

**Mosquito Studies - Greenwoods
Survey of Area Adjacent to Cranberry Bog**

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Initial preliminary survey for adult anthropophilic mosquitoes at sites along the western edge of the bog were conducted in 1993 and gave no indication of presence of large mosquito populations. Those collected were primarily typical univoltine-temporary pool mosquitoes with the typical "northern *Aedes*" type life cycle (Butts, 1993). Although the bog environs represents a considerable area of permanent standing water, there was little evidence of the presence of mosquito species confined to such larval habitat. However, both *Anopheles punctipennis* (Say) and *Culex restuans* (Theobald) are known to utilize standing water for larval development.

A more extensive survey of the area closely adjacent to the bog and to a series of beaver ponds east of it was conducted in 1994. Sampling was done by exposing porearms for 20 minutes per sample site and collecting those females which alighted. Individuals were captured in small vials charged with ethyl acetate (Butts, 1974).

Six sampling sites were chosen at points beside or closely adjacent to marked trails and are located as follows:

- Site 1: On Chain Ponds Trail, 260 yards from its terminus on the town road (and about 40 yards east of the first rock wall).
- Site 2: On Chain Ponds Trail, about 600 yards from Site 1 and about 60 yards west of the second rock wall.
- Site 3: On Briar Hill Trail, about 540 yards north of its intersection with the road to the boat dock.
- Site 4: At the northern extremity of an evergreen plantation and about 60 yards south of a point on Briar Hill Trail about 515 yards from the point at which the trail passes the southwest corner of adjoiner Hennessey.
- Site 5: On Little-Big Bog Trail, about 690 yards east of its terminus on the town road.
- Site 6: On Little-Big Bog Trail, about 280 yards east of its terminus on the town road.

Sampling was conducted by visiting sites sequentially either in series 1-6 or 6-1 beginning at first light or shortly thereafter in the morning. Sampling series were conducted on the following dates: June 9, 15, 23; July 1, 6, 13, 26; August 3, 10, 22, 31; September 7, 13, 28. Mosquitoes collected are listed in Table 1.

Table 1. Mosquitoes collected by biting/alighting capture method. Sequence of sampling sites is indicated beneath each date entry.

<u>Date</u>	<u>Species</u>	<u>Site (Number)</u>
JUN 15 (1-6)	<i>Aedes punctor</i> (Kirby)	1(3); 2(9); 3(1); 5(3)
	<i>Aedes canadensis</i> (Theobald)	5(3)
JUN 23 (1-6)	<i>Aedes punctor</i> (Kirby)	2(3); 3(4)
	<i>Aedes canadensis</i> (Theobald)	5(2)
JUL 1 (6-1)	<i>Aedes punctor</i> (Kirby)	2(3); 3(3); 4(1); 5(1); 6(1)
JUL 6 (1-6)	<i>Aedes punctor</i> (Kirby)	1(1); 3(1); 6(1)
	<i>Aedes canadensis</i> (Theobald)	6(1)
JUL 13 (6-1)	<i>Aedes punctor</i> (Kirby)	1(1); 2(1)
	<i>Aedes trivittatus</i> (Coquillett)	2(1); 5(1)
JUL 26 (1-6)	<i>Aedes canadensis</i> (Theobald)	2(1)
	<i>Aedes cinereus</i> Meigen	4(1)
AUG 3 (6-1)	<i>Aedes sticticus</i> (Meigen)	2(1)
	<i>Aedes trivittatus</i> (Coquillett)	6(1)
AUG 10 (1-6)	<i>Aedes stimulans</i> (Walker)	1(1)
AUG 22 (1-6)	<i>Anopheles punctipennis</i> (Say)	3(1)
	<i>Aedes canadensis</i> Stet.	6(1)
	<i>Coquillettidia perturbans</i> (Walker)	1(1)
SEP 13 (1-6)	<i>Aedes triseriatus</i> (Say)	5(1)

On June 23, July 6, and 26, larvae were collected from a partially clogged road side ditch on the west side of the town road west of the bog and were returned to the Lakeside Laboratory for rearing. A total of 33 adults were reared, consisting of 31 *Culex restuans* Theobald which were represented in all of the collections and 2 *Anopheles punctipennis* (Say) which were reared from the latest group collected. It is of significance to note that *Culex restuans* is only marginally if at all anthropophilic, and substantial populations could be present and remain largely undetected by biting/alighting sampling.

CONCLUSIONS

The pattern evident from the current survey is quite similar to that noted in surveys of the original Upper Site and Rum Hill segments of the Biological Field Station. Dominant in the population are univoltine "northern *Aedes*" species (with species with other types of developmental patterns present in smaller numbers). This is of particular interest when considering that all of these sites either encompass or are immediately adjacent to large expanses of permanent water which has been established or augmented and maintained by beaver (*Castor canadensis*) activity. The early peak of the population of *Aedes punctor* (Kirby) with a total of 37 specimens, (67% of total collection) all of which were taken prior to mid-July, is consistent with that characteristic of species distribution established at the Upper Site. However, no subsequent large population of other species similar to that documented for *Aedes stimulans* (Walker) on the Upper Site was observed (Butts 1974, 1986). A smaller number of *Aedes canadensis* (Theobald) were collected (8 specimens, 15% of total) but were taken both early and late in the sequence of sampling. Six of these were taken

prior to July 7 and the remainder after July 26. Although generally thought to be a univoltine species, numerous records of late population peaks suggest that this species may sometimes be multivoltine (Means, 1979). This along with the collection of *Aedes trivittatus* (Coquillett) on July 13 and August 3 and consistent with the patterns of rainfall during the summer of 1994 might indicate that a second generation may have developed. *Aedes trivittatus* (Coquillett) is a commonly encountered multivoltine temporary pool mosquito in the more eastern midwestern states (Horsfall, 1955), and characteristically exhibits two or more generations per year, dependent upon patterns of rainfall.

Only one species of mosquito normally confined to permanent water for development was collected. A single specimen of *Coquillettidia perturbans* (Walker) was taken on August 22. Representatives of this species were also collected in the preliminary survey (Butts, 1993). *Aedes triseriatus* (Say) is probably the most common tree-hole breeder in the eastern United States (Means, 1979).

REFERENCES CITED

- Butts, W. L. 1974. An extended survey of mosquito populations in an ecological research tract in eastern New York. *Mosquito News* 34:224-228.
- Butts, W. L. 1986. Changes in local mosquito fauna following beaver (*Castor canadensis*) activity. *Journal of the American Mosquito Control Association* 2(3):300-304.
- Butts, W. L. 1993. Anthropophilic mosquitoes-Diptera Culicidae preliminary survey - Greenwoods and Weaver Lake. In 26th Ann. Rept., SUNY Oneonta Bio. Fld. Sta., SUNY Oneonta, NY. pp. 18-21.
- Horsfall, W. R. 1955. *Mosquitos: Their bionomics and relation to disease*. New York. Ronald Press. 723 p.
- Means, R. G. 1979. *Mosquitos of New York: Part I, The genus Aedes Meigen with identification keys to genera of Culicidae*. Bulletin 430a. The State Education Department, State Science Service, Albany, New York.