inexpensive, relatively maintenance free, and can be used as an effective collecting technique. Molasses and other sugar-based materials are suggested to be a possible source of nutrition for these caddisflies.

Representatives of the trichopteran family Phryganeidae are large, attractive caddisflies often characterized by having distinctly patterned wings. Ten genera and 27 species of phryganeids are represented in North America (Wiggins 1984, Wiggins and Larson 1989). Depending on geographical location phryganeids can be common and adults may be obtained through a variety of techniques including fluorescent and UV-light traps, Malaise and flight-intercept traps, sweeping, and laboratory rearings of immature stages. Recently, one of the authors (KS) collected several specimens of the phryganeid genus *Ptilostomis* from an eastern Oklahoma woodland (Latimer County; near Red Oak) using a fermented molasses trap.

A mixture of molasses and water (3:1 ratio) was placed into a 355 ml plastic cup, approximately one-half full, and positioned approximately 2 m above ground level. The trap was being used to collect saprophagous Coleoptera that are attracted to the fermenting molasses.

During June 1989, several specimens of *Ptilostomis postica* (Walker) and two individuals of *P. ocellifera* (Walker) were collected with the molasses trap. Although specimens were removed from the trap daily, the numbers collected on a particular day were not recorded. The molasses

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²United States Air Force School of Aerospace Medicine, Epidemiology Division, Brooks AFB, TX 78235-5301.

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⁴Rt. 1, Box 913, Red Oak, OK 74563.

⁵Department of Zoology, University of Arkansas, Fayetteville, AR 72701.

trap was situated on a heavily forested hillside approximately 200 m from the nearest permanent water sources including a spring, small stream, and farm pond. All three sources of water could potentially serve as the larval habitat (Bowles and Mathis 1989). The molasses bait apparently attracted the caddisflies during nocturnal periods, and the specimens were found during daylight hours drowned in the fermented mixture. No specimens were collected alive; no additional caddisfly species were collected from the trap.

The total number of specimens collected for each species was similar for both the molasses bait and UV-light trap samples that were taken nightly during the same time period. The molasses bait yielded five female and seven male specimens of *P. postica* and two female specimens of *P. ocellifera*. UV-light trap collections yielded five females and six males of *P. postica* and one female of *P. ocellifera*. Males of the latter species have been collected previously from the same area. Voucher specimens of *P. ocellifera* and *P. postica* are deposited in the University of Arkansas Insect Collection.

The reason why the phryganeids were attracted to the molasses bait is not known. However, some species of Trichoptera have been reported to feed as adults, particularly on sweet materials such as flower nectar (Crichton 1957), sugar baits, honeydew, honey, and fruit preserves (Malicky 1989). The phryganeids probably were attempting to obtain nourishment when they became trapped in the molasses mixture. Crichton (1957) provided a detailed discussion of the structure and imbibing function of phryganeid mouthparts and compared them with those of representatives of 12 other trichopteran families. The protrusible haustellum used in imbibing fluids was found to be most developed in the Phryganeidae and Limnephilidae (Crichton 1957).

The molasses bait trap provides a relatively maintenance free and inexpensive means for collecting phryganeid caddisflies. Molasses bait traps could prove advantageous in situations where the collector has time constraints such as simultaneously collecting from several localities. A series of several bait traps placed in a given area could be used as an effective collecting tool. Possibly, other sugar based materials also might be effective attractants. Additional testing will be necessary to evaluate the usefulness of molasses bait traps for collecting other caddisfly species.

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