hundred meters around homes located within the edges of extensive uninterrupted woodlands. No basal treeholes or other water containers were detected during a thorough search in May, yet a biting count of 1.07/min was obtained in August. This would appear to agree with the experimental data of Sinsko and Craig (1979) who found that dispersal within a woodlot was not completely random but that the mosquitoes moved freely within the woodlot.

Observations in plot H, approximately 2 ha. in area, indicated that *Ae. triseriatus* can be suppressed by elimination of breeding sites in woodlots that are well isolated. Except for one small open woodlot (less than 1 ha. in area) about 200 m distant, all other woodlots were more than 500 m distant. One treehole containing *Ae. triseriatus* larvae was found, and filled, in May, using pipe insulating cement as suggested by Scholl and DeFoliart (1979). Tires were present but were stacked and covered. The biting count in August was zero.

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NOTE ON SOME EFFECTS OF SIMULATED AQUATIC PLANTS ON PREDATION ON MOSQUITO LARVAE BY THE FATHEAD MINNOW

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The objective of these experiments was to identify possible effects of different shapes of vegetation on the rates at which an aquatic predator could find and consume mosquito larvae.

The experiments were carried out in 19 litre glass aquaria (20×26×41 cm) each containing one fathead minnow *(Pimephales promelas* Rafinesque), that was visually isolated from the others and that had been starved for 2 days. The 4 shapes or types of simulated aquatic vegetation used are shown in Figure 1. One vegetation type was placed into 2 aquaria randomly selected from the 5 at 0800 hrs. of the 1st day of testing. At 1400 hrs., a randomly selected mixture of 30 laboratory-reared 2nd and 3rd stage *Aedes aegypti* L. larvae were put in each aquarium, and the time the fish took to consume all the larvae or the number of larvae remaining after 10 min. was recorded. Predation rate was calculated as elapsed time divided by the number of larvae consumed. Each vegetation shape was tested on 5 consecutive days. The data were analyzed for differences in predation rates between fish and between days (but within treatments) by using a 2-way analysis of variance without replication. There were no significant added variance components ($p<0.05$), that is, none of the simulated vegetation shapes affected the rate at which the fish found and consumed mosquito larvae.

It was assumed that the presence of plant shapes would affect predation rate by impeding the movement of the predators or by reducing prey accessibility. It appears, however, that while one or both of the above assump-

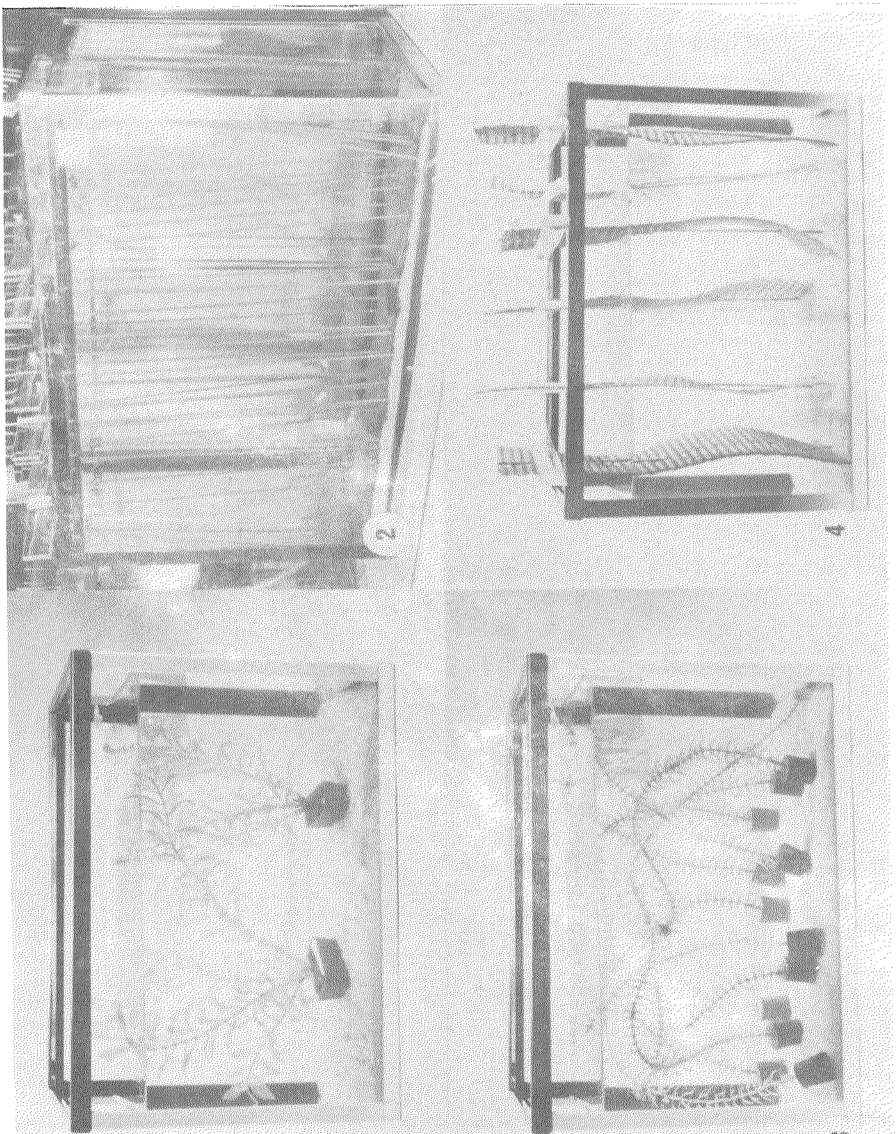

Fig. 1. Four vegetation types tested for their effects on predation rate:
1. large-leaf submerged vegetation;
2. evenly dispersed reeds;
3. small leaf submerged vegetation;
4. clumped reeds.

tions may have been valid, the plants assisted the predator by increasing prey visibility. That is, the predator required less time (compared to control tanks) to find and consume the light-colored prey against the dark-colored plants. In addition, predator-prey encounters were increased because the plants caused the fish to search systematically in plant-filled tanks whereas they swam at random in the plantless tanks.

Previous field and laboratory observations of my own indicated that certain predators such as larval Dytiscidae and *Hydra* spp. use aquatic vegetation as a substrate from which to capture mosquito larvae. Results of field experiments (Angerilli and Beirne, in preparation) indicate that predators are more likely to colonize plant-containing waters than plantless waters. Therefore, the intelligent use of an appropriate combination of predator and plant could assist in the management of mosquito populations in some situations.

THE ISOLATION OF *FUSARIUM OXYSPORUM* FROM A NATURAL POPULATION OF *AEDES DETRITUS* IN ITALY[1]

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During a survey of the mosquitoes of the Campania Region of Italy, we collected several larval specimens of *Aedes detritus* from a roadside ditch which bordered a marsh habitat. Subsequent laboratory examination of 3 of these live larvae revealed rust colored fungal masses protruding from the thorax. The larvae were simultaneously infected with *Vorticella* over the entire body.

The infected larvae were killed in warm water and washed 3 times in sterile distilled water. Under sterile conditions individual hyphae were dissected from the thorax and innoculated on Sabouraud dextrose agar containing 50 mgms of chloramphenical to inhibit bacterial growth. The cultures were then incubated at 25°C and observed for fungal growth. Resultant growth from individual hyphae yielded white cottony fungal colonies. Hyphae from these were passed a second time to Sabouraud dextrose agar to obtain a pure culture for identification. The fungus has been identified as *Fusarium oxysporum*.

Members of the genus *Fusarium* are commonly found in the soil and many are plant pathogens. Macfie (1917) was the first to report *Fusarium* from a culicine. Roberts and Strand (1977) were able to cite only one reference to *Fusarium oxysporum* in the Culicidae. *Fusarium oxysporum* has been previously isolated from natural populations of *Aedes detritus* in France (Hasan and Vego 1972). We can find no previous reference to the isolation of *Fusarium* from Italian species of mosquitoes. Nor can we find any reference to *Vorticella* from Italian mosquitoes.

Interestingly, Hasan and Vago (1972) were able to achieve greater than 50% mortality in *Culex pipiens pipiens* using their strain of *Fusarium oxysporum*. We were unable to duplicate their results with either *Cx. pipiens* or *Aedes aegypti*.

Further attempts to isolate the fungus from the original collection site have all been negative.

ACKNOWLEDGMENT. The authors thank Dr. Paul E. Nelson for kindly identifying the fungus, and Emilio Pierdominici for the help provided in collecting the larval specimens.

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[1] The opinions or assertions contained herein are the private ones of the authors and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.