

PIPE INSULATING CEMENT FOR CLOSING TREEHOLE BREEDING SITES OF *Aedes triseriatus*

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Attempts to control treehole mosquitoes by permanent closure techniques have been generally unsuccessful. Portman and Hall (1961) and Brannon (1964) attempted control of the western treehole mosquito, *Aedes sierrensis* (Ludlow), by filling treeholes with sand capped with cement. The procedure was considered time-consuming and physically demanding, however, and, in time, the concrete began to decay around the edges, allowing the treeholes to become productive again. Garry and DeFoliart (1975) removed water from treeholes, packed them with rocks and soil, and capped each with concrete mortar. Their lack of effective suppression of *Ae. triseriatus* (Say) was attributed to migration and/or undiscovered breeding sites in arboreal cavities and refuse.

Although these previous attempts have not met with much success, until new more effective methods become available, closing treeholes remains an option to consider when *Ae. triseriatus* control is thought to be necessary. In an attempt to improve the treehole-filling procedure, 2 materials were tested for their ability to withstand climatological and animal damage. Six treeholes were filled in New Glarus State Park, Green County, Wisconsin, 3 with foam insulation and 3 with joint and pipe insulation material. The foam insulation proved immediately susceptible to removal, presumably by small animals for nesting material. The cement material, however, has remained almost in its original condition after more than 3 years under field conditions and with no apparent toxicity to the trees.

Insulating cement is normally used to coat pipes that are subject to temperature extremes, and therefore to condensation problems. Products with varying degrees of hardness and density are available through local pipe and duct insulating companies. The one we used was Delta Maid One-Shot Insulating Cement (Rock Wool Manufacturing Co., Leeds, Alabama 35094) a material which is used primarily to insulate pipe joints. It is wetted, applied to pipes, and allowed to harden.

The use of these materials to fill treeholes has several advantages. (1) They are considerably lighter in weight than sand and cement

and thus easier to carry into forests. (2) They require little water to become pliable enough to apply and water in the treeholes can be incorporated. (3) If cracks do develop because of wind movement or growth of a tree, water that seeps into the cavity is soaked up as the materials are porous. (4) They are relatively inexpensive (ca \$9/50 lb. bag) and their 2 main components, silica and slag, are not known to be phytotoxic.

References Cited

- Brannon, T. 1964. Control of tree-hole mosquitoes in Alameda County. Proc. Calif. Mosquito Control Assoc. 32:53-54.
Garry, C. E. and G. R. DeFoliart. 1975. The effect of basal treehole closure on suppression of *Aedes triseriatus*. Mosquito News 35(3): 289-297.
Portman, R. F. and L. L. Hall. 1961. Biology and control of *Aedes sierrensis* in California. Proc. Calif. Mosquito Control Assoc. 29:141-144.

SOME FIELD METHODS USED IN GRAND CAYMAN FOR TRAPPING ADULT CERATOPOGONIDS (DIPTERA).

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During a 5-year survey of ceratopogonids in Grand Cayman many trapping methods were assessed. The following are those used routinely and found satisfactory.

1. MODIFIED CDC LIGHT TRAP. The battery operated CDC miniature light trap (Sudia and Chamberlain (1962) was modified for collecting midges, as shown in Fig. 1A & B. A half-pint plastic ice cream container was taken and the bottom part cut off leaving a cylinder about 6 cm long. The cut edge of this was inserted into the lower end of the CDC trap barrel and taped to the inside with "Scotch" plastic tape (Fig. 1A). The center of the snap-on lid of the same container was cut out leaving a lip about 0.5 cm wide around the edge. A circular piece

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of wire mosquito screening, 9 cms in diameter, was lightly covered with motor car grease and laid inside the lid which was then clipped back onto the ice cream container (Fig. 1B). This "sticky grid" was thus positioned 7 to 8 cms below the fan of the trap ready to receive the catch. The catch was removed from the grid by soaking in kerosene and pipetting into a watch glass for microscopic examination (Fig. 2).

2. 6-VOLT LIGHT TRAP WITHOUT SUCTION. This consisted of a 16 cm² piece of wood painted white, with a central hole to accommodate a 6-volt bulb and its socket (Fig. 3A). Two small screws each side of the bulb held a sticky (greased) grid (as described above) in position over the bulb (Fig. 3B). Small insects flying to

the light became trapped on the sticky grid. This trap was more reliable than the CDC trap, as it had no moving parts.

3. GOAT BAITED TRAP. This was a small portable hut in which a goat was tied during the night (Fig. 4). One end of the hut was held in place by a metal bar and could be removed for entry and exit of the goat. A 9 cm diameter sticky grid was pinned to the top edge of the downwind window.

The numbers trapped by these 3 methods are shown in Table 1. The 2 light traps were not as efficient as large 110-volt light traps such as the New Jersey, which are preferable for taxonomic and short term surveys. However, for longitudinal surveys of common

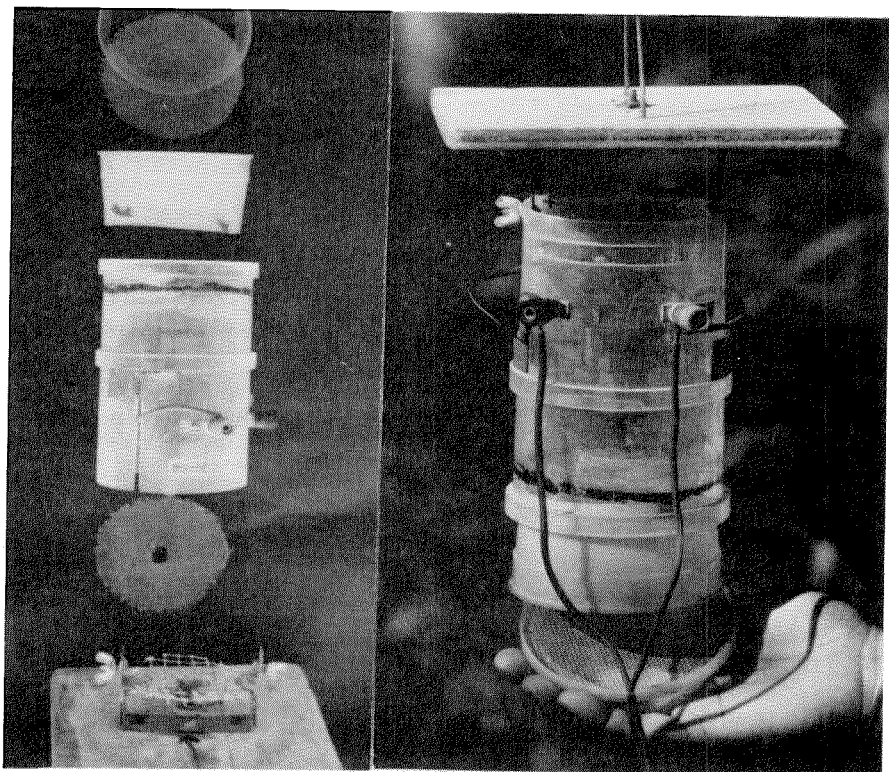


Fig. 1. CDC miniature light trap modified for collecting ceratopogonids. A. Exploded view to show component parts. B. Complete trap.

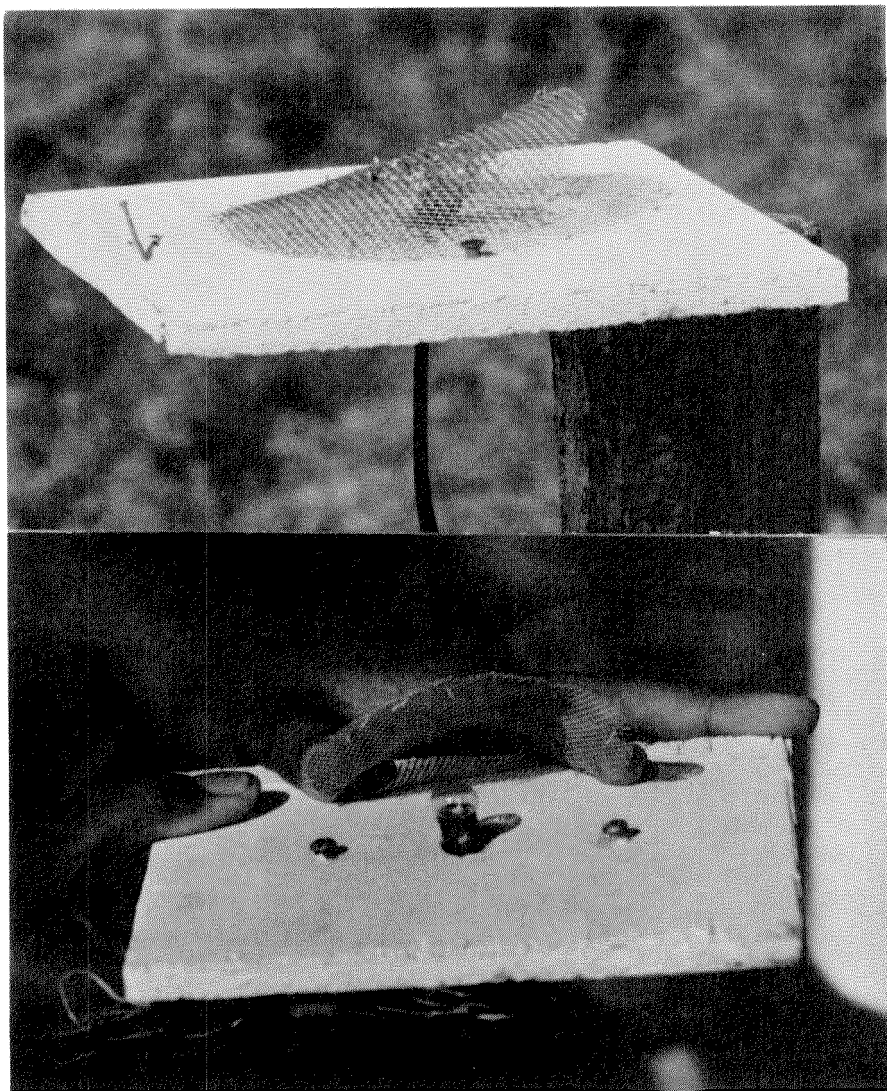


Fig. 3. 6-Volt light trap without suction.

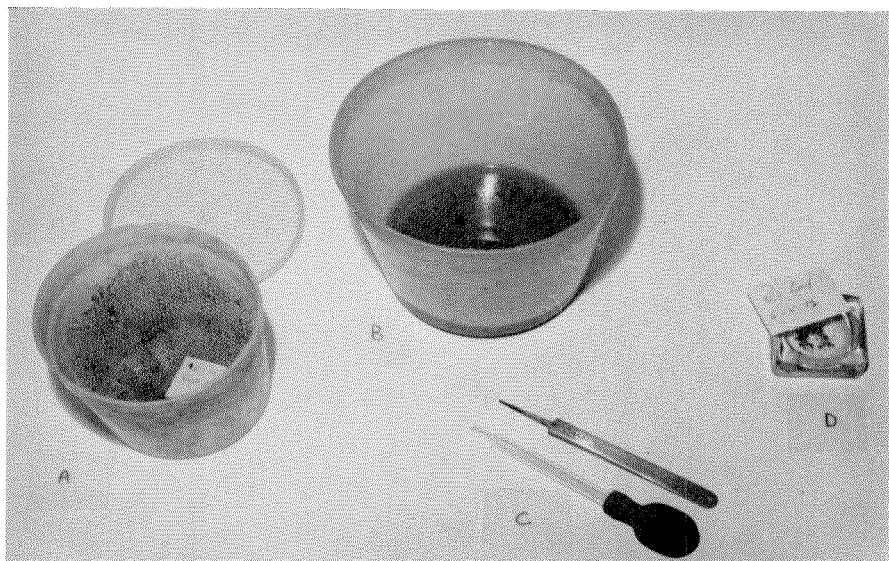


Fig. 2. Catch removed from greased, sticky grid by soaking in kerosene then pipetted into watch glass for sorting under microscope.



Fig. 4. Goat baited trap. Sticky grid can be seen in window.

Table 1. Size of catches of *Culicoides furens* in Grand Cayman.

Trap	No. trap nights	Catch per night per trap	
		Average	Maximum
Modified CDC	1599	34	2107
6-Volt	1248	15	1471
Goat bait	221	476	5200

midges using many traps in remote areas, the portability and lower catches of the modified CDC and 6-volt traps make them preferable.

The sticky grid method was also used in Cayman for the "paddle trap," a form of human bait trapping to be described elsewhere. It could also be adapted to other methods such as small animal bait traps, suc-

tion traps or truck traps. The adaptability of this method of retaining midge catches means that surveys can be carried out using several completely different trapping methods but only a single method of processing the catch in the laboratory.

Sticky grids, with or without a catch, can be transported in ice cream cartons, petri dishes or envelopes (in which they can even be sent through the mail). Kerosene is a reasonable medium for long term storage of specimens but, if required, these can be transferred to alcohol after soaking in 50% liquid detergent followed by water.

References Cited

- Sudia, W. D., and Chamberlain, R. W. 1962. Battery operated light trap, an improved model. *Mosquito News* 22:126-129.