

Standard Operating Procedure for performing sweep net sampling of outdoor resting mosquitoes

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SOP #: SNV-2021



PACMOSSI

Pacific Mosquito Surveillance
Strengthening for Impact

Scope

This Standard Operating Procedure (SOP) outlines the materials and processes required to perform sweep net sampling of outdoor resting adult mosquitoes.

Overview

Description: Sweet nets can be used to capture mosquitoes that are resting amongst grassy and shrubby vegetation and on the foliage of bushes and shrubs. Briefly, this involves disturbing the vegetation and capturing the mosquitoes in a sweep netting when they fly out.

Target species and physiological states: Captures resting adults of both sexes and many species.

Entomological surveillance indicators: Adult vector occurrence, density and resting location.

Advantage: The equipment and supplies are inexpensive and portable.

Disadvantage: This method is labour intensive and requires trained staff. It can be difficult to find resting mosquitoes, and to standardise collections due to differences between resting sites.

Sampling period: Sweep net collections are usually conducted for a standardised time period or a fixed number of sweeps, for example, 10 minutes or 100 sweeps per sampling station.

Data: Total number of resting mosquitoes per sampling effort (by species and sex). When necessary, field data is merged with the results of subsequent laboratory analyses.

Materials

- Sweep net
- Timer (optional)
- Collection cups
- Data collection form/digital device
- Pens/pencils/markers
- Oral aspirator
- Cooler box
- Adulticide (optional)
- Labels

Product description

The ideal mosquito sweep net should be built using a strong white calico bag fitted over a D-shaped metal frame with a wooden handle which is ~60 – 90 cm long (Silver 2008). Alternatively, sweep nets may also consist of thin aluminium handles with circular (~38 cm diameter) frames and nets made from mosquito mesh.

While calico nets are stronger and therefore preferable, actively sweeping vegetation, particularly when wet, will damage mosquito samples as they become mixed in the bottom of the net with leaves and other insects disturbed while sweeping. Sweep-nets made from mosquito mesh are better to sweep wet vegetation with as they do not hold water as much as calico nets, but can tear more easily (Silver 2008).

Sampling procedure

1. **First, choose a method for standardising the collections: either a set number of sweeps (e.g. 100 sweep) or a set time period (e.g. 10 minutes).**

2. **Walk to the sampling station, usually situated in an area where mosquitoes rest.**

3. **Begin to sweep the net back and forth and ensure you maintain a continual motion otherwise when you stop the mosquitoes may fly out of your net.**

- a. Resting sites may be disturbed by hitting them with a stick or vigorously sweeping the net.



5. **Stop periodically (e.g. every 10-20 sweeps) and quickly fold the end of the net so that the mosquitoes caught in the back of the net are unable to escape.**

6. Collect the mosquitoes from inside the net by either:

- a. Killing the mosquitoes:
 - i. Pre-treat the sweep net with an adulticide so that captured mosquitoes are knocked-down or killed.
 - ii. Place the folded section into a plastic bag with a ball of cotton wool soaked in chloroform for 1 – 2 minutes.
 - iii. After mosquitoes have been knocked down, tip them into a white trap and transfer into a storage container using forceps
- b. Keeping the mosquitoes alive:
 - i. Aspirate the mosquitoes directly from the inside of the sweep net using an oral aspirator.
 - ii. Place the mosquitoes directly into collection cups.



7. Temporarily store the mosquitoes in collection cups until processing and long-term storage. For further details see [SOP# MOS-2021](#).

Additional notes:

- If pre-treating the sweep net with an adulticide, ensure that the mosquitoes are not resistant to the active ingredient.
 - Wear long clothing covering the arms and legs to prevent mosquito bites.
 - In heavily infested areas, the collector can also wear repellent to prevent mosquitoes from landing and attempting to feed.
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Safety/Risk assessment

Your workplace may require you to complete a risk assessment prior to conducting field work. There are a range of risks to which field workers could be exposed, and when sampling with sweep nets may include:

- Mosquito transmitted infections
- Chloroform
- Dog bites

For further details on safety and risk assessments see [SOP# MOS-2021](#).

References

Silver, J.B. (2008) 'Mosquito ecology: field sampling methods.' 3rd edition; Springer: New York.

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