

# Telediagnosis of New World screwworm

## Image Submission Guidelines for Healthcare Providers and Laboratorians

### Assistance from CDC's Diagnostic Parasitology Laboratory (DPDx)

Contact [dpx@cdc.gov](mailto:dpx@cdc.gov) to request telediagnosis submission instructions for a suspected NWS case.

- Provide your name and institutional affiliation in the request email. **Do not include patient identifiers in the email.**
- DPDx will respond with instructions and a unique secure upload link.

### Collect and Preserve Specimens

Standard biosafety precautions for working with clinical specimens, such as gloves, are adequate.

- Collect a representative sample of larvae from a single infestation, including larvae in multiple stages (i.e., instars) or belonging to multiple species if present.
- Place all larvae in a single vial. Collect at least 10 larvae. If there are fewer than 10, collect them all. Place the larvae in a leakproof vial with just enough alcohol to cover them.
- Store and transport larvae in alcohol, either 70% ethanol (preferred) or  $\geq 70\%$  isopropanol. Collect the remaining larvae and eggs in a separate leakproof container, submerge them in alcohol, place the container into a zip-top plastic bag, and seal it. Dispose of the sealed bag as biohazardous waste.

### Stop the Spread of NWS

**Do not throw any live larvae or eggs in the trash or outside on the ground as this could result in establishment of NWS populations in the local area.**

### Photographs Necessary for Identification of Fly Larvae

1. A top-down (dorsal) view of the posterior half of the larva showing the tracheal tubes (**Figure 4**). Use **Figure 1a** to identify the dorsal side based on the orientation of the mouthparts, which curve downward.
2. An end-on view of the anal segment, with spiracular plates in focus (**Figure 1b, 3b**). You will need a microscope to capture sufficient detail of this feature.
3. A whole-larva view next to a ruler or standard-size object such as a coin (**Figure 2**).

Photograph multiple larvae and different instars if collected. Place them in a dish of alcohol while capturing images. To keep the larva in place with its head pointed down during photography, make a simple support out of a manila file folder, business card, or other stiff piece of paper (**Figure 3a**).

- Cut the paper into a rectangle, fold it lengthwise, then cut a small opening into the crease.
- Use paper sturdy or thick enough to provide support even while immersed in alcohol.

### Photo Do's

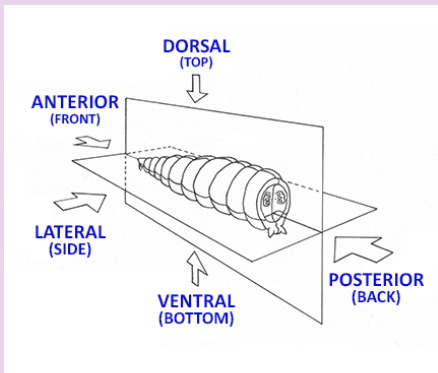
- Use a dissecting microscope (stereomicroscope). Even without a dedicated camera, adequate photos can be obtained by holding a phone camera up to the eyepiece. Figure 3b was captured using this method.
- Be persistent until you get clear, in-focus, high-resolution photos.
- Take multiple photos. There is no limit on the number and size of images you can upload for review.

### Photo Don'ts

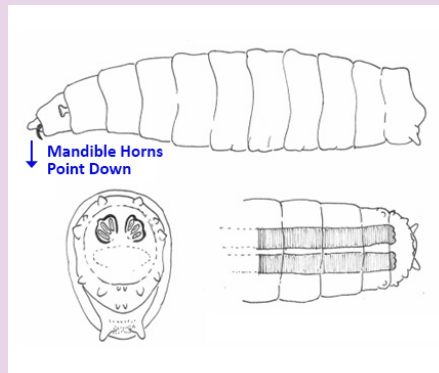
- Photograph larvae through the side of a specimen container.
- Include patient identifiers in image file names, or in the text of any email to CDC.



# Figures



**Figure 1a** Diagram of larva with terms: dorsal/ventral, anterior/posterior.



**Figure 1b** Diagram of anal spiracular plate.



**Figure 2** Obtaining a whole-organism image with a size reference.



**Figure 3a** The simple support allows you to orient the fly larva with the head down and posterior segment facing up toward the microscope lens.



**Figure 3b** Photograph with both spiracular plates in clear focus and in the same plane.



**Figure 4** Top-down (dorsal) photo showing the presence or absence of dark tracheal tubes.  
*Photo courtesy of USDA.*

## Shipping

In some instances, the initial review by telediagnosis may not achieve a confirmatory species identification. If so, DPDx will instruct you to ship the specimen to CDC or the [jurisdictional public health laboratory \(PHL\)](#) for direct examination following the steps below.

- Contact your [state, tribal, local, or territorial PHL](#) to coordinate submission. Ship the specimen directly to CDC or the PHL, as directed.
- Using an alcohol-proof label, mark the vial with two or more unique identifiers, matching the submission form identifiers (patient's name, sex and date of birth, hospital specimen ID).
- Follow instructions sent by DPDx to complete the submission form and enclose it in the outer portion of the package.
- Wrap the lid of the specimen vial with parafilm or tape.
- Enclose the vial in a sealed plastic bag.
- Put the bag in the package with enough cushioning to protect the vial from impact during transit.
- If sending to CDC, ship the specimens at room temperature to the address provided here.

### Shipping address

CDC STAT LAB  
(Attn Unit 52)  
1600 Clifton Rd NE  
Atlanta GA 30329