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## Appendix 5

### FOI Memo 2672

#### MOSQUITO TRAPS AS SAMPLING TOOL

## Catching Mosquitoes 20080618-19

### *Introduction*

In this initial study it was tested if two commercially available traps (Figure 1a and 1b) intended for mosquito control could also be used to catch mosquitoes for sampling. Different species of mosquitoes may be susceptible to different traps and entomological expertise should be asked for advice about the most efficient trapping technique. The main purpose of this study was to examine whether the two traps at all could be used for collection of mosquitoes. The location for the traps during the test period is shown in Figure 2.

The study was limited, and should be expanded before the final decision on the traps is made. The results suggest however that the Mosquito Magnet Liberty Plus could be further developed for the purpose. However, this would require a modification of the catch bag. A major benefit of the Mosquito Magnet Liberty Plus, compared with many more traditional mosquito traps, is that it does not require access to dry ice (frozen CO<sub>2</sub>), which in turn is difficult to provide in the field when dry ice requires cryopreservation at -80 °C. Dry ice also creates a risk of freeze damage, or poisoning by inhalation from leaking gas. The gas is heavier than air and therefore can accumulate in low-lying areas. If FM considers the use and storage of LPG cylinders in the field as a safety hazard the Mosquito Magnet Liberty Plus is discriminated as a mosquito trapping option. A summary of the performance of the both traps are presented in Table 1 and 2.



Figure 1a. MegaCatcha Premier MCP800



Figure 1b. Mosquito Magnet Liberty Plus

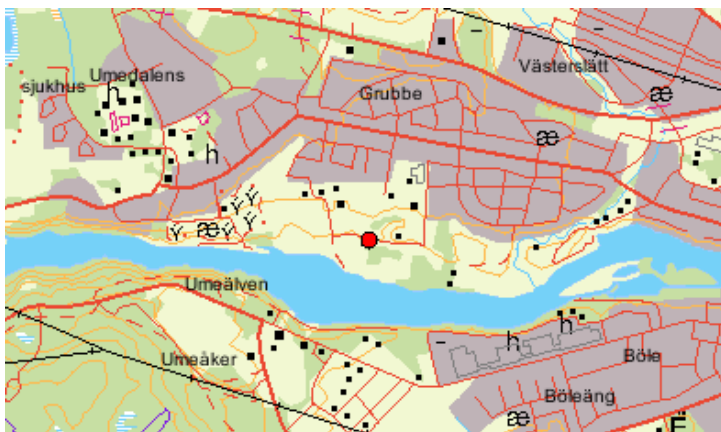


Figure 2. The traps were placed on each side of a bog soil (wetland) south of Häradsvägen, in Umeå.

The sample collection time was 17 hours, the traps were checked after 2.5 hours, 7 and 15 hours. The weather conditions during the sampling period were sunny during the day, no precipitation and relatively calm winds.

Table 1. Summary for MegaCatcha Premier MCP800

| <b>Catch:</b> < 20st (difficult to count because many mosquitoes were crushed) + one moth |   |
|---|---|
| <b>Advantages</b>   | <b>Disadvantages</b>  |
| Light   | The stand was bulky   |
| Silent  | Cloth-hood difficult to mount   |
| Clear and easy manual   | Difficult to programme specific start and end time, best to use continuous mode |
|   | The door was weak.  |
| Easy to apply olfactory attractant object   | Susceptible to wind   |
| May be attached to 12 V (car)   | No batteries, needs external power  |
| Flexible electric cable   | Short electric cable  |
| Safe attachment of electric cable   | The catch bag was black which hampers detection of mosquitoes.                  |
|   | Difficult to seal the bag   |
|   | Difficult to empty the bag in the field   |
|   | Some mosquitoes are crushed in the the catch bag.                               |

**Other comments for the MegaCatcha Premier MCP800:**

Easier to attach the catch bag if the trap is brought to a table rather than having it at its normal position.

The design of the catch bag is not good and the black color makes it difficult to see the mosquitoes. The plate in the bottom makes it "rigid" when linked together. The plate in the bottom of the bag restricts the emptying of the bag.

Table 2. Summary for Mosquito Magnet Liberty Plus

| <b>Catch:</b> 200-300 + one midge                                    |   |
|--|---|
| <b>Advantages</b>  | <b>Disadvantages</b>  |
| Mobile on hard surfaces  | Big and bulky   |
| The gas bottle is easy to attach                                     | Gas bottle is bulky   |
| Run by batteries and petroleum gas                                   | Petroleum gas, safety problem?  |
| Easy to start  | Easy to mount the olfactory attractant  |
| Stable and robust  | Long preheating time, if one has to stay at sampling point until start (15-25 min)  |
| Silent   | Difficult to seal the bag   |
| Easy to see the mosquitoes, transparent plastic cover and white bag. | Difficult to empty the catch bag in field conditions due to a plastic frame, and that mosquitoes get stuck in seams and wrinkles. |
|  | Need to anaesthetize the mosquitoes before emptying the bag.  |

**Other comments for the Mosquito Magnet Liberty Plus:**

Two minor burn-marks emerged close to the entrance of the catch-bag.

# Manual Mega Catcha Premier

READ THE MANUAL BEFORE STARTING THE EQUIPMENT

## **Start**

1. Unlock and remove the lid
2. Mount the olfactory attractant.
3. Pull the opening of the bag over the corners of the fan, just above the fan cover.
4. Mount the lid and lock.
5. Attach the power cord
6. start by pressing ON

## **Stop and switch bag**

1. Stop by pressing OFF
2. Detach the power cord.
3. Dismount the bag. Pull the coils and string together.
4. Put the bag in a C4 envelope and seal.
5. Note sampling number, place and time on the envelope.
6. Mount a new sampling bag.

## **Handling of the mosquitoes**

1. As soon as possible, put the envelope with the bag in a freezer to preserve the mosquitoes.
2. After 15 minutes the mosquitoes can be transferred to a large petris dish ( $\varnothing$ : 150 mm), and mark the dish with sample number, place and time.

# Manual Mosquito Magnet

READ THE MANUAL BEFORE STARTING THE EQUIPMENT

## Start

Instructions how to mount the olfactory attractant Octenol is on the label of the packing.

1. Charge the battery in the Mosquito Magnet for 24 h in the beginning of the season (page 7)
2. Attach the regulator to the cylinder (page 8)
3. Open the transparent lid, attach and seal the bag in the box. Hook the coils on the plastic sticks so that the bag is fully open. Close the lid.
4. Open the valve on the cylinder
5. Press ON/OFF button to ON.  
The light emitting diode (LED) turns orange indicating preheating. After 15-25 minutes it turns green indicating normal operating temperature.

## Stop and switch bag

1. Shut down by pressing ON/OFF button
2. Close the valve of the cylinder.
3. Pull the coils of the bag together and dismount the bag.
4. Dismount the bag. Pull the coils and string together.
5. Put the bag in a C4 envelope and seal.
6. Note sampling number, place and time on the envelope.
7. Mount a new sampling bag.

## Handling of the mosquitoes

1. As soon as possible, put the envelope with the bag in a freezer to preserve the mosquitoes.
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