

near dwellings feeding on domestic insects throughout the year.

References

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AN INTERESTING SURVIVAL ADAPTATION OF *Anopheles albimanus* WIEDEMANN¹

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It was observed, during a study on breeding of *Anopheles albimanus* Wiedemann in estuaries of El Salvador, Central America, that this species shows a method of survival which, to the authors' knowledge, has not been reported previously.

The area under investigation, Estero (Estuary) San Diego, is located east of the port city of La Libertad in the country of El Salvador. It is approximately 1½ miles long and, at the time of this observation, was shut off from the ocean by a sand bar. Three rivers drain into the estuary; and, since it was not open to the ocean, the rivers caused a gradual flooding effect. Larval breeding was first observed in February 1969 at a salinity value of 18 parts per thousand. As flooding continued, the dilution effect reduced the salinity value, and breeding became more intense.

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The waters were void of algal mats and grass cover in which larvae might seek refuge. However, numerous dead twigs, branches, and leaves were present on the surface. The larvae concentrated in the thin layer of water covering partially submerged leaves (Figure 1). Although

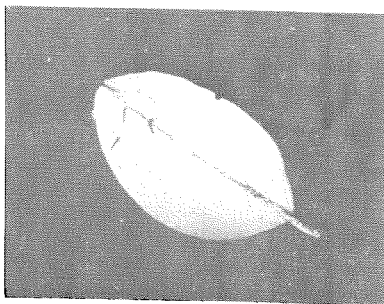


FIG. 1.—Three 4th-instar larvae of *A. albimanus* situated in the thin layer of water covering a partially submerged leaf.

only three 4th instar larvae are shown in the photograph, up to 19 larvae were counted in various instars above one such leaf. This observation could be made throughout the entire estuary, and it possibly introduced some bias in sampling. Of 1,005 dips made during one week in May, 75.7 percent were positive, with an average of 11.4 larvae per dip.

If the larvae-harboring leaves were disturbed, the larvae quickly left the protection of the leaves but returned immediately.

Numerous juvenile specimens of a poeciliid fish, probably of the genus *Poecilia* or *Poeciliopsis*, could also be observed in the waters. These fishes readily devoured larvae in the laboratory, although such predation was not observed directly in the field. No larvae were recovered in dips made in open water or in any situations where floating leaves were not present.

The authors have interpreted this as an adaptation for survival in this type of habitat.

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