

**AIR-BORNE DISPERSAL OF SANDFLIES ON THE
NORTH COAST OF TRINIDAD**

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Previous accounts (Aitken 1957, Yaseen, 1971) have indicated that the main biting pests at Maracas Bay are *Culicoides phlebotomus* (Williston) and to a lesser extent *Culicoides furens* (Poey.), whilst at Las Cuevas the pests are *C. phlebotomus*, *C. debilipalpis* Lutz and *C. paraensis* (Goeldi). Surveys to discover the extent of the breeding grounds of the pest species (Davies, 1973) showed that although massive breeding of *C. phlebotomus* took place adjacent to the beach at Las Cuevas, only small areas could be found at Damien, Tyrico and Maracas bays, and there was some doubt whether sandflies were emerging from these latter areas in sufficient numbers to account for the biting rates experienced at Maracas Bay.

Since Las Cuevas Bay lies directly upwind from Maracas Bay, it seemed possible that *C. phlebotomus* might be blown over the intervening ridge into Maracas Bay three miles downwind.

To test this possibility, three wind traps (nets to catch wind-borne insects) were sited on the saddle by the exposed road cutting at Beverly Hills (now called Damien Heights). Trap 1 was placed on the southern lip, trap 2 was suspended on the north face of the cutting, while trap 3 was mounted on the northern lip (Plates 1 and 2). The traps were mounted on swivels like a wind vane so that the opening always pointed into the wind. Insects entering the trap were caught in a plastic container filled with 2% formalin and detergent. The traps were visited once a week when the containers were changed, and the catches sorted and identified.

The results are summarised in Table 1 where it will be seen that over the 15-17 weeks of operation between April and September 1972 some 1314 *Culicoides* of about 26 species were collected, of which 82% were taken in trap 2. The two species which comprise the leoni group, *benarrochi* Ortiz and *Mirsa* and *glabellus*, Wirth and Blanton are difficult to separate on superficial features, and have been lumped together for this study.

TABLE I
Numbers of *Culicoides* caught in three wind traps sited between
Las Cuevas and Maracas Bays, 1972.

Species	Trap 1		Trap 2		Trap 3	
	F	M	F	M	F	M
aureus			1	0		
filariferus			2	0		
foxi			2	0		
furens			6	1	1	0
fluvialis	33	3	5	3	0	1
guerrai	26	1				
ginesi			7	0		
hoffmani	3	1				
heliconiae			2	0		
insignis	1	0	2	0		
limai	8	5	14	15	5	0
leopoldoi	1	0	3	0		
mirsa	14	0			2	0
martinezi			2	2		
pusillus	10	0	71	3	5	0
tetrathyris	4	10	59	81	7	6
pseudodiabolicus	50	7	223	19	17	4
paraensis	6	1	17	1	1	0
pifanoi			1	0		
phlebotomus			4	3		
fluviatilis			12	0		
heliconiae			2	1		
glabrior					1	0
debilipalpis	12	0	447	3	13	1
leoni gp.	2	0	61	1	2	0
sp. unidentified				0		
Totals	140	28	945	133	54	12

The most abundant species was *debilipalpis* Lutz. Aitken and others (in the press) state that this species is often more common in the forest canopy than at ground level. Tikasingh and Davies (1970) made similar observations with the next most abundant species, *C. pseudodiabolicus* (reported as *C. diabolicus*) and it may be that this preference for the canopy habitat may make these species more susceptible to being caught up by the winds blowing above the forest crowns.

Seven individuals of *phlebotomus* were collected in Trap 2 in the road cutting itself, over a five-week period 20 July–24 August. On the tentative assumption that this trap was collecting a representative sample of the insects passing through the cutting which has an estimated sectional area of 20,500 square feet, and since the trap sampled an area of 2 square feet, some 41,000 female *C. phlebotomus* may have traversed the cutting in 5 weeks, and some at least might be expected to have landed in the vicinity of Maracas Beach. What happened to the estimated 2.9 million *pseudodiabolicus* and 4.8 million *debilipalpis* females remains a mystery.

ACKNOWLEDGEMENTS

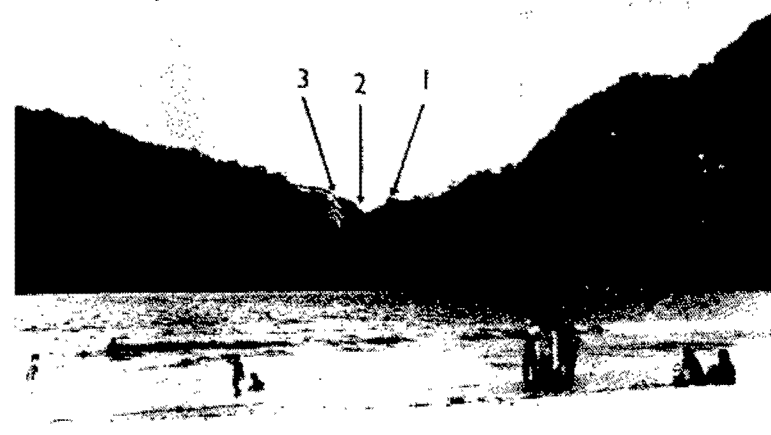
I wish to thank Messrs. A. Faria, A. Alexander and L. Guevara who helped to service the traps and Mr. J. Ou Hingwan who sorted and identified most of the catches. Specific determinations of some doubtful specimens were made by Dr. W. W. Wirth, of the Systematic Entomology Laboratory, U. S. Department of Agriculture. The co-operation of the Director, staff and supporting Governments and Organizations of the Trinidad Regional Virus Laboratory is gratefully acknowledged, and the work was financed jointly by the Medical Research Council of Great Britain and the Overseas Development Division of the United Kingdom Government.

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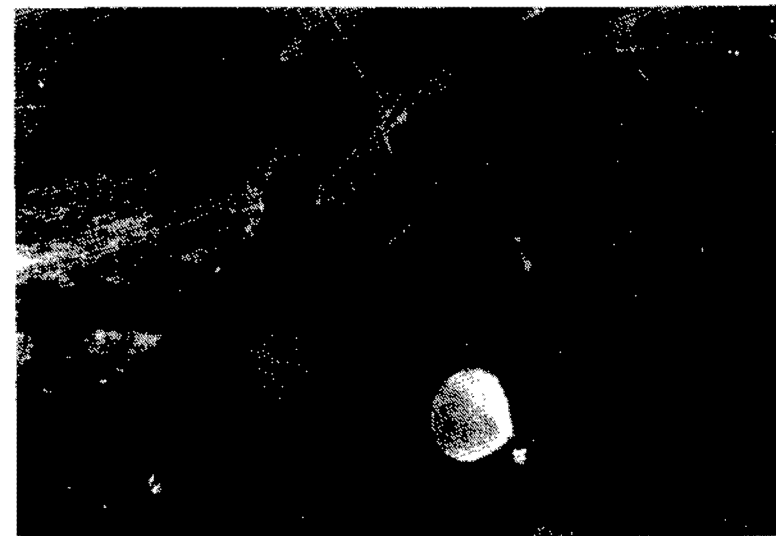
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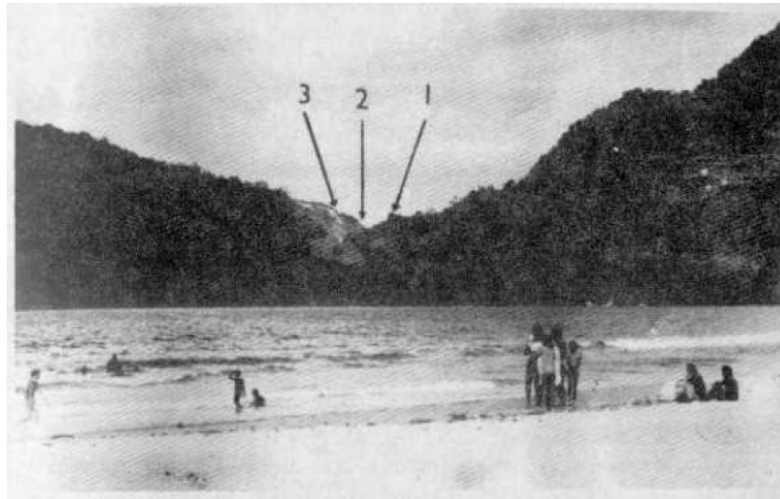
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View of the road cutting looking north-east from Maracas Bay, showing the locations of the three wind traps.



Wind Trap No. 2 on the north face of the road cutting, viewed from above.



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