

ARTHROPOD MONITORING:

Mosquito studies - 2001 Greenwoods Conservancy

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The on-going survey for anthropophilic mosquitoes in the Greenwoods Conservancy (Figure 1) continued with sampling for alighting/biting females at five sampling sites along the west bank of a large, long-established beaver pond southeast of the buildings of the former Zakow farm. Mosquitoes attracted to the exposed forearm of a seated collector were retained. A 20-minute exposure per sampling site was conducted on the following dates: June 5,8,13; July 11.,19; August 1,9,14, 22, 29. The series of August 29 was started at 6:15 p.m., and all others were started at times ranging from 7:15 - 7:30 a.m. Collections planned for the mornings of June 6 and August 30 were abandoned due to low temperature and an evening series planned for July 24 was not conducted due to heavy rainfall.

Light trap collections were made using CDC Miniature traps on June 12; July 10,18,24,31; August 8,24. Two older traps that have been used in past years and two traps of newer design were employed. Unexplained inconsistencies in collection were experienced which need further evaluation, since difference in design appeared to greatly affect the catch of mosquitoes as well as that of all other insects. However, unusually large catches on two dates prompted an altered pattern of alighting/biting sampling. Single one-hour exposures were made beginning at 8:10 a.m. (start delayed due to low temperature) on September 7 at 6:15 p.m., on September 13, and at 7:50 a.m. on September 21 adjacent to sites that had yielded the larger light trap collections.

The results of sampling during the summer of 2001 contrast sharply with all previous surveys conducted at Greenwoods. Only one species, *Coquillettidia perturbans* (Walker), was collected. Two individuals collected on July 11 and a single specimen taken on September 13 were the only captures made of alighting/biting females. Light trap collections yielded 13 specimens on July 31 and 22 and on August 8.

This species develops only in permanent standing water. After hatching from eggs laid on the water surface, larvae burrow into the substrate where they remain attached to the submerged roots or stems of emergent aquatic vegetation. The winter is passed in the larval stage.

Certain characteristics of the particular beaver pond may relate to greater relative abundance of this species here as compared to other ponds at Greenwoods. The impoundment is of long standing and is below fields on two sides that have been cultivated over a number of years. Sediment from these sources have very likely accumulated slowly to provide the soft bottom more conducive to larval burrowing

(Horsfall, 1955) than those ponds which are of more recent origin or over more impervious substrates.

The absence of univoltine temporary pool mosquitoes was unusual but anticipated. Both the amount and timing of snow melt and of spring rainfall interact with temperature patterns to determine the number of emerging adults. An early period of unseasonably warm days hastened snow melt and favored larval development. However, this was followed by a period of lower temperatures and scant rainfall. The larvae that hatched from over-wintering eggs appeared early but their development was subsequently retarded by the low temperature, and many of the ground pools dried completely before pupation or adult emergence occurred. A large complex of temporary woodland pools above the stepwise series of beaver ponds between State Land Road and a storage shed were sampled on May 15. The only standing water remaining was a puddle of about 100 square feet and 1-3 inches deep. Dipper samples yielded a few pupae and mature larvae. The entire remaining population probably numbered less than 200 individuals in an area that by conservative estimate would produce at least ten times that number in a year with a more usual weather pattern. Of the specimens returned to the laboratory, four of the five emerging adult *Ochlerotatus intrudens* (Dyar) were males which normally emerge slightly earlier than females.

On May 23, after rainfall had re-inundated most of the complex, dipper collections yielded only a single first instar larva. Because larvae emerge from over-wintering eggs laid at the edge of receding pools during late spring and early summer, the low population of adult females will probably not be sufficient to give rise to large populations during the summer of 2002.

REFERENCES

Horsfall, W.R. 1955. Mosquitoes: their bionomics and relation to disease. Ronald Press Co. New York viii + 723

Mosquito studies - 2001

Thayer farm

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Preliminary survey of mosquito populations at likely sites of development at the newly acquired Thayer Farm was confined to a series of light trap collections. The property encloses two series of ponds which could support immature mosquitoes (Figure 1). One series of several step-wise small ponds of approximately equal area lie east to west down a gradual slope northwest of Getman Main Barn. A second series lies down a steeper south to north gradient below a considerably larger pond. This series lies north of that previously described and northwest of the Interpretative Center.

Two CDC miniature light traps of an older type and two of a newer design were used during the study. Apparent variation in effectiveness of the two designs was obvious and will require further evaluation.

Traps were set in the series of ponds by the Getman Main Barn on the following dates: June 12; July 10,18,31; Aug 29. Traps were set in the lower series on July 10,18; August 8.

Five mosquitoes were collected during the summer of 2001. Table 1 indicates location and dates of collection

Table 1. Mosquitoes collected by light traps at the Thayer Farm (numbers in parentheses indicate multiple specimens collected).

Species	Date	Location
<i>Anopheles punctipennis</i> (Say)	June 11	Getman Barn Ponds
<i>Culex restuans</i> (Theobald)	June 12	Getman Barn Ponds
<i>Coquillettidia perturbans</i> (Walker)	July 18 (2)	Big Pond
	July 18	Getman Barn Ponds

Only *Coquillettidia perturbans* (Walker) is confined to permanent standing water. Immatures of the other two species are known to develop in a variety of aquatic sites, but are commonly found in permanent water. The ponds near the Getman barn are relatively isolated, being surrounded largely by tilled acreage. This suggests that they are the source of development of mosquitoes collected there. The two specimens of *Cq. Perturbans* (Walker) collected near the big ponds, being dependent on permanent water, very likely developed in the big pond or on the smaller ones associated with it.