

## AN OVIPOSITION TRAP FOR DETECTING THE PRESENCE OF *Aedes triseriatus* (Say)<sup>1</sup>

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*Aedes triseriatus* (Say) is suspected of being a major vector or possibly the sole vector of LaCrosse virus to humans in Wisconsin (Thompson *et al.*, 1967). In a panel discussion on arboviruses, at the International Northwestern Conference on Diseases in Nature Communicable to Man, at Hamilton, Montana in August of 1968, DeFoliart reported that at least one of every 142 *A. triseriatus* tested in Wisconsin during the period 1964-1967 was infected with this virus. Since LaCrosse is the only virus of the California encephalitis group that has so far been shown to cause human illness in Wisconsin (Thompson and Inhorn, 1967), it will probably become necessary to be able to check for the presence of *Aedes triseriatus* in high use recreational areas such as parks and camp grounds, and in suburban residential areas in order to determine its existence as a vector hazard and the effectiveness of control methods applied against it.

Prior to the work reported here, we had no reliable method of detecting the presence of this mosquito at a given location. Contrary, apparently, to the situation in some other areas, *A. triseriatus* is often locally abundant in Wisconsin in areas where it does not avidly attack humans. In fact we have found it necessary to hold an arm over the head to get the species to feed readily although there was intense breeding and a high adult population in the area. Although *A. triseriatus* has been shown to accept a variety of host species (Wright and DeFoliart, unpublished data)

it was not attracted to any bait animal in large numbers, even in areas where the species was known to be abundant. Our experience, in summary then, in this area is that this mosquito is generally shy in its approach to hosts and its presence in an area is difficult to detect by means of biting counts.

Preliminary testing of artificial oviposition containers began toward the end of the summer in 1967. Twelve-ounce beer cans with tops removed, organic debris added to the water and lined interiorly with sleeves of black muslin cloth, and beer cans with debris but without sleeves were attached to several trees in a wooded area. The cans were attached at three heights to each tree, at ground level, 7 and 14 feet, respectively. *Aedes triseriatus* oviposited in these cans at every level and even in cans placed on trees which had natural breeding sites at their base. Further, the eggs passed the winter successfully in these artificial sites. Although there were but few of them, eggs of *Orthopodomyia signifera* also passed the winter in the cans.

Recognizing that this would provide a useful detection method for *A. triseriatus* tests were designed for 1968 with cans prepared in various ways.

**MATERIALS AND METHODS.** To determine the set of conditions that would produce greatest oviposition by *A. triseriatus*, twelve-ounce beer cans were prepared as follows: can with plain interior, can with organic debris added to the water, can lined with black muslin cloth sleeve, and can with both black muslin sleeve and organic debris. The organic debris consisted of an average of 5.2 gr. of entire oak leaves, 75 percent dry and 25 percent green, per can. To make their color uniform traps were covered exteriorly with

<sup>1</sup>This work was supported in part by funds from N.I.H. grant AI-07453. This manuscript was approved for publication by the Director, Wisconsin Agricultural Experiment Station. We wish to acknowledge with thanks the help of Dr. R. P. Hanson on whose farm this study was conducted.

TABLE I.—Oviposition of *Aedes triseriatus* in variously prepared beer cans.

Week ending	No. of eggs collected during week	Percentage of total in			
		Plain beer can	Can with organic debris	Can with black sleeve	Can with organic debris and black sleeve
Aug. 21	49	0	0	18	82
Aug. 28	170	0	4	29	67
Sept. 4	409	1	3	13	83
Sept. 12	1,237	1	2	32	66
Sept. 19	391	0	14	29	57
Sept. 26	126	0	6	5	89
Oct. 3	12	0	100	0	0
Oct. 10	0	..	..	..	..
Percentage of total	..	1	5	26	69

beige masking tape. Each trap was filled with distilled water to within 1 inch of the top and refilled when necessary. Sets of four cans were attached to trees at 2.5 and 5 feet above ground and placed both near the base and near the top of the hill, two complete sets of four traps each.

The traps were serviced weekly at which times the water, organic debris and sleeves were changed and the collected material taken to the laboratory for counting of the eggs. Trap positions were also rotated systematically, so that each trap of a set of four occupied each position twice. The test continued for 8 weeks.

**RESULTS AND DISCUSSION.** Data in Table I show that *Aedes triseriatus* had a strong preference for the cans containing both black sleeves and organic debris. Alone, the black cloth sleeve appeared a stronger stimulant than organic debris. These field results agree with those obtained in the laboratory by Wilton (1968) who found that this mosquito preferred containers

with horizontal openings, rough-textured and dark-colored walls and water of high optical density and containing organic decay products.

Because *Aedes triseriatus*, as stated above, is often taken in small numbers only, in human biting counts, the method outlined here would appear much more reliable and less time-consuming in detecting the presence of this mosquito in a given locality.

#### References

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