

# Mosquito Trapping and Handling Protocol

(4/29/05)

1. **CDC CO<sup>2</sup> Baited Light Traps:** Used to capture female mosquitoes seeking a blood meal (i.e., *Cx. tarsalis*)
  - 1.1 Depending on humidity and temperature, bait trap w/ 2 – 3 lbs. of dry ice per night of trapping.
    - Dry ice can be placed in a large padded **manila envelope** (no holes!), tightly wrapped in **newspaper**, insulated, plastic **thermos jug** w/ holes drilled in bottom (keep spout open when using to keep condensate from freezing and plugging holes), or insulated, re-usable, **nylon lunch bag** w/ holes punched in bottom.
    - If using a plastic, insulated, thermos jug or insulated nylon lunch bag, the light trap can be suspended from the bottom of jug or lunch bag, which in turn is suspended from the tree limb via its handle.
    - If using a padded envelope or newspaper, suspend the dry ice just above the trap.
  - 1.2 Placement and setup considerations:
    - Protection from morning sun.
    - A 13 gal. plastic trash bag with a hole cut in the bottom to fit over the trap body, fan, etc. and placed over the collection net will protect mosquitoes from rain.
    - Place trap set-up **away** from competing light sources (non-full moon nights best), smoke / fume emitting areas (e.g., industrial plants), areas of high wind, and public view and away from livestock
    - Place trap in an open area **near** good mosquito resting surfaces (e.g., abundant vegetation (i.e., trees, shrubs, sheds, stables, sewers/culverts, etc.) and / or areas where birds congregate (e.g., grain storage, livestock feeding areas, etc.).
  - 1.3 Place light trap 5' – 6' above the ground.
  - 1.4 Recommend running traps a minimum of 2 consecutive nights to maximize catch and minimize the influence of adverse weather.
- 2 **Gravid Traps:** Used to capture female mosquitoes seeking to oviposit (i.e., *Cx. pipiens complex*).
  - 2.1 Trap baited w/ an infusion of water, fresh horse/cow manure, and straw/hay.
    - **Infusion recipe:** softball size amount of fresh horse/cow manure, an algaecide such as Microbe-Lift (*Industrial* formulation) ([www.microbelift.com](http://www.microbelift.com)), a handful of straw/hay per gallon of water and let ferment for approx. 4 to 5 days.
    - Infusion in the gravid trap will require changing when it begins to produce its own mosquitoes.
    - Fill trap infusion reservoir / tub to within 1" to 1.5" of bottom of vertical suction tube.

- Suggest an overflow hole be drilled into the wall of the reservoir tub at the maximum infusion level to keep the level of the infusion below the suction tube (i.e., rain).
- To maintain consistency of the infusion from week to week, it is recommended that you save the infusion by placing it back in the bulk container it was fermented between uses.
- To avoid creating a mosquito-breeding source, the infusion can be treated w/ Bti.

#### 2.2 Placement considerations:

- Protection from the morning sun
- A 13 gal. plastic trash bag placed over the collection net will protect mosquitoes from rain. Place holes in bag to allow air to vent out.
- Place near mosquito resting areas (e.g., abundant vegetation, outbuildings, sheds, sewers/culverts, etc.), areas where birds congregate (e.g., grain storage, livestock feeding areas, etc.), and / or near oviposition sites, but not near enough that such sites compete (e.g., adjacent to a livestock water tank).

2.3 Traps must be run a minimum of 2 nights to maximize catch and minimize the affects of adverse weather conditions.

### 3. Trap Collection:

- 3.1. Collect traps early A.M. to minimize damage and morbidity to captured mosquitoes. Harvest your catch by pinching off the capture net while the fan is still running.
- 3.2. On a piece of white medical tape, identify the capture net with trap I.D., location / site I.D., collection date, method of collection (i.e., light trap vs. gravid trap) and collector's name and stick it on the net for later reference.
- 3.3. After the mosquitoes are anesthetized or killed, transfer them from the collection nets to specimen tubes identified by trap site and freeze on dry ice. Recommend contents of collection net be emptied into a white, plastic tray where mosquitoes are separated from non-mosquito captures and placed into the specimen vial. Anesthetized mosquitoes will stay down for approximately 10 min. during the transfer process.
- 3.4. Complete the "***Field Arthropod Collection Record***" form or similar data sheet that will identify the sample collection and other pertinent data. Forms should include the following data fields: Trap I.D., Date Collected, Trap Location, Site I.D.#, Trap Method (light trap, gravid trap, etc.), Collected by, and a remarks field (optional) to record pertinent information, e.g., *light bulb out, batteries dead, etc.* (see 3.2).
- 3.5. At the lab / sorting facility, identify and sort mosquitoes into pools (max. **50** mosquitoes per pool) by species. Speciating and pooling mosquitoes should be done as soon as possible to minimize damage to mosquitoes (e.g., broken parts, missing legs, desiccation, loss of scales, etc.).
- 3.6. Record mosquito identification information on the Laboratory Services Division (LSD) ***Request for Analytical Services*** form that records the following information: Assigned Pool I.D. #, Collection Date (mm/day/yr), County,

Site/Trap I.D., Trap Method (light, gravid, etc.), Genus, Species, Pool size, and Remarks (optional).

- 3.7. Complete the *LSD Request for Analytical Services* form and adding an “S”, “F”, or “P” prefix to the lab collection ID number on the provided stickers to designate the pool as coming from a *sentinel*, *floater*, or *permanent* trap.
- 3.8 Submit sorted *Culex* mosquito pools with the completed ***Request for Analytical Services*** form to the appropriate laboratory for testing.
- 3.9 Mosquito pool submissions **do not** require refrigeration during shipment to the lab. However, if mosquito pools are not going to be shipped to the lab the same day, they should be kept refrigerated until they are shipped. All submissions should be shipped via FedEx, bus line, or UPS to:

Laboratory Services Division (LSD)  
Attn: Hugh Maguire  
8100 Lowry Blvd.  
Denver, Colorado 80220

- 3.10 For sentinel trap operated in **Mesa**, **Moffat**, and **Delta** counties, *Culex* pools shall submit their pools to:

State Lab  
Attn: Labertta Cano  
510 29½ Rd.  
Grand Junction, Colorado 81504

**Note:** The above laboratory services apply to *Culex* spp. mosquitoes collected at **Sentinel Trap Sites, Floater Traps, and Permanent Trap** *Culex* pools collected **before July 1<sup>st</sup>**.

**Note:** *Culex* pools collected from **Floater and Permanent Traps** **after July 1<sup>st</sup>** will be submitted to the appropriate regional laboratory for VecTest® analysis. All sentinel trap pools will be submitted to the Laboratory Services Division (LSD).

**Caution:** Do not ship samples after Thursday or the day before a holiday to avoid having them delivered over the weekend or on a holiday.

**Note:** there are no requirements to mark the package as a biohazard since it is not known if any of the mosquitoes are infected. In the event it is known that the samples are infected / infective, then appropriate biohazard markings and other considerations would be appropriate.