MERMITHID NEMATODE PARASITES OF *COQUILLETTIDIA PERTURBANS* IN MASSACHUSETTS

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ABSTRACT. We surveyed 792 larval and 12,400 adult *Coquillettidia perturbans* for mermithid nematodes in 1990. Collections were made from cattail marshes in the greater Boston area. No mermithids were found in the adult mosquitoes, nor in larvae collected in mid-season, but 3 were found in larvae collected during September and October. This is only the second recorded occurrence of mermithids in *Cq. perturbans*.

We collected both larvae and adults of *Coquillettidia perturbans* (Walker) to determine the incidence of parasitism by mermithid nematodes in eastern Massachusetts. Collections were made in Middlesex, Essex and Plymouth counties. Adult mosquitoes were collected from light traps between June and August 1990, with the largest numbers in the last week of June and the first week of July. Two techniques were used to collect larvae: the bilge pump (Walker and Crans 1986), and the commonly used field dipper. Specimens that could not be examined alive were preserved in 95% ethanol and glycerin (all the adults and about two-thirds of the larvae).

During May and June 1990, we collected and examined 298 *Cq. perturbans* larvae (mostly fourth instar), none of which were parasitized with mermithids. During a second sampling period in September and October 1990, we collected and examined 450 second–fourth instar larvae and found 3 parasitized by mermithid nematodes, all from Middlesex County. Only one of these was alive, and we were unable to raise it to maturity. Thus, we were unable to identify it.

Olds et al. (1989), in Michigan, were the first to report mermithids in *Cq. perturbans*. They reported the parasite to be present only in the autumn collections of the new larval cohort. Mermithids were not recovered from the early summer collections of the previous year's overwintered larvae. Our report constitutes only the second finding of mermithid parasitism of *Cq. perturbans* and the first in Massachusetts. The pattern of infection is similar to that described by Olds et al. (1989), although at much lower levels (they recorded up to 40% parasitism). Mermithid infections tend to be patchy (Petersen et al. 1967, Blackmore and Nielsen 1990), and much higher incidences of mermithid parasitism may be found at other sites in Massachusetts.

A total of 12,400 adult *Cq. perturbans* were collected and dissected, and no nematodes were found. A possible explanation is that these nematodes have the type of life cycle described for *Romanomermis culicivorax* (*Reesimermis nielseni*) by Nickle (1972) in which the mermithid grows to a large size within and emerges from the larval mosquito, killing it in the process. Hence, no worms are found in mosquito adults. Ewing et al. (1989) reported no mermithid adult *Aedes vexans* (Meigen) collected from light traps but did find some in blooded, animal baited *Ae. vexans*. They suggest that in blooded mosquitoes the mermithids had the opportunity to increase in size, and thus were found. Since all our adult *Cq. perturbans* were from light traps, we may have overlooked such slowly developing nematodes. Some mermithids, for example, *Perutilimermis culicis* in *Ae. sollicitans* (Walker), have a life cycle in which maturity is typically attained in the adult mosquito rather than the larva (Nickle 1972). These may occur in their smallest stages in the malpighian tubules of the adult mosquito, which we did not dissect.

We found 10.2% of adult mosquitoes collected in Essex County infested by mites while none were found infested in the other 2 counties.

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