OPERATIONAL AND SCIENTIFIC NOTES

AN AREA SAMPLER FOR COLLECTING MOSQUITO LARVAE IN TEMPORARY WOODLAND AND FIELD POOLS [1]

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An area sampler for collecting mosquito larvae was developed and evaluated during a program of ecological studies on selected woodland mosquitoes in Houston, Texas. The sampler was designed along the lines of the trap devised by Bidlingmayer (1952). It was constructed of two plexiglass tubes with an inner chamber (tube with the smaller diameter) fitted at one end with a molded funnel with a 67° slope (Fig. 1). A plexiglass rod was installed to span the diameter of the chamber at the opposite end. A line was tied to the rod and passed down through the inverted funnel to support an anchored rubber stopper.

In practice, the plain outer cylinder was placed in the pool and firmly seated in the mud substrate. The inner chamber was then placed in the outer cylinder, funnel end first, and slowly forced to the pool bottom. After a predetermined waiting time, 15 to 20 minutes, to permit the larvae time to migrate through the funnel into the inner chamber, the weighted stopper was pulled into the funnel opening to seal the inner chamber. The chamber was then removed and the larvae were poured into a pan, hand-picked, and preserved for later identification. The sampler proved to be an excellent sampling device in the field, but there was one notable problem with its use. It was found that large leaves and floating debris would clog the inverted funnel and prevent larvae from migrating into the chamber. Thus, it became routine to place the outer cylinder first followed by removal of plant material and debris prior to inserting the inner chamber. Fortunately, extensive field use of the sampler demonstrated that the problem of larvae being caught between the two components of the sampler was insignificant. The phenomnon was

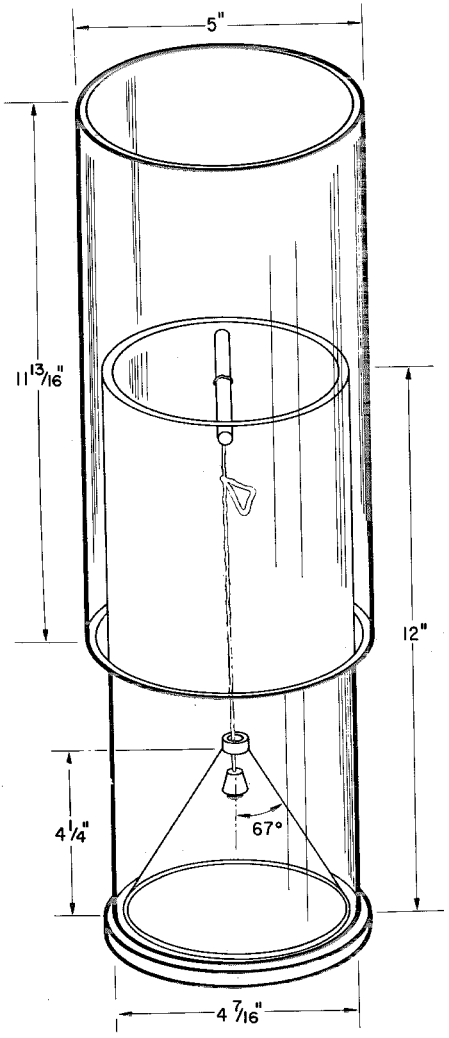

FIG. 1. Specifications for a plexiglass sampler for collecting area samples of mosquito larvae.

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observed in only 4 of 147 samples. Continual scrutiny of the contents of the outer chamber, after the inner chamber had been removed and the water had cleared, revealed that all larvae entered the inner chamber. They had either been pumped into the inner chamber as it was forced to the bottom or else they had migrated through the funnel during the 15–20 minute waiting time.

In quantitative studies it is usually preferable, on a statistical basis, to collect a large number of small samples, as opposed to a small number of large samples. Thus, the relatively small dimensions of the sampler and low fabrication cost (approximately $10/sampler) were considered noteworthy merits. Additionally, in contrast to many reported sampling methods, the shallowness of water was not a limiting factor in the collection of samples. The outer chamber could be pushed firmly into the mud substrate, forming an almost water-tight seal, and water could be added to the inner chamber until the water level was higher than the top of the inverted funnel. Samples were frequently collected from pools with less than one inch of standing water.

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References

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A MODIFIED CDC TRAP USING CARBON DIOXIDE FOR TRAPPING BLACKFLIES (SIMULIIDAE: DIPTERA) [1]

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Snoddy and Hayes (1966), reported the trapping of 11 species of adult blackflies in Alabama over a 6 months period with an average of 34 specimens being trapped per hour, using a modified New Jersey light trap with CO_2 as the attractant. The optimum CO_2 flow rate for attractancy, using a 20 lb (net) cylinder, was 1 pound of CO_2 per hour.

A similar technique in trapping blackflies was conducted at Camp Drum, New York from 24 May to 5 July 1974. However, instead of the New Jersey light trap, a portable 6 volt battery-operated miniature CDC light trap, with light bulb removed, was used. A 20 pound (net) CO_2 cylinder was the source of attractant. A Matheson Gas

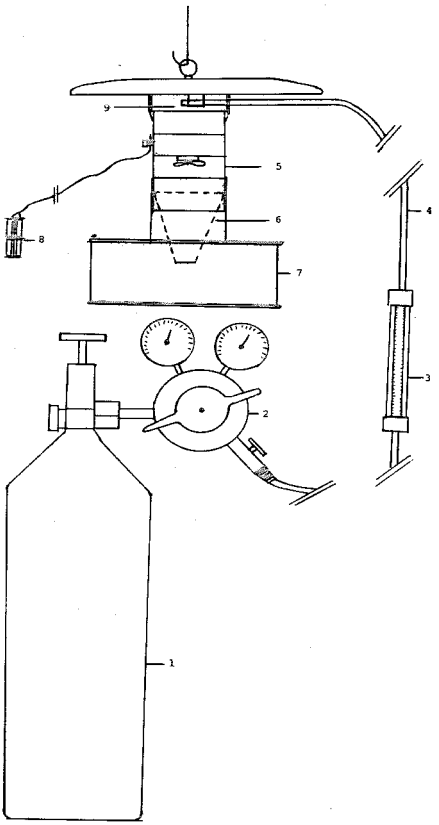

FIG. 1. CDC Miniature Light Trap Modified for Collecting Simuliidae, 1, 20 lb (net Cylinder of CO_2; 2, Regulator Valve; 3, Flowmeter; 4, Tygon Tubing (hose); 5, CDC Trap; 6, Acetate Funnel; 7, Collecting Net; 8, Batteries; 9, Hose Outlet for CO_2.

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