

# OPERATIONAL AND SCIENTIFIC NOTES

## RECORDS OF TABANIDAE (DIPTERA) COLLECTED ON FLOWERS

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Male deer flies and horse flies in the family Tabanidae are relatively rare in most insect collections. Female deer flies (*Chrysops*) and horse flies (*Tabanus* and *Hybomitra*) are some of the most abundant and annoying, blood-sucking pests of man and warm-blooded animals. Literally thousands of females of these three genera can be collected without seeing a single male. For years entomologists have known that male Tabanidae seek nectar from flowers (Hine, 1903; Banks, 1912; Stone, 1930; Philip, 1931; Blicke, 1955; Pechuman, 1957; and Frost and Pechuman, 1958).

In Vermont and Massachusetts the writers collected Tabanidae, including males, on the flowers of meadow-sweet [*Spiraea latifolia* (Ait.) Borkh. in the family Rosaceae] during June and July 1972. We collected 68 male and 56 female Tabanidae, representing 4 genera and 12 species, from the pale pink and white flowers of meadow-sweet in swampy places and overgrown pastures. These flowers apparently have an ample supply of nectar easily available to a wide variety of Diptera, Lepidoptera, Coleoptera, and Hymenoptera. Data for the following Tabanidae are listed below:

- 1 male *Chrysops cincticornis* Walker, July 25, Heartwellville, Vt.
- 15 male *Chrysops geminatus* Wiedemann, July 19-26, Laurel Lake, Jacksonville, Vt. and West Halifax, Vt. This species was reported on *Ceanothus americanus* by Frost and Pechuman (1958).
- 14 male *Chrysops lateralis* Wiedemann, July 19-26, Laurel Lake, Jacksonville, Vt.; West Halifax, Vt.; Searsburg, Vt.; and Readsboro, Vt. This species was reported on *Spiraea latifolia* and *Ceanothus americanus* by Frost and Pechuman (1958).
- 1 male *Chrysops macquarti* Philip, July 25, Heartwellville, Vt.
- 2 male *Hybomitra cincta* (Fabricius), July 23, Laurel Lake, Jacksonville, Vt.; July 28, Jamaica, Vt.
- 3 female *Hybomitra epistates* (Osten Sacken), June 28-July 12, Laurel Lake, Jacksonville, Vt. Philip (1931) reported this species on the flowers of Canada thistle.
- 4 female *Hybomitra illota* (Osten Sacken), June 28-July 18, Laurel Lake, Jacksonville, Vt.
- 27 male, 15 female *Hybomitra sodalis* (Williston), June 22-29, Laurel Lake, Jacksonville, Vt.; Jamaica, Vt.; and West Halifax, Vt.

Blicke (1955) reported this species (as *Tabanus trispilus*) on meadow-sweet and Frost and Pechuman (1958) reported this species on *Ceanothus americanus*.

- 1 female *Hybomitra typhus* (Whitney), July 9, Laurel Lake, Jacksonville, Vt.
- 1 male *Goniops chrysocoma* (Osten Sacken), July 28, in swamp along Route 100, 4 miles north of Jamaica, Vt. According to Dr. L. L. Pechuman (personal communication) this species "is not known from any of the New England states and I have not seen it from eastern New York."
- 1 male, 4 female *Stonemyia rasa* (Loew), July 20-28. 1 male, July 20, on foxglove (*Digitalis*) flowers; 1 female, Laurel Lake, Jacksonville, Vt.; 2 females, Mt. Greylock, Mass.; and 1 female, Jamaica, Vt. Hine (1903) noted that this species was attracted to flowers even when cattle were grazing nearby. *S. rasa* was collected on Queen Anne's lace (*Daucus carota*) by Stone (1930), on meadow-sweet by Blicke (1955), and on *Eupatorium* by Frost and Pechuman (1958).
- 7 male, 24 female *Stonemyia tranquilla* (Osten Sacken). The writers collected 5 males and 16 females between 11 a.m. and 12:15 p.m. on July 25, on meadow-sweet flowers near the top of the highest mountain in Massachusetts, Mt. Greylock, at an altitude of approximately 3500 feet. They were collected in bright sunlight, on flowers exposed to winds of 10 to 15 miles per hour, just before a thunderstorm. Why should this relatively rare species be so abundant here, 21 specimens in about an hour's collecting, as compared to one to three every other day in comparable periods of collecting? The collecting place was on the steepest part of the mountain where the television cable crosses the highway near the summit. It is possible that these adults were "sucked up" by the convection currents to the top from the broad mountain base below and were concentrated on the only food plants available. We also have 2 males and 9 females from Laurel Lake, Jacksonville, Vt.; Jamaica, Vt.; Readsboro, Vt.; and Searsburg, Vt. Blicke (1955) collected males and females on meadow-sweet. Frost and Pechuman (1958) reported collecting large numbers of males and females of this species on meadow-sweet, but none on hardhack (*Spiraea tomentosa*) growing nearby. This has also been our experience.

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AN INTERSEX OF *MANSONIA PERTURBANS*

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An intersex of *Mansonia perturbans* (Walker) was collected on July 22, 1971, at Dewey's Pasture, in Clay Co., 5.4 miles northwest of Ruthven, Iowa (T97N R35W SEC 25). The specimen was one of 11,787 specimens of *M. perturbans* collected with dry ice-baited CDC miniature light traps at this site during July of 1971.



FIG. 1.—Intersex of *Mansonia perturbans*.

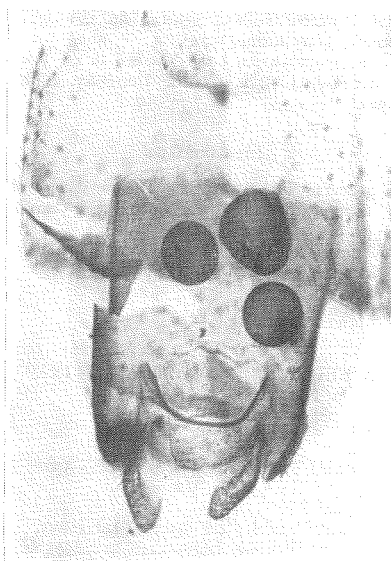


FIG. 2.—Terminal segments of the abdomen showing female cerci and three spermathecal capsules.

Although several appendages of this mosquito were lost during sorting and identification, the mosquito is an obvious intersex. Figure 1 shows the mosquito as it was discovered by the author. The left antenna is missing; the right antenna is plumose. The terminal segment of the right maxillary palp is missing, otherwise, the maxillary palps are typically male. The right foreleg, the 2 apical segments of the left foreleg and the 2 apical segments of the right hindleg are missing.

The specimen was mounted on a slide for further examination. The terminal segments of the abdomen (Fig. 2) bear female cerci and three spermathecal capsules.

Since the head is male and the abdomen female, the midposttarsal ungues were examined and compared with male and female midposttarsal ungues of normal individuals of *M. perturbans*. They were found to be female in nature.

Intersexuality in insects is discussed in some detail by Engelmann (1970). A gynandromorph is an individual with male and female tissues lying side by side in the body, while an intersex is an individual in which all the cells have the same genetic make up but in which male and female tissues are differentiated. Intersexes may be caused by environmental factors such as abnormal external temperatures or internal parasitism (Wigglesworth, 1934; Engelmann, 1970). It is not known for certain whether the individual mosquito in question is an intersex or a gynandromorph as the two types of intersexuality are in-