

Mosquito Studies: Goodyear Swamp Sanctuary surveillance

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Although, the general features of the location of Goodyear Swamp Sanctuary would suggest that it could support a substantial mosquito population, a number of factors combine to make such an occurrence unlikely. Light traps set on VII-12 and VII-26, 2004 yielded only single specimens of *Anopheles quadrimaculatus* (Say) and *Coquillettidia perturbans* (Walker) (Butts, 2004) and failure to collect a single specimen on CO₂/light traps at weekly intervals during August 2006 appeared to indicate that mosquito populations were quite low (Butts, 2006). To further assess the situation a series of samplings for larval populations was initiated on 18 April, 2007.

Twenty-six dipper samples were taken on April 18 from numerous sites along the boundary trail, but a steady drop in water level decreased both the number of accessible sites and the depth of water above an underlying stratum of fine silt. By May 30 the canopy had closed and the water level had receded to the point at which less than 0.5 inch of clear water remained available and silt-free dipper collections could not be obtained. The water along the edge of the embayment was thoroughly clouded by silt due to the spawning activity of numerous carp. The water continued to recede until only a few sites along the boardwalk could be sampled on June 6. By June 13 only a small number of sites near the boat landing where some drainage water entered were available. A brisk northeast breeze was maintaining a slight, but steady onshore wave action tending to keep the silt suspended to some extent. This pattern of wave action was also noted on June 20, the last day on which a silt-free dipper sample could be made. No mosquito larvae were collected from any site during the entire sampling sequence.

On July 23 the first in a series of CO₂ baited CDC miniature trap (without light) was initiated at site BT(10) near the boat landing. The trap was suspended from a steel “shepherd’s hook” at a distance of ca. 0.75 meters above ground with the outlet of a sucrose/yeast CO₂ generator at ca. 0.4 meters above ground directed upward just beyond the edge of the collecting bag. Traps were activated in early afternoon on the following dates July 23, 31; August 7, 14, 21; September 11 and picked up at ca. 7:30AM on the following mornings.

No mosquitoes were collected in the trapping sequence.

It would appear that a number of factors combine to severely limit the availability of Goodyear Swamp for mosquito development.

1. The embayment is relatively isolated and adjacent to somewhat steeper shorelines.

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2. The wooded slope above the water line is fairly steep and regular with no depressions that can maintain standing water for several days and inhibit free-flowing runoff of water.
3. The upland terrain surrounding the slope has been maintained as well kept lawn over a number of years and is unlikely to provide a source of development for mosquitoes to enter the swamp.
4. Otsego Lake is ice-bound during much of the winter, and a scouring effect occurs at water's edge when the ice breaks up in the spring.
5. The rooted vegetation in the swamp is effective in trapping a layer of fine silt which settles as the water recedes in the spring.
6. Wave action onshore tends to maintain the silt load with a very thin layer of over-lying water.
7. Disturbance caused by spawning carp with attendant clouding of water with silt may have had a negative effect early in the year.
8. Little rooted vegetation that could be used by larvae of *Coquillettidia perturbans* (Walker) is present.

With this combination of factors interacting, it would appear that, absent significant physiographic alterations, Goodyear Swamp is unlikely to become a significant source of mosquito development. The wooded slope above the swamp may in fact have some potential for maintaining mosquito populations of tree-hole breeding species. There are numerous large trees which could become important should large branches break, leaving potential for cavity development. During late August of 2007 storm damage resulted in some tree-fall and the resulting stumps could retain water sufficient to maintain larval development. Study of this slope is anticipated for the summer of 2008.

References cited

- Butts, W.L 2004. Mosquito Studies: Goodyear Swamp Sanctuary *In* 37th Ann. Rpt. SUNY Oneonta Bio. Fld. Sta. SUNY Oneonta p.47.
- Butts, W.L 2006. Mosquito Studies: Goodyear Swamp Surveillance *In* 39th Ann. Rpt. SUNY Oneonta Bio. Fld. Sta. SUNY Oneonta p.59-60.