

## COMPARISON OF THE MOSQUITO SLAYER, MOSQUITO MAGNET PRO AND THE CDC LIGHT TRAP IN NORTH QUEENSLAND

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OBJECTIVE

To compare collections of insects, especially mosquitoes and Culicoides sandflies, from **Mosquito Slayer** (MS), **Mosquito Magnet Pro** (MM) and **Centers for Disease Control light trap** (CDC) in north Queensland.

### METHODS

All traps were run according to manufacturer's standard conditions, with 500 cc/min CO<sub>2</sub> supplemented to the CDC light trap. The CDC light trap is the gold standard for routine mosquito collection in the USA. The MS was run with a supplementary satellite unit (main unit and satellite) fed from a common CO<sub>2</sub> source. Thus, there were 3 different traps (MS + satellite, MM, and CDC) on a trap night. Traps were set 50 m apart and positions changed nightly so that each trap was located at each position once to correct for positional effects. Octenol was not employed with any trap.

Traps were set in a swampy area near Yorkeys Knob, ca. 15 km north of Cairns, from 21-24 Jan. 2003. Mosquitoes were identified to species while other insects categorised by order. Because the screen on the collection bag was too large, no sandfly collections were made using the CDC trap.

### RESULTS

All traps collected large numbers of mosquitoes and sandflies (Tables 1-2). The primary species collected (*Ochlerotatus*, *Verrallina* and *Culex* are major nuisance species and important vectors of Ross River virus and Japanese encephalitis (only *Culex annulirostris* and *Cx. gelidus*). The *Culicoides* collected (primarily *C. ornatus*) are important nuisance species in N Queensland. The MS + satellite unit resulted in higher collections of mosquitoes than either the MM or the CDC trap. The MM consistently collected the highest number of sandflies.

The MS also collected large numbers of nontarget insects (Table 2). Either alone or with the satellite, nontarget insects represented about 50% of the total collection. Many of these insects were large moths or beetles, and even cicadas were occasionally collected. These insects were likely attracted to the lights on the front of the MS trap. Collections of nontarget insects by the MM and the CDC traps were conversely very low (2.9% and 2.4%, respectively). This reflects the lack of light with the MM and only a small light (6 volt torch light partially blacked out with felt marker) on the CDC trap.

**Table 1.** Average collections of mosquitoes, sandflies and other insects by the Mosquito Magnet Pro, the Mosquito Slayer + satellite, and the CDC light trap. Data for individual main and satellite Mosquito Slayer units provided as separate entry. Traps were run at Yorkeys Knob near Cairns Qld from 21-25 Jan. 2003 (4 trapping nights).

Trap	Mosquitoes	%	Sandflies	%	Other insects	%
Mosquito Magnet	1123	46.7	1213	50.4	70	2.9
Mosquito Slayer (Master and Satellite)	2606	42.4	498	8.1	3036	49.4
Mosquito Slayer (Master)	1337	33.8	325	8.2	2289	57.9
Mosquito Slayer (Satellite)	1269	58.0	173	7.9	747	34.1
CDC Trap	1640	97.6	0	0	40	2.4

**Table 3.**

Mosquitoes, sandflies and other insects collected by the Mosquito Magnet, Mosquito Slayer + satellite and CDC light trap from 21-25 Jan 2003 at Yorkeys Knob, N Qld ( 4 trapping nights).

Mosquitoes	Mosquito Magnet	Mosquito Slayer (Master and Satellite)	CDC Trap
Anopheles farauti	<b>124.4</b>	69.2	29.6
Culex annulirostris	24.6	<b>43.9</b>	39.9
Culex gelidus	28.1	<b>35.4</b>	1.0
Mansonia uniformis	58.1	<b>80.5</b>	40.2
Mansonia septempunctata	18.5	<b>284.6</b>	18.8
Ochlerotatus vigilax	152.3	<b>459.1</b>	206.6
Ochlerotatus kochi	665.8	<b>1593.1</b>	1230.5
Verrallina	46.6	39.0	<b>62.2</b>
Ochlerotatus notoscriptus	3.5	0	<b>8.5</b>
Culex hilli	0	0	0
Tripteroides	0	0	0
other mosquito	1.0	1.4	<b>3.0</b>

## DISCUSSION

The results clearly indicate that the Mosquito Slayer (MS) collects large numbers of mosquitoes and sandflies (biting midges). With the addition of the satellite unit, the MS collected considerably more mosquitoes than the other units. This strategy also allows for trapping in front and back yards from a single gas cylinder, a significant advantage. The addition of octenol will also greatly enhance the performance of the trap for the control of most sandflies and nuisance mosquitoes.

It is important to note that this study only documents the ability of these traps to capture and kill large numbers of mosquitoes and biting midges. The data do not imply that the biting pressure is reduced by placing a trap in your yard.

Finally, the MS collected considerably more nontarget insects than the other traps. The obvious

cause is the presence of lights that are attractive to moths, beetles, etc. It should be noted that both the MM and the CDC trap have little (CDC) or no light (MM) and yet catch large numbers of mosquitoes and sandflies. I feel that the lights may not add significantly to the ability of the MS to capture blood-seeking insects, and undoubtedly increase the collection of nontarget insects. Furthermore, lights would add to the cost of the unit. While lights may have a marketing appeal, it may not outweigh its disadvantages.

I suggest that a final trial be conducted in a residential area to trial the following traps:

Mosquito Slayer + satellite with lights

Mosquito Slayer + satellite without lights

Banks trap (a similar trap developed for Australian Quarantine and Inspection Service)

Mosquito Magnet Pro