OPERATIONAL NOTES

P. BRUCE BROCKWAY, JR.

A WIND DIRECTIONAL TRAP FOR MOSQUITOES

D. A. ELIASON AND S. F. BAILEY
University of California, Davis

In the course of trapping adults of *Culex tarsalis* Coq. with CO_2 in flight range studies we observed that the blood-seeking females oriented and entered the downwind end of the traps. To verify this observation and to make the trap placement more efficient in recapturing marked individuals, a rotating directional trap was constructed. Four cans of about four-gallon capacity were used, each with a removable screen cone in one end. The rotating unit was made of cross arms fastened at right angles to a spindle (Fig. 1). The vane and counterweight were mounted on the longer arm. The standard which supported the unit was a 2-inch pipe, four feet long, mounted on a wooden base. The bearing surface of the assembly was the pointed end of the spindle resting in a cup placed about a foot down inside the standard. A bushing was placed at the neck of the standard to reduce play. The cans or traps were suspended from the arms by clips, the four forming a cross. Operating as a weather vane (Fig. 2), the one trap always pointed into the

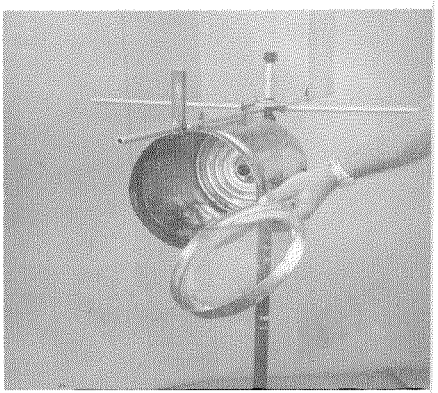
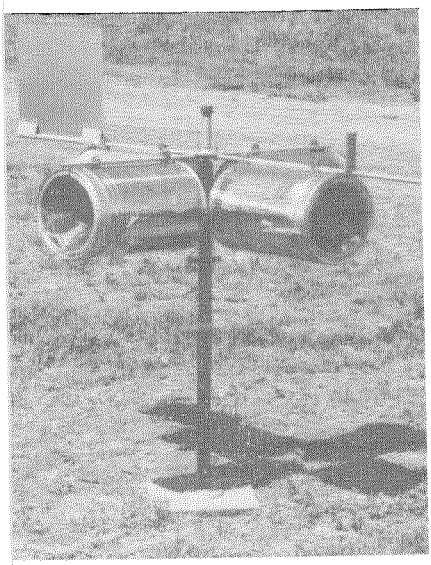


FIG. 1.—Details of construction of wind directional mosquito trap with upwind trap in place.

Numbers of Mosquitoes Caught in Wind Directional Trap (CO_2 Baited). Sacramento Valley, California, 1962

Date	Location	Total catch	Trap position				Downwind percent of total	Approx. wind velocity mph, 9 to 12 p.m.
			Upwind	Crosswind, right	Crosswind, left	Downwind		
VI-23	Rice field	37	4	11	8	14	37.8	3
VI-27	Rice field	35	2	14	7	12	34.2	4
VII- 5	Rice field	115	30	15	27	43	37.3	4
VII-12	Rice field	122	32	19	11	60	49	4
VII-18	Dry roadside	42	0	4	3	35	83	5
VII-19	Fence row, margin Corn field	117	34	12	9	62	52.9	5
VII-24	Dry, plowed grain field	22	2	1	1	18	81.8	6
VII-25	Rice field	105	1	1	0	103	98.1	7
VII-30	Sugar beets, margin of ditch	80	6	7	0	67	83.7	7
VII-31	Parking lot, rural area	112	0	7	9	96	85.7	7
VIII-10	Rice field	208	38	27	34	109	52.4	6
Totals			149	118	109	596		
Percent of total of 972:			15.3	12.1	11.2	61.3		



wind, irrespective of wind direction, one away from it and one each at right angles to the wind. A wind velocity of 0.5 mph readily caused the trap assembly to rotate into the wind.

Each trap was baited with a four-pound cake of dry ice placed in a plastic bag the neck of which was loosely constricted by a rubber band. As the ice vaporized over a period of 4 to 6 hours, the pressure of the gas filled the bag and the CO_2 was released slowly through the constriction. The inflated bag was self-insulating. The trap assembly was placed in position at sundown and picked up the following morning.

The catches tabulated below show the downwind trap caught four times as many mosquitoes as the upwind trap. Those at the sides captured about the same number as the upwind trap. These data also indicate that the catch in the downwind trap increased with wind velocity. Further tests with this apparatus using CO_2 as well as lights (one each installed in the base inside the can) are planned to obtain more extensive data.

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FIG. 2.—Wind directional trap for mosquitoes in place near rice fields, Sacramento Valley, California.