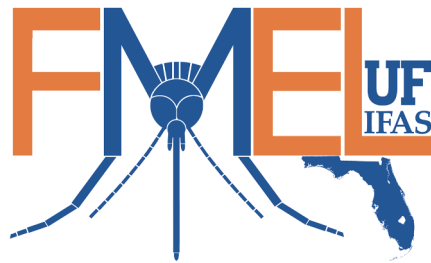


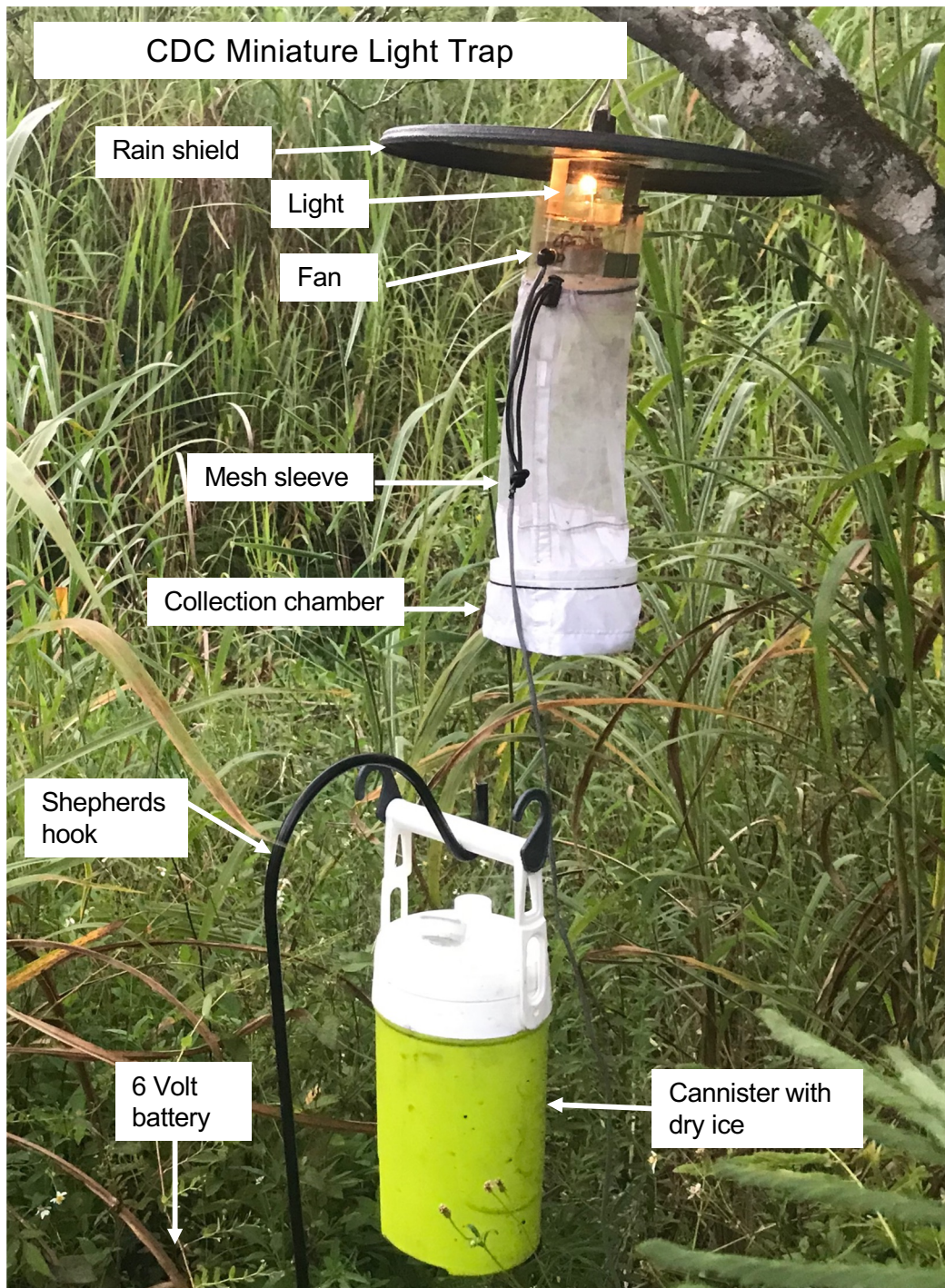
Modifying CDC Light Trap Chambers for Mosquito and No-see-um Collection



Nathan Burkett-Cadena, PhD
Associate Professor
University of Florida
Florida Medical Entomology Laboratory

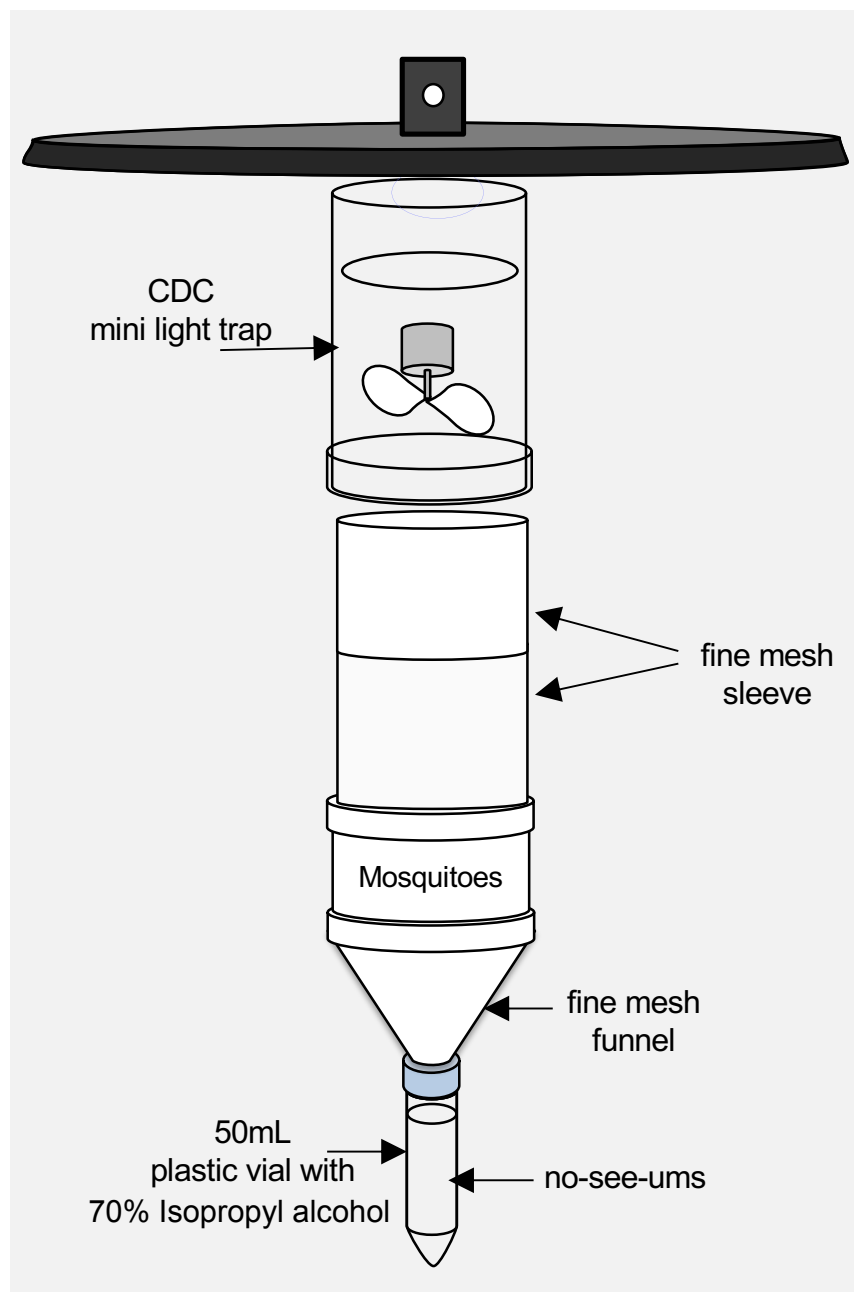
Mosquito and no-see-um sampling using “The CDC Miniature Light Trap”

- The CDC Miniature Light Trap (CDC-LT) is an effective insect trap.
- The CDC-LT captures a diverse insects, including mosquitoes and biting midges.
- The CDC-LT uses light to attract these over short distances.
- A battery-powered fan sucks insects into a collection net / chamber.
- When baited with carbon dioxide, larger numbers of host-seeking female mosquitoes and no-see-ums can be captured.



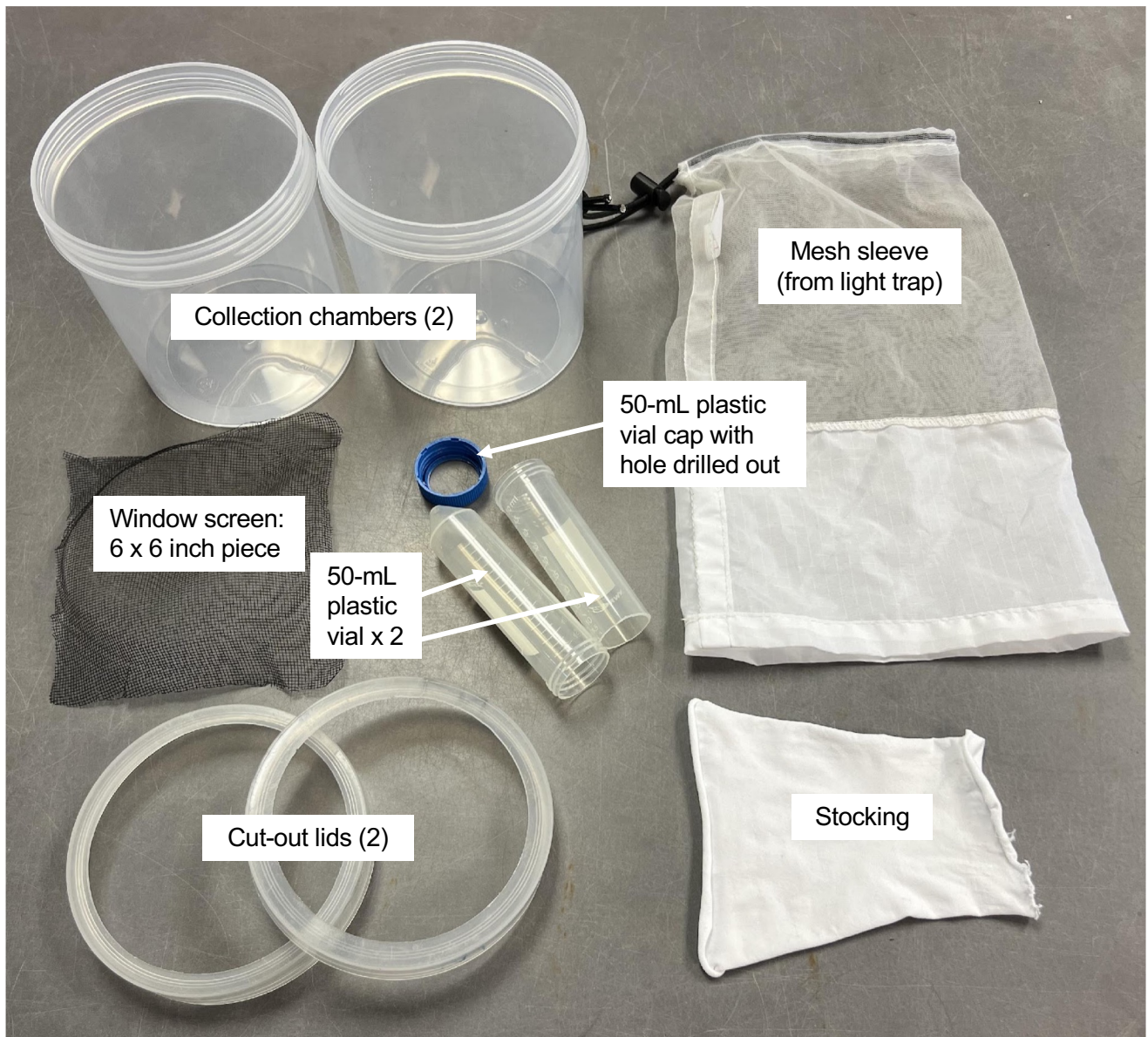
Modified Capture Chamber for CDC Miniature Light Trap for Collecting Biting Midges (no-see-ums)

- The CDC-LT collects mosquitoes in appropriate condition, but small no-see-ums can escape from the collection chamber through the metal mesh at the bottom of the chamber, or dry out in the collection chamber.
- No-see-ums are typically preserved and identified in alcohol solution. Standard isopropyl alcohol (70%) is good for preservation of morphological features of adult no-see-ums.
- Modifying the collection chamber to accept a plastic vial below the mosquito capture chamber permits collection and preservation of no-see-ums in alcohol while maintaining mosquitoes dry.



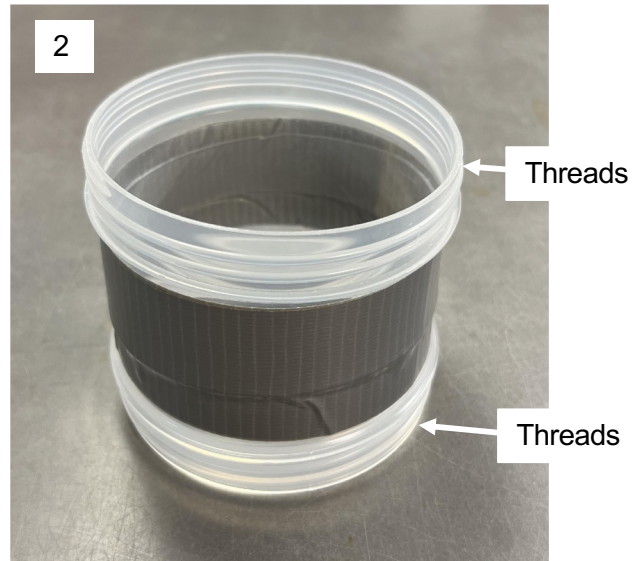
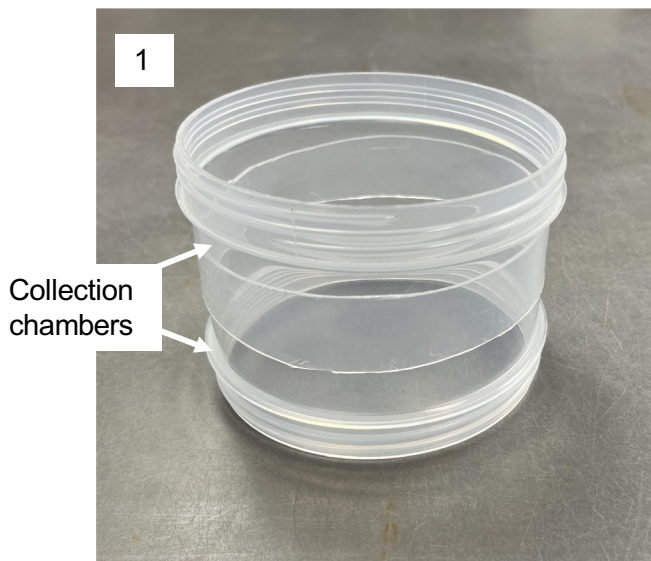
Modified Capture Chamber for CDC Miniature Light Trap for Collecting Biting Midges (no-see-ums)

- Modifying the CDC-LT collection chamber to collect mosquitoes and no-see-ums can be done in many different ways.
- This protocol describes one successful way that we routinely use for collecting and separating mosquitoes from no-see-ums.

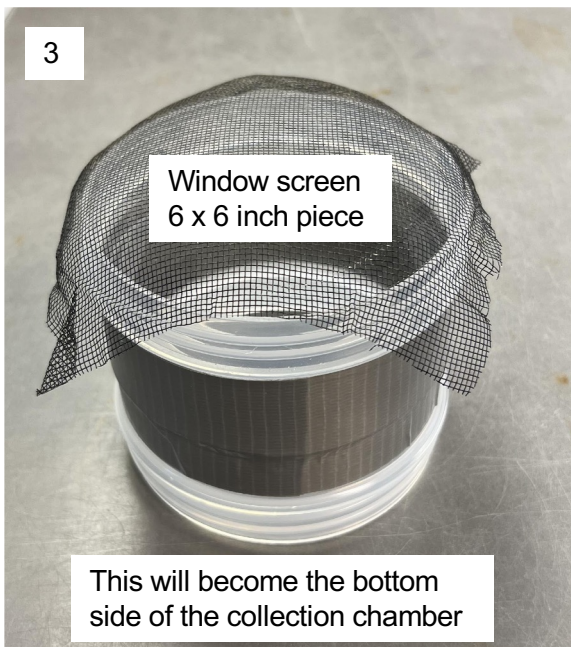


Modified Capture Chamber for CDC Miniature Light Trap for Collecting Biting Midges (no-see-ums)

1. Cut bottoms from 2 collection chambers, then...
2. Join together with duct tape (or other durable tape) so that threads are on tops and bottoms of chamber.

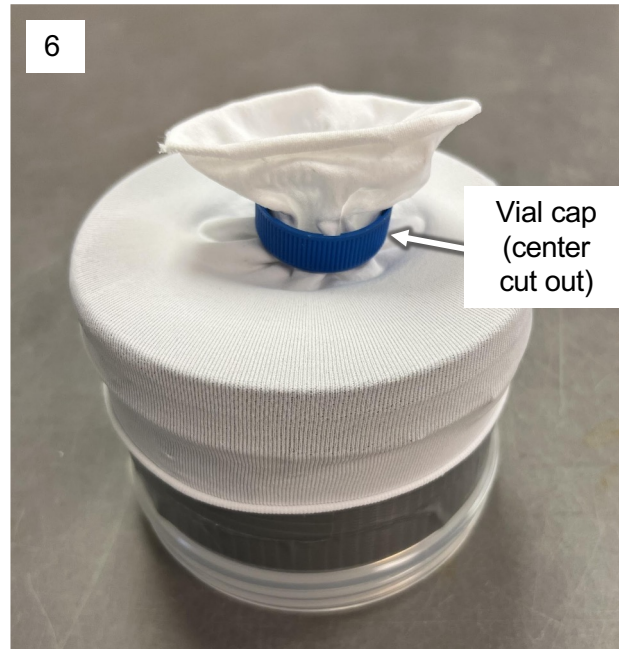


3. Place window screen on one end of chamber, then...
4. Slide stocking over window screen.

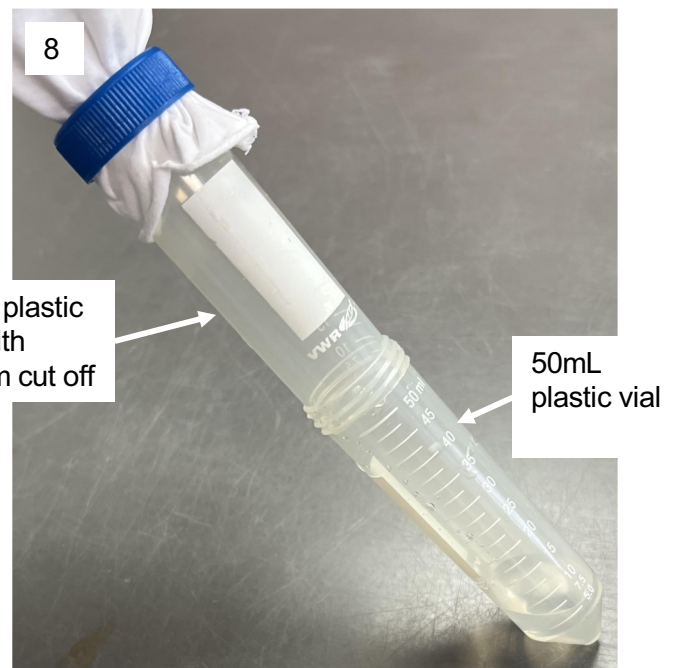
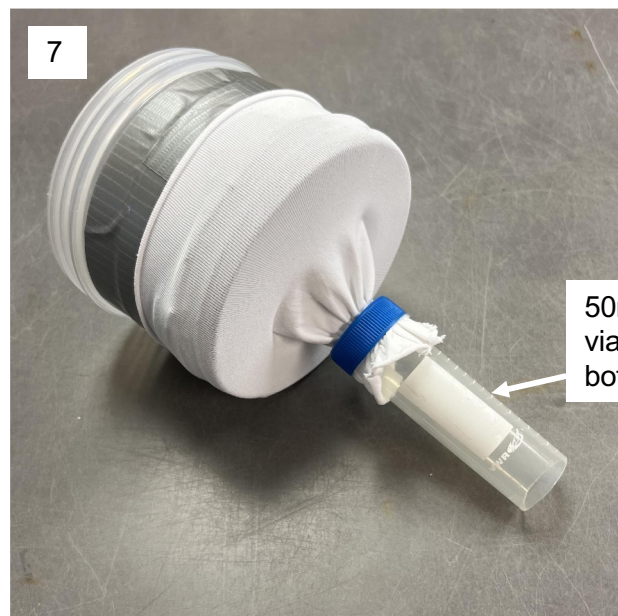


Modified Capture Chamber for CDC Miniature Light Trap for Collecting Biting Midges (no-see-ums)

5. Screw the cutout chamber lid into place over the cloth funnel, then...
6. Slide the cutout plastic vial cap over the narrow end of the cloth funnel.



7. Screw plastic vial into cut-out cap (blue). The bottom of this vial should be cut off.
8. Attach 2nd vial with alcohol (when in field).



Having the bottom of this vial cut off allows easy placement and removal of another vial with alcohol in the field.

A Method for Making a Hole in Cap of Conical Vial

1. Fill a vial fully with water, then screw on the cap.
2. Put the capped vial in the freezer. When the water freezes it will expand and burst the top of the cap from the threaded ring.



3. Your cap is now ready for trap construction (See Step 6).

PVC pipe cutters (like those pictured below) can be used to cut the bottom off conical vials. PVC pipe cutters can be purchased at any hardware store. Use safety gloves and eye protection.



**Modified Capture Chamber for CDC Miniature Light Trap for Collecting
Biting Midges (no-see-ums)**



View from
top (inside)

Mosquito and no-see-um sampling using the CDC Miniature Light Trap

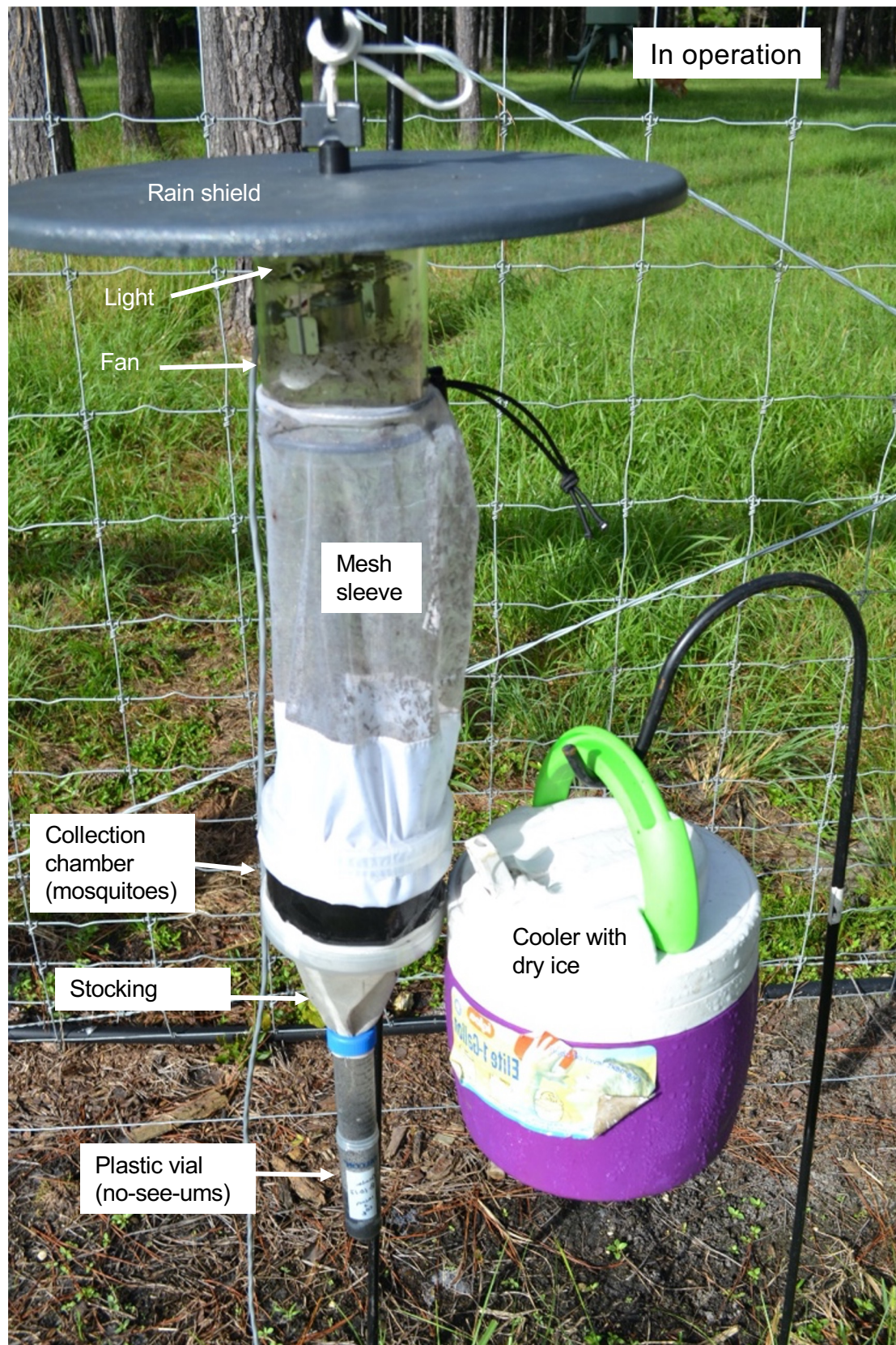
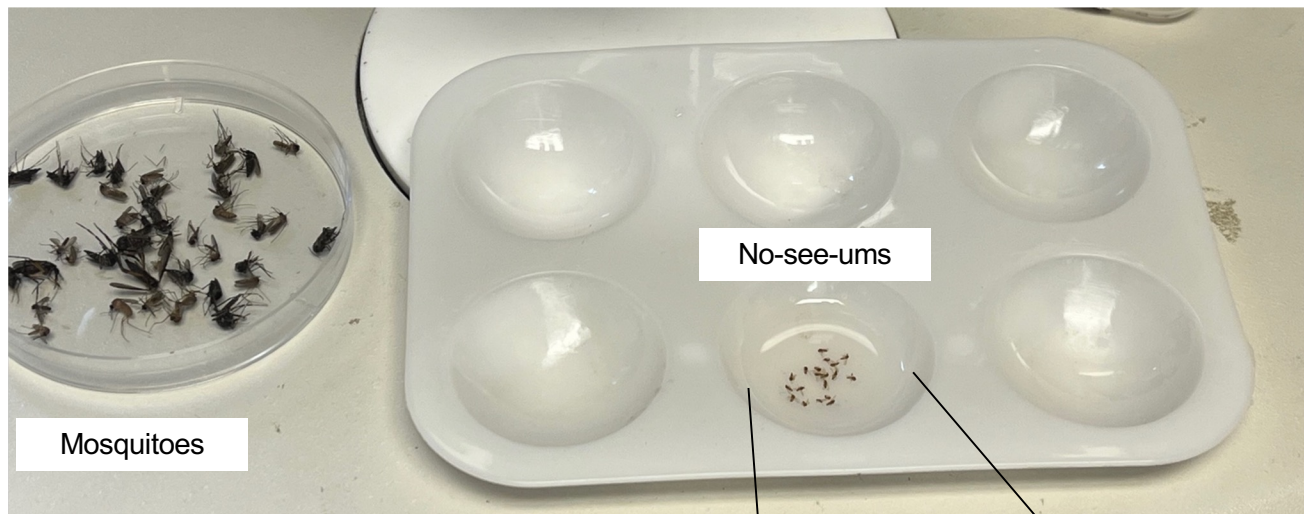


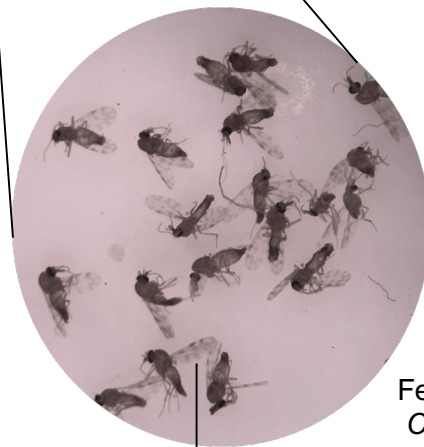
Photo by K. Sloyer

Handling and preserving mosquitoes and no-see-ums

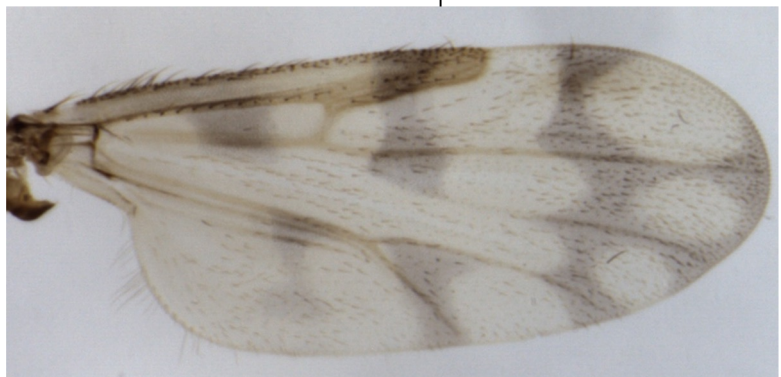
- Mosquitoes and no-see-ums are handled and preserved differently in the laboratory
- Mosquitoes are often handled “dry”, while no-see-ums are often handled “wet”, usually in alcohol (isopropyl alcohol or ethanol).



- No-see-ums are principally identified by patterns of dark and pale spots on their wings. These patterns are best observed in alcohol preserved or slide mounted specimens.

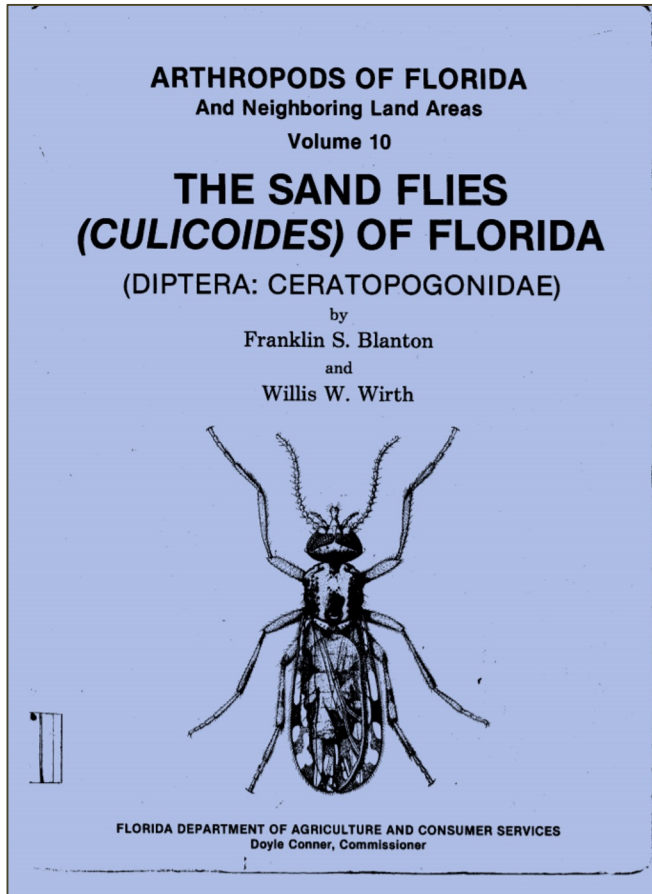


Females of
Culicoides
mississippiensis



Culicoides mississippiensis wing

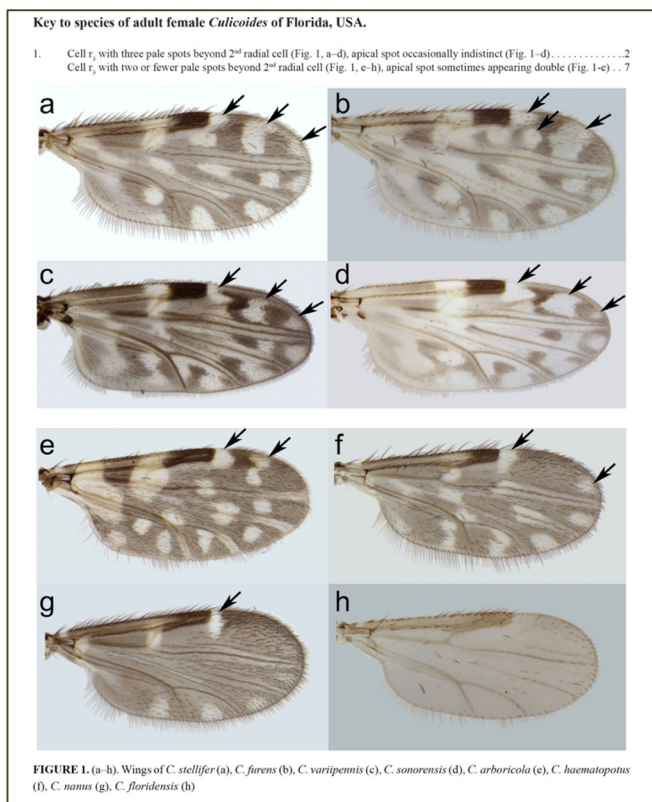
Resources for no-see-um identification in Florida



Blanton FS, Wirth WW. 1979. The sand flies (Culicoides) of Florida (Diptera: Ceratopogonidae). Arthropods of Florida and Neighboring Land Areas; Volume 10. Florida Department of Agriculture and Consumer Services. Gainesville, FL. 204 pg. <http://palmm.digital.flvc.org/islandora/object/uf%3A46466#page/cover/mode/1up>

Comprehensive resource on no-see-ums in Florida, with chapters on

- Historical and economic importance
- Disease transmission
- Control measures
- Biology
- Colonization
- Morphology
- Classification
- Key to species (not illustrated)
- Diagnostic tables
- Species descriptions (with maps)
- Plates (wing atlas)



Blosser EM, McGregor BL, Burkett-Cadena ND. 2024. A photographic key to the adult female biting midges (Diptera: Ceratopogonidae: Culicoides) of Florida, USA. Zootaxa. 5;5433(2):151-82. <https://mapress.com/zt/article/view/zootaxa.5433.2.1>

A photographic key to adult females with synopsis of important information

- Morphology
- Classification
- Key to species - photographic
- Summary of medical and veterinary importance

Parts and suppliers

UF / FMEL does not endorse these or other products

Prices are approximations



32 oz. Natural or white Polypropylene Straight-Sided Round Jar with 120/400 Neck (Cap Sold Separately)

Vendor: United States Plastic Corp (Item 70264)

Dimensions: 4.49" Dia. x 3.833" Hgt.

Price: \$2.50/Each

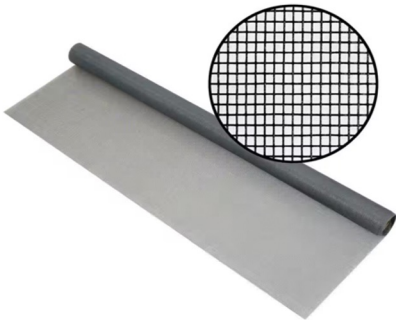
120/400 White Ribbed Polypropylene Cap with F217 Liner

Vendor: United States Plastic Corp

Item 66215

In Stock

Price: \$1.25/Each



36 in. x 84 in. Charcoal Fiberglass Screen

Vendor: Home Depot Item 66215

Mesh Size: 18 x 16

Price: \$9.00/roll

Durable White stockings / tights

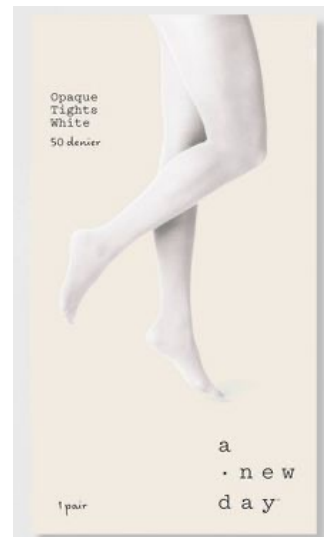
Vendor: Target

50 denier

UPC: 829576950829

Item Number (DPCI): 025-00-0470

Price: \$9.00/pair



50mL Polypropylene Centrifuge Tubes with Caps

Vendor: United States Plastic Corp

Item 76941

In Stock

\$243.99/Case of 500

John W. Hock Company sells a product called the "1.20 - Killing Jar and Assembly" that may be useful for capturing no-see-ums with light traps.

<https://www.johnwhock.com/products/accessories-options/>

End of document

Protocol: Burkett-Cadena Lab (University of Florida, USA)