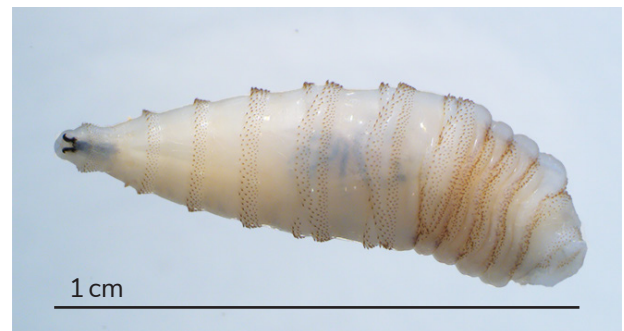
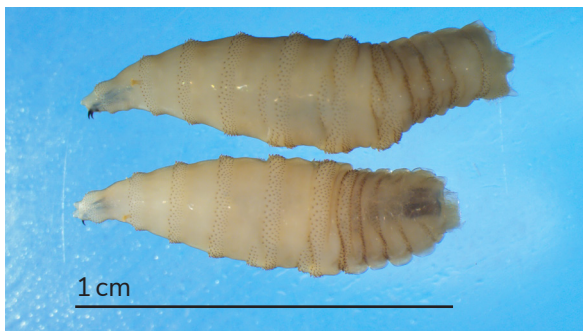


# Lab Identification of New World screwworm

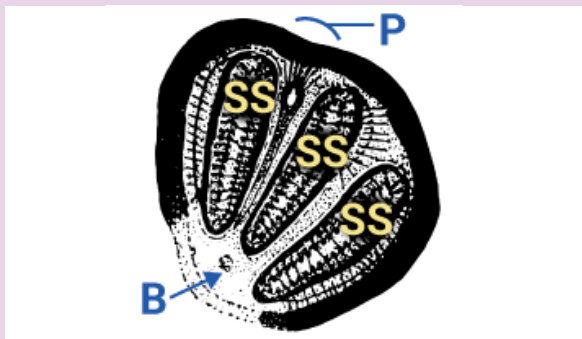
## Diagnostic Features of the Third-Instar Larva

Distinguish *C. hominivorax* larvae from other species associated with incidental, facultative wound myiasis. Identify third-instar larvae to species level using a few key features

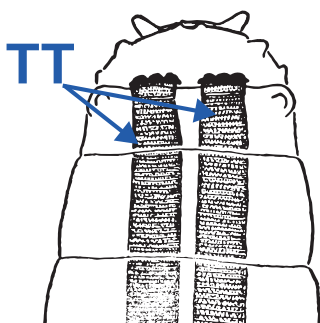
**General appearance** Maggots are usually 6.5 – 17 mm long, muscidiform (tapering anteriorly and truncated posteriorly) in shape, with encircling bands of short 1-, 2-, and 3-pointed spines on each body segment. Images below show gross appearance of *C. hominivorax* third-instar larvae; Lateral view (left image, top), dorsal view (left image, bottom), and ventral view showing mandibles (right image).



The spiracular plate of a third-instar *C. hominivorax* larva, showing the peritreme (P) becoming indistinct (“incomplete”) in the region of the button (B), which may be very indistinct. The three spiracular slits (SS) are roughly parallel and straight. Illustration: Adapted from D.G. Hall, *The Blowflies of North America* (1948).



**Special features** Tracheal trunks leading from posterior spiracles pigmented (dark brown to black), with pigmented portion extending anteriorly across at least two full body segments. Peritreme of posterior spiracle incomplete, not enclosing the button (which is usually indistinct).



Dorsal posterior view of the darkly pigmented tracheal trunks (TT) which extend internally from the spiracular plates. In other myiasis-associated fly species these tubes are clear or translucent. Illustration: Adapted from M.T. James, *The Flies That Cause Myiasis in Man* (1947).



# New World screwworm

## Life Cycle and Biology

The larvae (maggots) of the New World screwworm fly, *Cochliomyia hominivorax*, are obligate parasites of living flesh in warm-blooded animals. Female flies oviposit on or near pre-existing wounds, even wounds as small as an insect bite, or on mucous membranes inside the eyes, nose, mouth, and ears. Eggs hatch into larvae which burrow into the tissue and feed on the living flesh. After approximately 7 days, the larvae drop from the host and pupate in soil. The adult screwworm fly emerges from the soil after 7 – 54 days depending on temperature and humidity.

NWS is endemic to South America and some Caribbean islands. Since 2023, NWS has steadily spread northward through Central America and Mexico, resulting in infestations in animals and people in the region. Human cases in the United States and other NWS-free countries have occurred in travelers returning from affected countries. Most infestations occur in animals, but NWS can also infest humans. People who spend time outdoors where NWS flies are present are at greater risk for infestation, especially those with open wounds or who sleep outdoors. Untreated infestations or delays in treatment can result in severe tissue destruction and secondary infections and are potentially fatal.

## Preparing Specimens

Collect all suspected New World screwworm larvae and place in a leak-proof container with  $\geq 70\%$  ethanol (preferred) or  $\geq 70\%$  isopropanol. The volume should be sufficient to fully submerge larvae to kill and preserve them for species identification. If neither ethanol nor isopropanol is available, 5 – 10% formalin is acceptable but not preferred because it alters the opacity of specimens and interferes with molecular methods used for larval speciation.

## Contact Information

Please contact [dpdx@cdc.gov](mailto:dpdx@cdc.gov) for laboratory testing inquiries, instructions for telediagnosis image submission, and physical specimen submissions. Direct human clinical inquiries and patient management questions to [parasites@cdc.gov](mailto:parasites@cdc.gov).

**Report both human and animal infestations immediately.** Clinicians and laboratory professionals should report any suspected human cases immediately to their [local or state epidemiologist \(Epi-on-Call\)](#). Veterinarians should report any suspected animal cases immediately to their [state animal health official](#) and [APHIS office](#).

## Stop the Spread of NWS

**Do not throw any live maggots or eggs in the trash or outside on the ground as this could result in NWS spreading in your area.**