



FLORIDA A&M UNIVERSITY

FIELD EVALUATION OF THE FLOWTRON MOSQUITO POWERTRAP, AMERICAN BIOPHYSICS CORPORATION MOSQUITO MAGNET RESIDENTIAL, PRO & X TRAPS

John P. Smith



Excellence With Caring

ABSTRACT

The Mosquito Magnet Pro and Mosquito Magnet X traps caught similar numbers of mosquitoes. Both caught at least 2X the number of mosquitoes collected in the Mosquito Magnet Residential trap. The Flowtron Powertrap caught very few mosquitoes. Species composition was very similar among the ABC traps, however, the MM-X recovered a greater quantity of the vector species.

INTRODUCTION

American Biophysics Corporation (ABC) has manufactured several new traps that capture as many as 4X the number of mosquitoes collected in conventional CDC light traps (Figs. 1-3). These traps do not use light; instead, employ carbon dioxide, heat, moisture and optional slow-release octenol as attractants. The traps utilize patented counter air flow technology via dual fans. A larger fan at the top of the trap pulls air up through a 11.4 cm (4.5 in.) outer PVC pipe opening at the bottom of the trap. A smaller fan in the center exhausts air injected with carbon dioxide down through an inner 6 cm (2 3/8 in.) PVC pipe also opening at the bottom of the trap. Octenol formulated as a solid is positioned just inside the base of the inner pipe. The trap functions by creating a plume of carbon dioxide and octenol below the trap. Mosquitoes are vacuumed into the trap as they fly into the plume near the base. The ABC Mosquito Magnet Professional and the Mosquito Magnet Residential use propane to power the trap and generate carbon dioxide, heat and moisture. The Mosquito Magnet X does not create heat or moisture and receives carbon dioxide from a separate cylinder. It is powered by two serially connected 6v, 10 Amp hour gel-cell batteries.

The Mosquito Powertrap manufactured by Flowtron operates on AC power and also generates CO₂ from a propane converter, but uses only one fan to pull mosquitoes into the trap (Fig. 4). When set to automatic the unit turns on and off so that it pulses CO₂.

PURPOSE

To compare the trapping prowess of ABC Mosquito Magnet Professional (MM-Pro), Mosquito Magnet Residential (MM-Res), Mosquito Magnet X (MM-X) and the Flowtron Inc. Mosquito Powertrap (Flow).

MATERIALS & METHODS

This study was conducted during the summer of 2001 at the Florida A&M University, JAMS Public Health Entomology Research & Education Center (PHEREC) located in Panama City, Florida. PHEREC resides on a 10-acre peninsula surrounded by salt marsh on the St. Andrews Bay.

All traps except the MM-X were supplied octenol. Traps were randomly assigned to four sites separated by distances of at least 91 m (300 ft) and operated from 3:30 p.m. to 7:30 a.m. The contents were collected and the traps rotated clockwise to the next site. This was continued until all traps had been run at each site constituting one replication. The study was replicated three times. Trap contents were sorted, identified to species and counted.



Fig. 1. MM-Pro trap.



Fig. 2. MM-Res trap.



Fig. 3. MM-X trap.



Fig. 4. Flow trap.

RESULTS

The MM-Pro trap caught the most mosquitoes (Fig. 5), however, greater catch variability was observed among sites (Fig. 6). The MM-X trap collected a similar quantity with less variability. Both traps collected generally about 2X more mosquitoes than the MM-Res trap. The Flow trap collected very few mosquitoes.

The three ABC traps collected very similar species, although the quantity of each species varied by trap (Figs. 7-10). The MM-X caught a greater quantity of disease vectors.

Fig. 5. Total number of mosquitoes caught by trap.

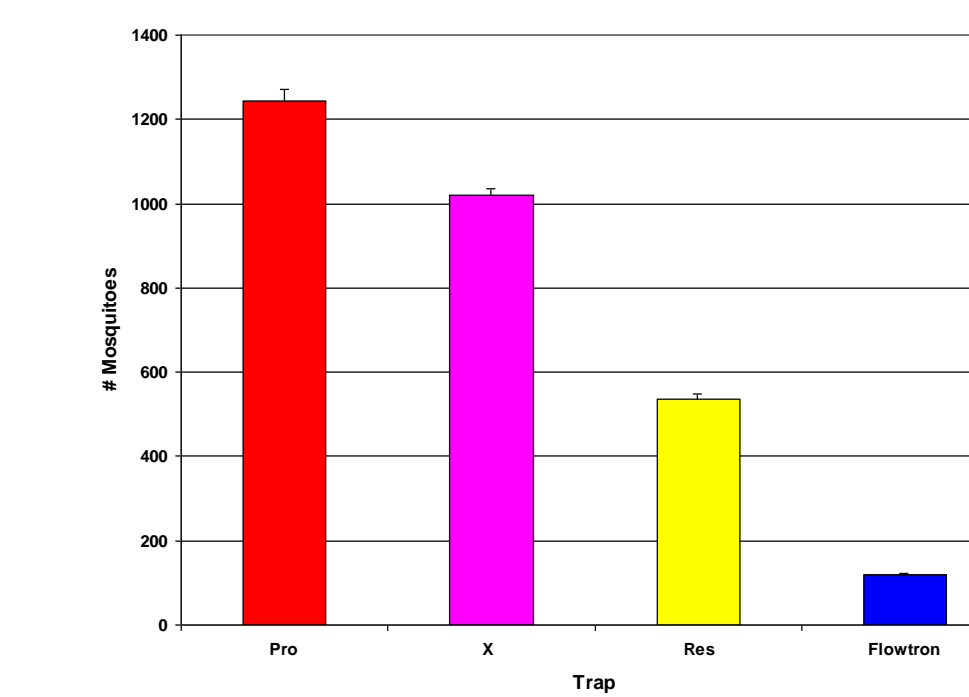


Fig. 6. Total number of mosquitoes caught by trap at four sites.

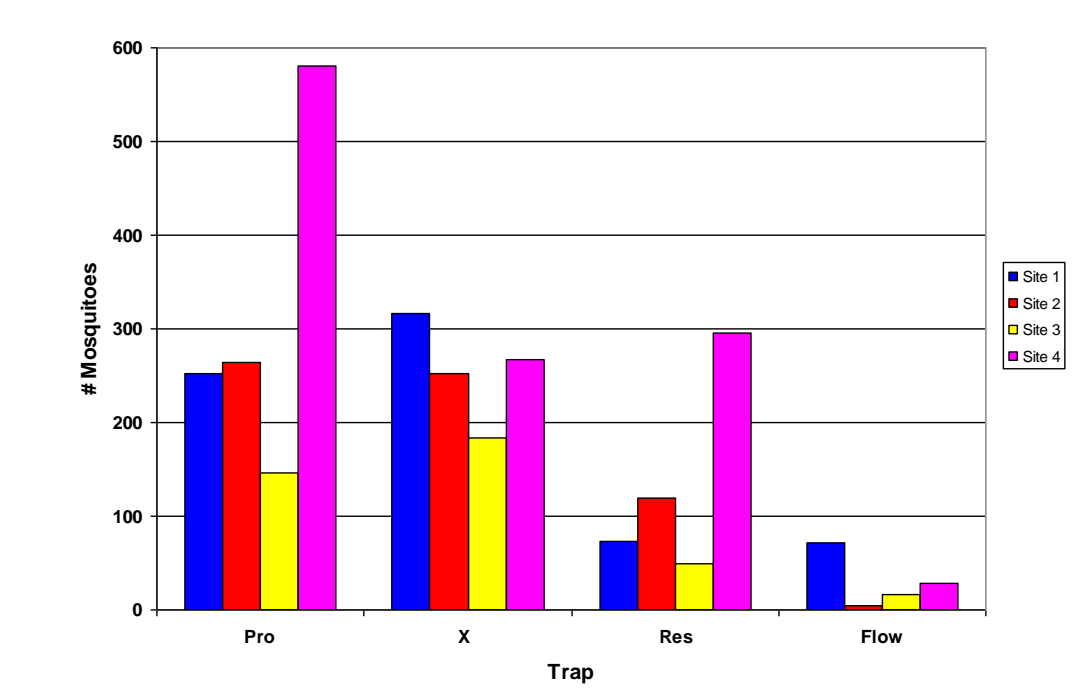


Fig. 7. MM-Pro trap species abundance.

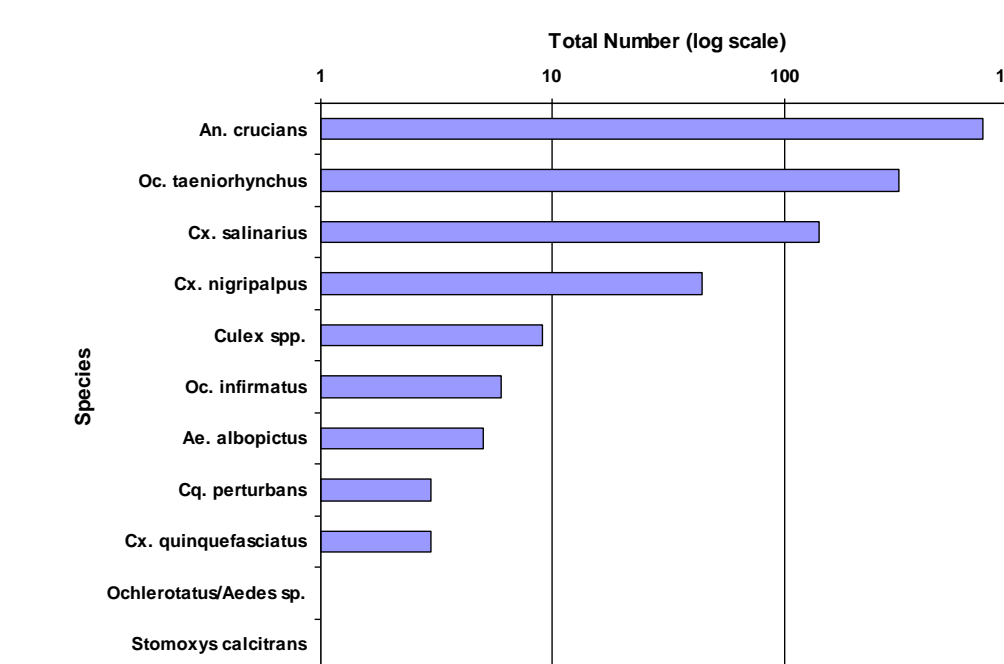


Fig. 8. MM-X trap species abundance.

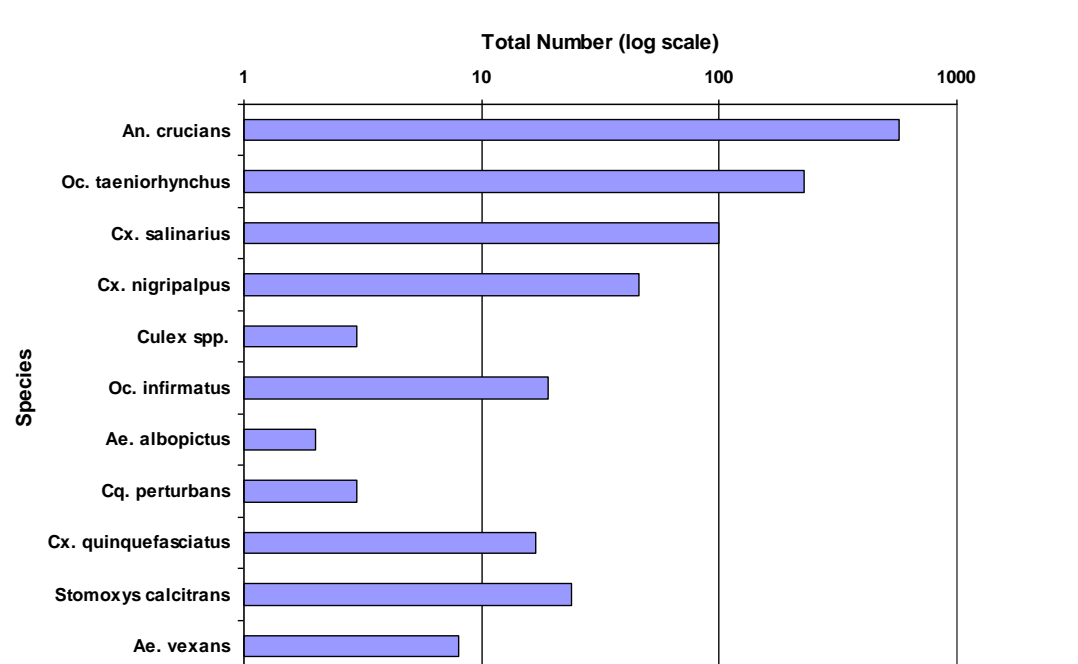


Fig. 9. MM-Res trap mosquito abundance.

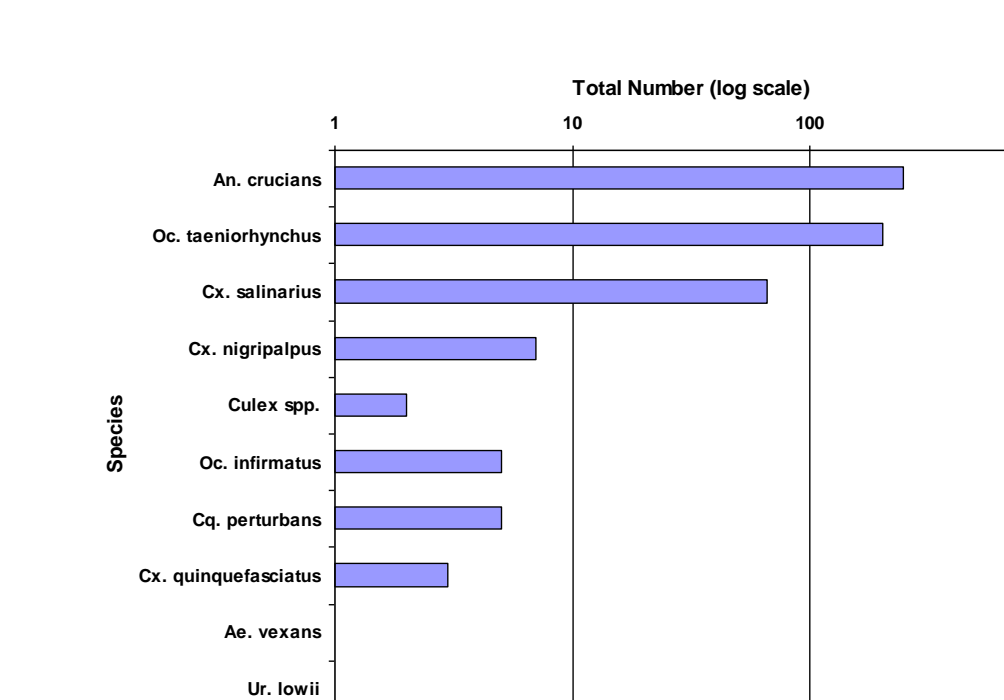
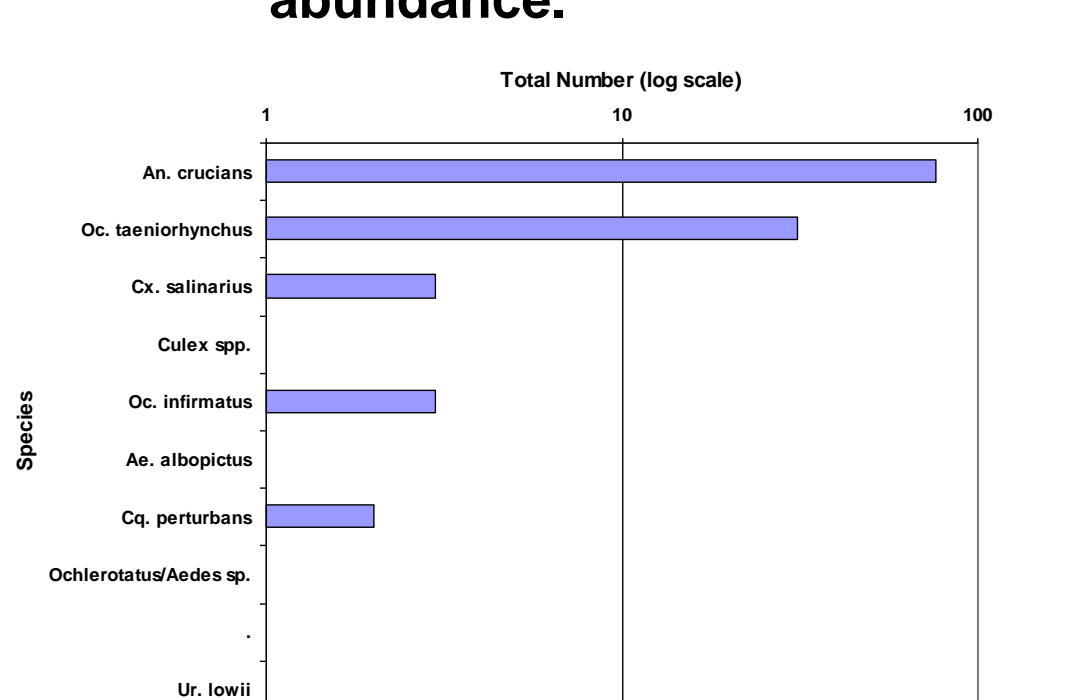


Fig. 10. Flowtron Powertrap mosquito abundance.



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