

Anthropophilic Mosquitoes - Diptera: Culicidae

Preliminary Survey - Greenwoods & Weaver Lake

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Two additional sites have been made available to the Biological Field Station for research and related activities, and preliminary surveys of mosquito populations were conducted at both sites during the summer of 1993. Sampling was done for adult female activity through biting/alighting mode of collection and by use of light traps.

Greenwoods, a site of about 1,000 acres in the Town of Burlington, Otsego County, New York and owned by Earl Peterson, DVM, is an area of considerable topographic and vegetational diversity. The current study centered upon a large bog surrounded by an impoundment resulting from beaver activity. This restriction of the study area was based upon logistical considerations, and more extensive future studies are anticipated.

Weaver Lake, a glacial lake, lies in the Town of Warren, Herkimer County, New York and is described by Graham and Gardner (1992). A tract of 55.8 acres bordering on its south shore and owned by Mr. William Isaac is the second site sampled.

Because of the desirability of initiating studies at both sites and in view of the distance of both from the laboratory facilities at Cooperstown, a system was devised for collecting at one site in the evening and at the next on the following morning.

A series of sampling stations were selected at each of the two sites, and mosquitoes attracted to the author during a 20-minute exposure were collected using a series of small killing vials (Butts, 1974). Two CDC miniature light traps were also used.

Sampling was conducted at each site at approximately weekly intervals from June 9 until August 4, 1993. The sampling procedure consisted of conducting biting/alighting captures during the evening hours, setting light traps, sleeping in the vehicle, picking up light traps on the following morning, driving to the other site and conducting a biting/alighting exposure. The sequence was alternated so that the site sampled during evening hours of one week was sampled in the morning on the following week. (Times and dates of sampling are listed in Table 1.)

On the evening of August 10 a sequence of biting/alighting sampling was carried out at Weaver Lake in which the author sat for 20 minutes of each successive hour until 8:00 a.m. on the following day. The site of collection was the open porch of a small cabin at the edge of the lake. A small candle lantern supplied sufficient light to allow for collection of specimens. Intervals between collecting periods were spent in the vehicle parked immediately adjacent

to the building. A similar collecting sequence was carried out at Greenwoods on August 16 and 17. The sampling site was at the edge of the woods just south of the beaver dam. (Mosquitoes collected are listed in Tables 2 and 3.)

Table 1. Times and date of sampling series during Summer 1993

Weaver Lake		Greenwoods	
5:50-7:15 p.m.	JUN 9	7:00-9:35 a.m.	JUN 10
7:50-9:50 a.m.	JUN 17	7:45-9:25 p.m.	JUN 16
6:40-8:30 p.m.	JUN 22	7:25-9:30 a.m.	JUN 23
7:15-9:05 a.m.	JUL 1	6:40-8:35 p.m.	JUN 30
6:30-8:20 p.m.	JUL 7*	7:15-9:10 a.m.	JUL 8
6:30-8:15 a.m.	JUL 14	7:20-9:15 p.m.	JUL 13*
6:45-8:17 p.m.	JUL 27*	6:30-8:25 a.m.	JUL 28
6:35-8:10 a.m.	AUG 4	6:35-8:40 p.m.	AUG 3*

*On these dates and on AUG 25 (at Weaver Lake) additional sampling was conducted at dark and for about 20 minutes after at a site at the water's edge.

Table 2. Mosquitoes collected at Weaver Lake during Summer 1993. Those marked by an asterisk were collected by light trap. Parenthetical inclusion denotes number of specimens.

Species	Dates of Collection
<u>Anopheles quadrimaculatus</u> (Say)	JUL 27(3)*; AUG 11; AUG 25 (5)
<u>Anopheles earlei</u> Vargas	JUL 27(2)*
<u>Aedes cinereus</u> Meigen	JUN 22 (2); JUL 7; JUL 27 (4)
<u>Aedes canadensis</u> (Theobald)	JUN 22; JUL 7
<u>Aedes punctor</u> (Kirby)	JUN 22
<u>Aedes hendersoni</u> Cockerell	JUL 7
<u>Culex restuans</u> Theobald	AUG 11
<u>Coquillettidia perturbans</u> (Walker)	JUN 22; JUL 7(8)(7)*; JUL 14; JUL 27(4)(2)*; AUG 25
<u>Culiseta melanura</u> (Coquillett)	JUL 7

Table 3. Mosquitoes collected at Greenwoods during Summer 1993. Those marked by an asterisk were collected by light trap. Parenthetical inclusion denotes number of specimens.

Species	Dates of Collection
<u>Anopheles punctipennis</u> Say	AUG 3*
<u>Aedes canadensis</u> (Theobald)	AUG 3
<u>Aedes punctor</u> (Kirby)	JUN 16; JUN 23; JUN 30(2); JUL 13
<u>Culex restuans</u> Theobald	AUG 3(2)*

DISCUSSION

The small number of specimens collected at Greenwoods and the fact that those collected in biting/alighting counts were univoltine species characteristically developing in temporary pools resulting from snow melt and spring rains, suggests that there does not appear to be a substantial population of permanent water species present. Of those collected by light trap, Anopheles punctipennis Say is characteristically found in permanent water, and although commonly collected from permanent water, Culex restuans Theobald utilizes wide and varied types of water sources for larval development. Abrupt lowering of levels of impounded waters is known to inhibit development of permanent water species by stranding the eggs away from the water surface. It is possible that this may have been a factor, since the beaver dam broke and released sufficient water to wash out the culvert in the town road. However, this occurred at a date considerably earlier than one would expect to find large numbers of eggs deposited and is unlikely to have caused a reduction of the population.

The situation at Weaver Lake is of considerable interest, since it contrasts sharply with the patterns evident at both the original Upper Site and at Rum Hill, where the bulk of mosquito populations over the period of our occupancy has been represented by univoltine, temporary pool breeders. Both of these sites have some standing water available. Moe Pond has been impounded for more than 40 years, but it supports very small amounts of emergent vegetation and is exposed to sufficient wave action to make it unsuitable for larval development. Large areas have been impounded by beavers at various intervals over the last 20 years but have not shown evidence to date of supporting significant larval development (Butts, 1986; 1992). All of the standing water within the Rum Hill site are of even more recent origin.

Weaver Lake is characterized by long-standing growth of marginal vegetation and is adjacent to an extensive swamp which provides relatively still, shaded water with abundant rooted vegetation. As such it provides excellent habitat for the larva of Coquillettidia perturbans (Walker) which depends upon submerged plants stems for a source of oxygen. This species represents the largest segment of the specimens collected. The second largest component is represented by Anopheles quadrimaculatus Say which, although not confined to permanent water sources, is typically found therein.

REFERENCES CITED

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