



# Resurgence of New World Screwworm in the Americas: What Healthcare Providers Need to Know

Clinician Outreach and Communication Activity (COCA) Call

Thursday, October 17, 2024

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- Instructions for how to earn continuing education will be provided at the end of the call.

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- Content will not include any discussion of the unlabeled use of a product or a product under investigational use with the exception of Dr. Rebecca Chancey's discussion of anecdotal reports of using ivermectin in off-label treatment of NWS infestations in humans. However, there are no controlled, double-blind studies measuring the impact of ivermectin use on myiasis. At this time, it is not a CDC recommended treatment for NWS. In addition, Mark Fox and Dr. Susan Montgomery who will be participating in the Q & A session, will also discuss this, if requested.
- CDC did not accept financial or in-kind support from ineligible companies for this continuing education.

# Objectives

At the conclusion of today's session, the participant will be able to accomplish the following:

1. Explain the life cycle of *Cochliomyia hominivorax* and why the larvae are a threat to animal and human health.
2. Describe the current epidemiological situation in Central America.
3. Summarize how to identify and treat infestations.
4. Outline how to report human and animal cases.

# To Ask a Question

- Using the Zoom Webinar System
  - Click on the “Q&A” button
  - Type your question in the “Q&A” box
  - Submit your question
- If you are a patient, please refer your question to your healthcare provider.
- If you are a member of the media, please direct your questions to CDC Media Relations at 404-639-3286 or email [media@cdc.gov](mailto:media@cdc.gov).

# Today's Presenters

- **Rebecca Chancey, MD**

Medical Officer

Division of Parasitic Diseases and Malaria

National Center for Emerging and Zoonotic Infectious Diseases

Centers for Disease Control and Prevention

# Resurgence of New World Screwworm in the Americas: What Healthcare Providers Need to Know

Rebecca Chancey, MD

Division of Parasitic Diseases and Malaria

U.S. Centers for Disease Control and Prevention

COCA Call

October 17, 2024



Image courtesy of Mark Fox, CDC

# BLUF: Bottom Line Up Front

- **An ongoing outbreak of New World screwworm (NWS) in Central America with recent northward spread poses a threat of reintroduction into the United States.**
- **New World screwworm causes significant morbidity in patients and can also contribute to mortality.**
- **There have been cases of returned travelers to the U.S. from endemic areas.**
- **New World screwworm is a significant economic pest of livestock.**

# New World Screwworm (*Cochliomyia hominivorax*) Flies



Image courtesy of Denise Bonilla, U.S. Department of Agriculture

- **NWS adult flies are about the size of a common housefly, or slightly larger.**
- **The fly has orange eyes, metallic blue or green body, and three darker longitudinal stripes down the back.**
- **Female flies lay eggs directly on existing wounds or exposed mucous membranes.**

# New World Screwworm (*Cochliomyia hominivorax*) Larvae

- The term screwworm refers to the screw-like shape of the larvae and the way the larva burrows into the flesh.
- Larvae are obligate parasites consuming *living flesh*.
- Hundreds of eggs are deposited leading to extensive tissue destruction, debilitation, and risk of death.
- Primarily a pest of livestock but can also infest humans and other animals.

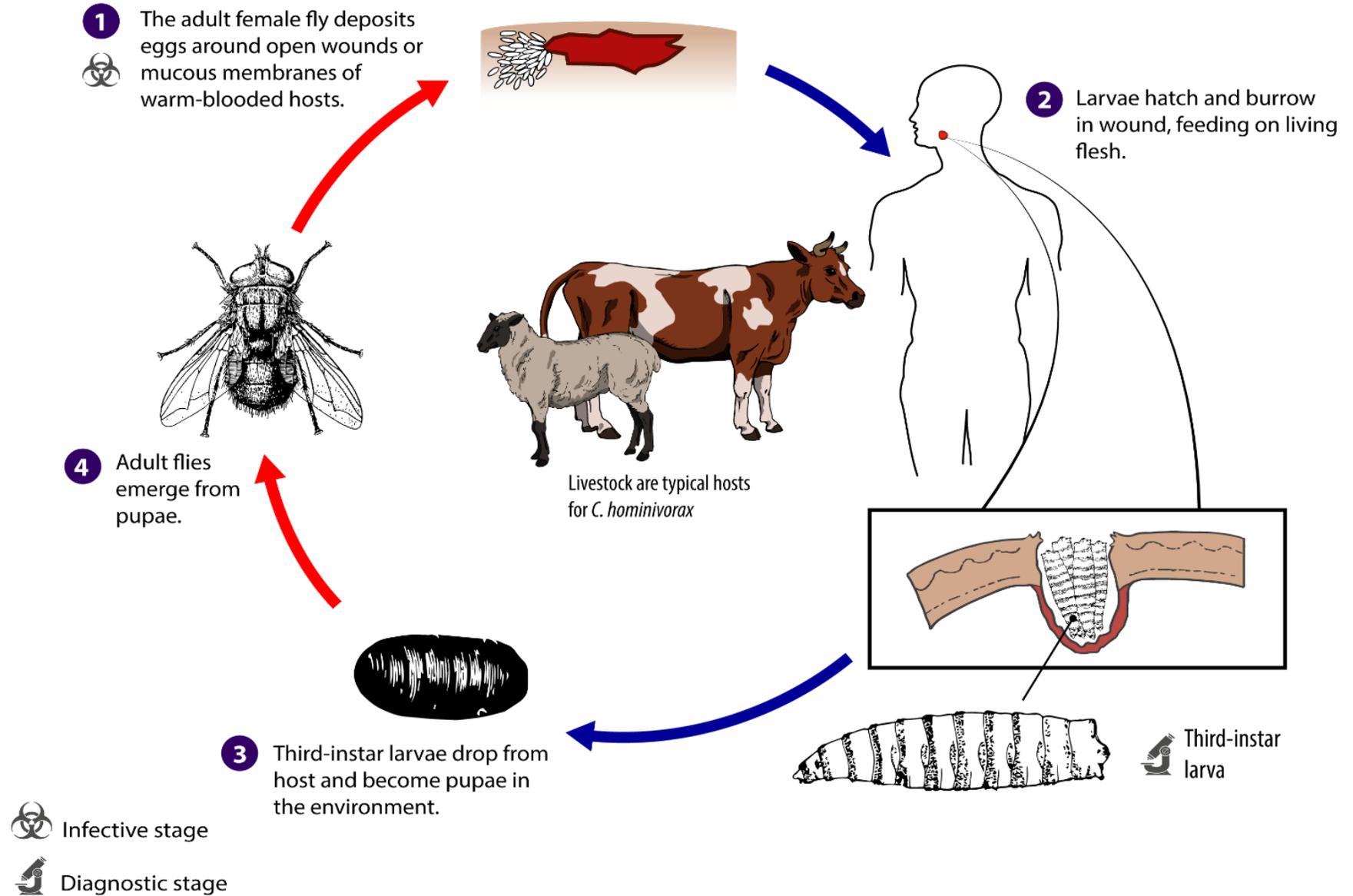


Image courtesy of Mark Fox, CDC

# NWS Lifecycle

**Key Fact:** Larvae emerge within 24 hours and can persist in tissue for up to 7 days

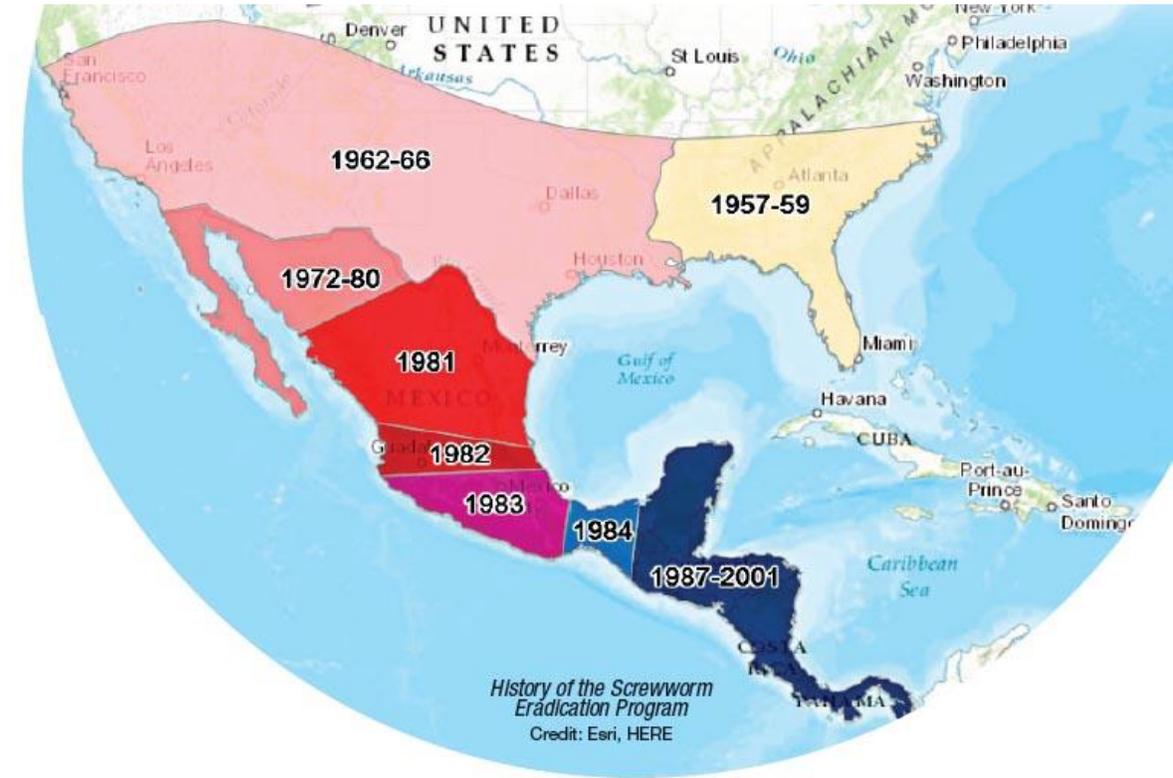
## *Cochliomyia hominivorax*



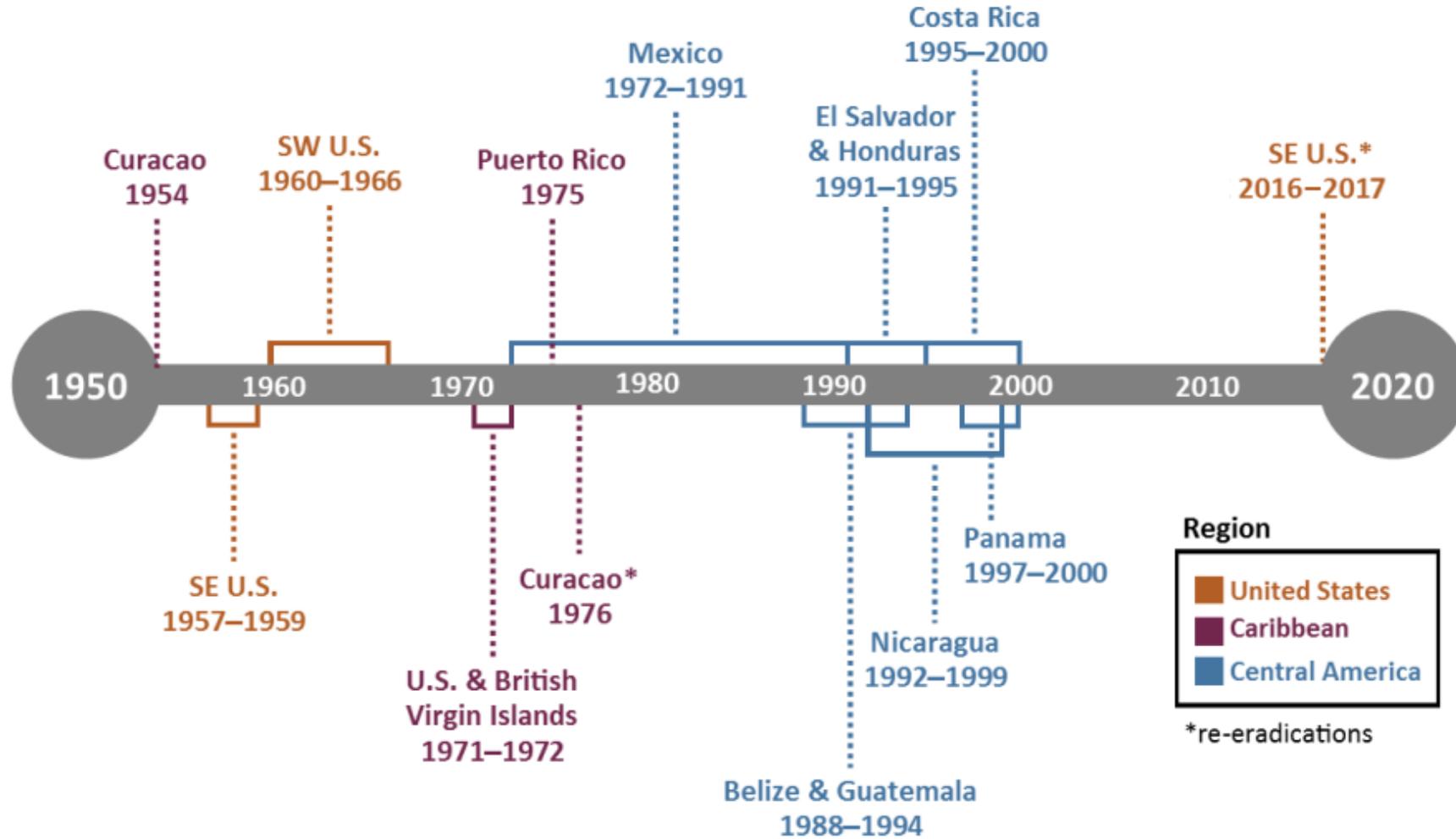
# **History of New World Screwworm Eradication and Reintroductions**

# History of New World Screwworm

- Formerly a significant economic pest of livestock in U.S.
- Eradication strategy developed by USDA relies on release of sterile male flies.
  - One fly production plant in Panama.
- Eradicated from the U.S. since 1966 with re-eradication in 2017 after reintroduction.
  - USDA estimates that eradication of NWS in the U.S. saves ranchers and farmers \$900M lost livestock per year.
- New World screwworm was declared eradicated in Panama in 2006.



# NWS Eradication in North and Central America



Dates from Vargas-Teran et al. (2005). "Impact of Screwworm Eradication Programmes Using the Sterile Insect Technique." In Dyck et al. *Sterile Insect Technique: Principles and Practices in Area-Wide Integrated Pest Management*, 629-250.

# Threat of Reintroduction From Travelers to Endemic Regions

## Travelers to the U.S. with NWS infestations

- **2014:** infested traveler returned to WA after vacation in Dominican Republic
- **2023:** infested traveler with surgical wound returned to AR from Argentina and Brazil
- **2024:** infested traveler returned to FL after vacation in the Dominican Republic



The image on this slide is not from a case listed here; this image is from Johanna Osorio et al., Role of Ivermectin in the Treatment of Severe Orbital Myiasis Due to *Cochliomyia hominivorax*, *Clinical Infectious Diseases*, Volume 43, Issue 6, 15 September 2006 and is provided for demonstration purposes.

# New World Screwworm Outbreak in Key Deer - 2016



Image courtesy of Samantha Gibbs, U. S. Fish and Wildlife Service.

- **Local outbreak in Key Deer in Florida Keys in 2016.**
- **Elicited immediate, large multi-agency response.**
  - 539 total deployments among 350 individuals.
  - 188 million sterile flies released across 35 release sites.
  - 20 medication sites with over 15,500 individual doses of medication applied to at-risk deer.
- **Re-eradicated in 2017.**
- **Source of outbreak never identified.**

# Knowledge Check #1

Which of the following statements about the New World screwworm life cycle is correct?

- A.** Screwworm eggs take up to 7 days to hatch.
- B.** Eggs are laid on unbroken skin, and newly hatched larvae burrow into skin, creating a lesion.
- C.** Screwworm larvae feed for up to 7 days while maturing within a wound or lesion, before dropping off into the ground.
- D.** Adult female flies can only lay a few eggs at a time.

# Knowledge Check #1 - Answer

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# Current Outbreak in Central America

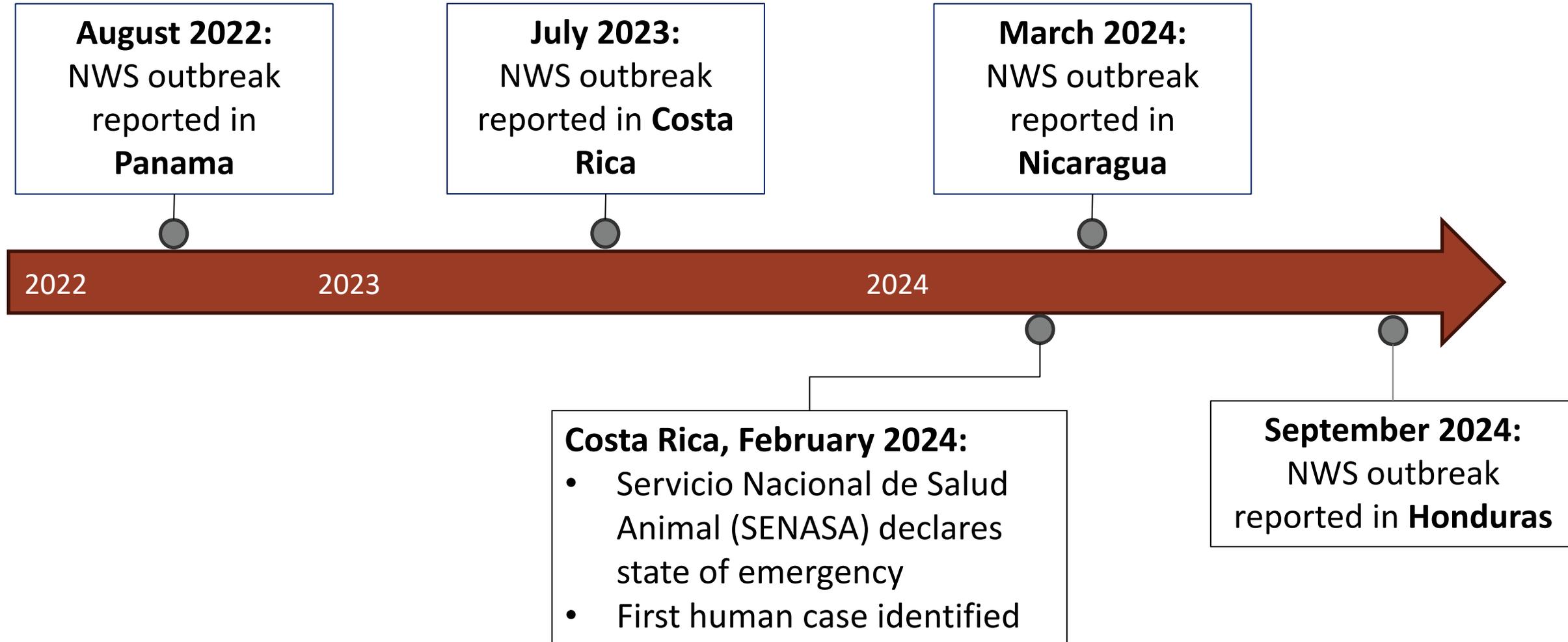
# Current Outbreak of New World Screwworm

- The biological barrier was previously maintained at the Darién Gap to prevent northward spread of New World screwworm.
- Resurgence of New World screwworm beyond this biological barrier is likely multifactorial.



Map courtesy of USDA APHIS [screwworm\\_rrg.pdf \(usda.gov\)](#)

# Outbreak Timeline



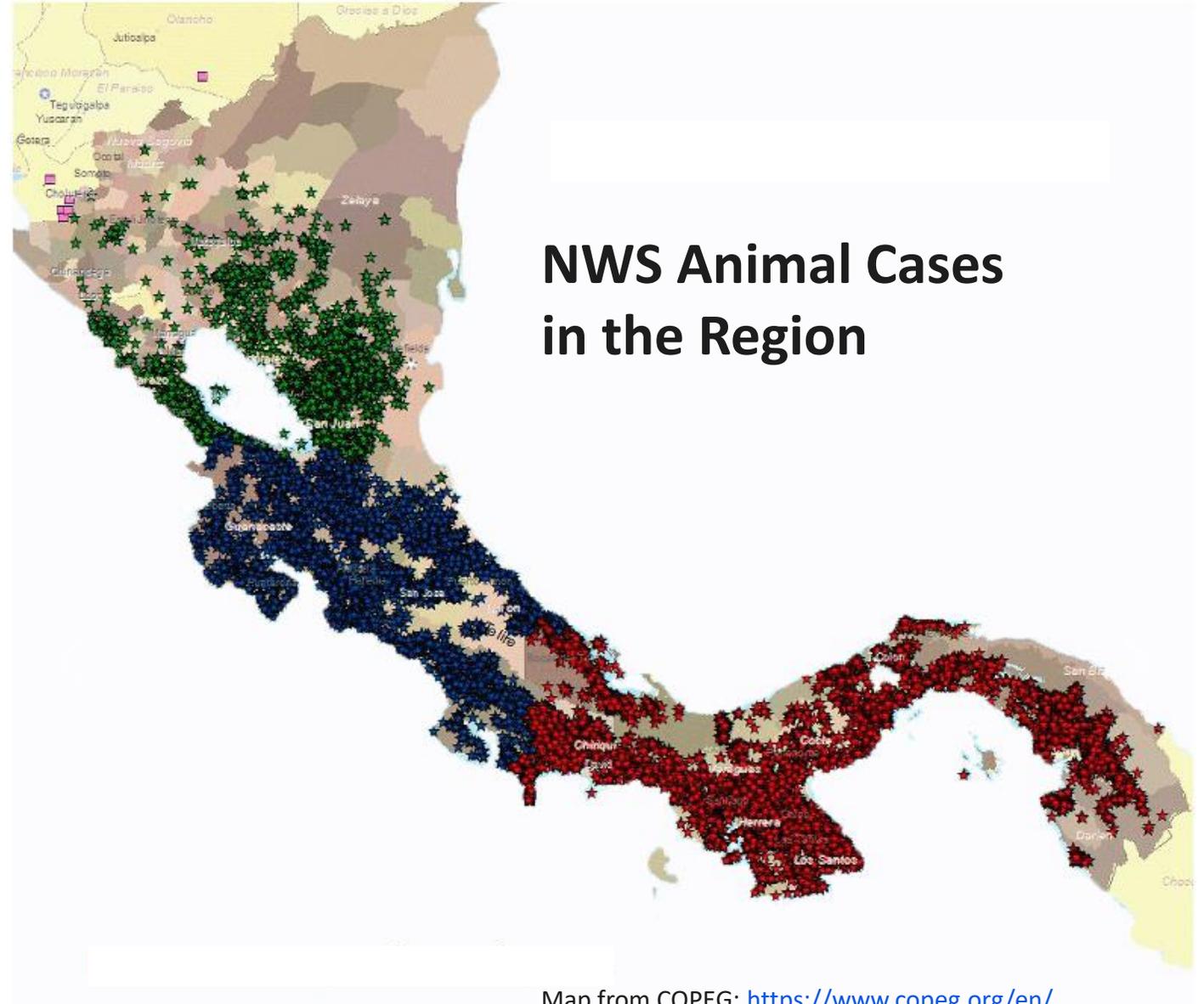
# Current Situation

## Animal cases (as of 10/10/24)

- Panama: 18,553 ★
- Costa Rica: 8,671 ★
- Nicaragua: 3,307 ★
- Honduras: 15 ■

## Human cases (as of 10/10/24)

- Panama: 79
- Costa Rica: 33
- Nicaragua: 2
- Honduras: 0



# Challenges with Containment of New World Screwworm

- **Varied topography makes surveillance difficult.**
- **Indigenous communities live in hard-to-reach areas.**
- **Communication across language barriers is challenging.**
- **Inadequate wound care for animals predisposes them to infestation.**
- **Transportation of animals through irregular and unmonitored checkpoints is ongoing.**

# Control Efforts Underway in Central America

- **Aerial and ground releases of sterile male flies are ongoing.**
  - Continual evaluations/updates to fly strain.
- **Field surveillance.**
  - Visits to farms.
  - Animal control checkpoints.
- **Health education campaigns.**
  - Communities and livestock producers.
  - Human healthcare providers and migrant health workers.
  - Veterinarians and wildlife management.
- **Message sharing app (WhatsApp) reporting line for the public.**

# CDC Partner Coordination

- **U.S. Department of Agriculture-Animal and Plant Health Inspection Service (USDA-APHIS)**
- **U.S. Department of State**
- **Pan American Health Organization (PAHO)**
- **U.S. Agency for International Development (USAID)**

# Clinical Considerations

# Differential Diagnosis Including Other Causes of Myiasis in the United States

- **NWS is an obligate parasite that consumes and damages **healthy tissue**.**
- **Other obligate myiasis flies are endemic to the United States. They are all veterinary or wildlife pests, but some may affect humans in rare cases.**
  - Sheep ked, horse bot fly, rodent bot fly, warble flies, etc.
- **Facultative (or “opportunistic”) myiasis is much more common in the United States.**
  - Often associated with people who are bedridden or otherwise unable to clean themselves or protect sores and wounds.
  - Common house fly is one example.
  - May morphologically resemble New World screwworm larvae.
- **Morphologic diagnosis of larvae is critical to correctly identify species causing infestation.**

# Human Bot Fly (*Dermatobia hominis*) is Also Present in Central America

Human bot fly lays eggs on blood-sucking arthropods; single larva is transferred.

- Individual/few lesions on exposed skin.
- Infestation remains subdermal.
- Itching, pain, movement sensation.



Image from Francesconi & Lupi. CMR 2012;25: 79-105

# Correct Diagnosis is Critical to Inform Treatment and Public Health Response

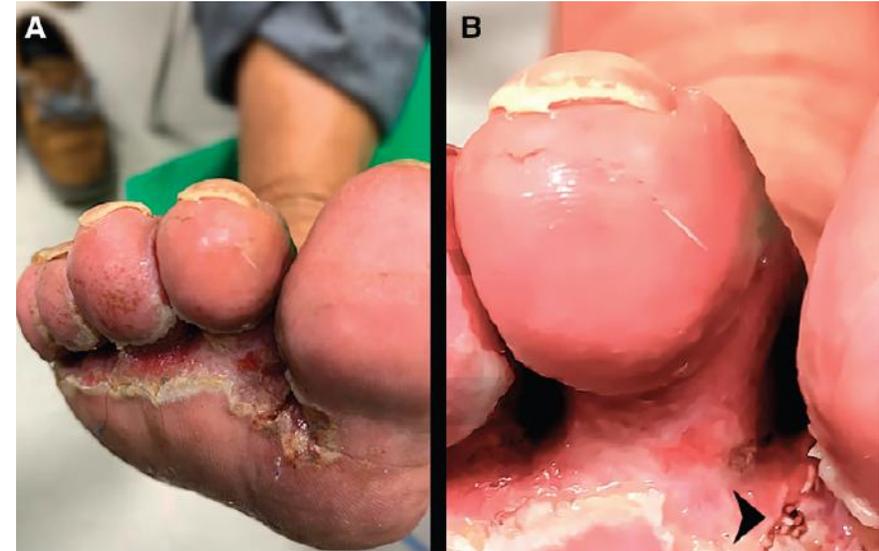
- **Human bot fly larvae are much larger than New World screwworm larvae.**
  - With robust black spines on the middle body segments.
  - Stout and "grublike."
- **New World screwworm larvae are screw-shaped and tapering toward the head.**
- **Morphologic examination is required for correct identification.**



Image courtesy of Mark Fox, CDC

# Risk Factors for New World Screwworm Infestations in Humans

- Open wounds
- Foul smelling wounds
- Ulcerated wounds
- Bacterial-infected wounds
- Hyperkeratosis
- Compromised immune systems
- Decreased ability to protect self from bites
- Sleeping outdoors
- Working around infested livestock
- Elderly or incapacitated



(A) Foot condition upon arrival at the hospital, showing hyperkeratosis and ulcers. (B) Site of the myiasis (arrow).

# Clinical Manifestations of New World Screwworm

- Symptoms will vary based on the site of infestation.
- Pain, sensation of movement, malodorous bloody discharge common.
- Extensive tissue invasion and destruction.
- Larvae may be seen around or in open sores.
- Secondary bacterial infections may cause fever or chills.
  
- Death may occur due to secondary infection or as a result of tissue destruction.
- Death is more likely when larvae are present in deep structures of the head.



Image courtesy of Mark Fox, CDC

# Potential Clinical Presentations of New World Screwworm Myiasis

- **New World screwworm can cause infestations of any mucous membrane or open body orifice including the ears, eyes, nose, mouth, vagina, and rectum.**
- **Cutaneous and wound myiasis is common.**
- **Orbital myiasis may require extensive debridement and sometimes enucleation.**
- **Auricular myiasis is rare and primarily occurs in children.**



An ulcerative lesion in the left malar and orbital regions with extensive necrosis, erythema, purulent secretion.



Myiasis due to *C. hominivorax* in a B lymphoma patient. Shown is a huge ulcer filled with larvae.

Francesconi F and Lupi O. *Myiasis*. Clinical Microbiology Reviews. 2012 Jan;25(1):79-105. doi: 10.1128/CMR.00010-11

LaCourse S, et al. Pain and Bloody Ear Discharge in a Returning Traveler. *AJTMH* 92(3), 2015, p599-600.

Osorio J, et al. Role of Ivermectin in the Treatment of Severe Orbital Myiasis Due to *Cochliomyia hominivorax*, *Clinical Infectious Diseases*, Vol 43, Issue 6, 15. Sept 2006.

# 2014 Imported Case to the United States After Travel to Dominican Republic



- 26 yr old woman with 2-day history of ear pain and bloody discharge.
- One week vacation in Dominican Republic at a beachside resort with screened windows.
- She fell asleep on the beach one night 'after drinking alcohol' and the next day had ear discomfort with sensation of movement.
- She removed a fly from her ear.
- Pain started one day later with bloody ear discharge.

# 2014 Imported Case to United States: Clinical Management

- **Otoscopic exam revealed multiple motile larvae.**
- **She underwent debridement in operating room. Findings included:**
  - Soft tissue larval infiltration extending to the temporal bone.
  - Tympanic membrane perforation without middle ear involvement.
- **The patient was prescribed amoxicillin-clavulanic acid for potential secondary soft-tissue infection.**
- **She underwent tympanoplasty with a split-thickness skin graft.**
- **Larvae were diagnosed as New World screwworm.**

# 2023 Imported Case to United States After Travel to South America

- **64 yr old male.**
- **Patient traveled to Argentina and Brazil with a fresh surgical cheek wound.**
- **Larvae were visualized in surgical wound while in Argentina and Brazil.**
- **Cheek bandage fell off while on return flight to the United States.**
- **Hospitalized in the United States, received wound debridement and treatment.**
- **Mature 3rd instar larvae removed in hospital and diagnosed as NWS by CDC (DPDx).**

# 2024 Imported Case to United States After Travel to Dominican Republic

- **Individual visited Dominican Republic for approximately 7-10 days.**
- **History of Neuroblastoma 30 years ago.**
  - Cancerous tumor removed from nose.
  - Immunosuppressed.
- **Returned to the United States with facial swelling, pain, nasal discharge.**
  - 100-150 larvae surgically removed during hospital stay.
  - Treated with ivermectin.
  - Larvae identified as New World screwworm



Image courtesy of First Coast News Jacksonville  
[More than 100 living bugs removed from inside of man's face. | firstcoastnews.com](https://www.firstcoastnews.com/news/more-than-100-living-bugs-removed-from-inside-of-man-s-face/)

# Description of New World Screwworm Myiasis

## Symptoms

- "Over a couple hours my face just started swelling, my lips swelled, I could hardly talk, my whole face felt like it was on fire."
- "I started getting nose bleeds, constant nose bleeds, I couldn't even get up to go to the bathroom without my nose starting to bleed."

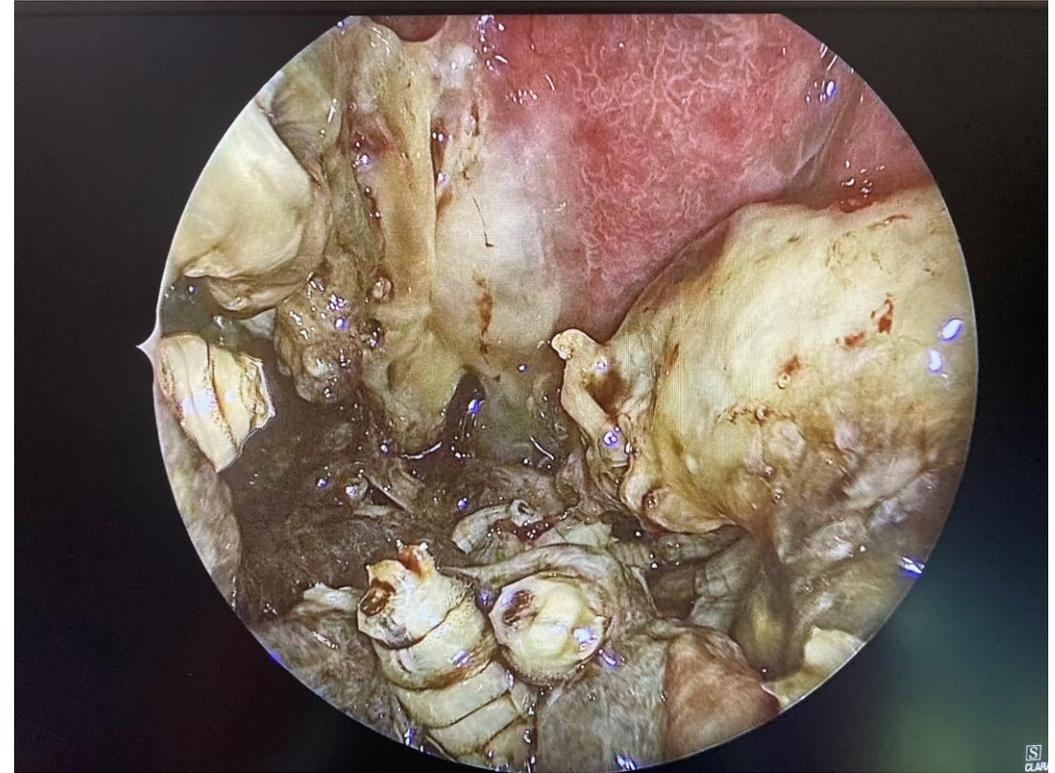


Image courtesy of First Coast News Jacksonville

[More than 100 living bugs removed from inside of man's face. | firstcoastnews.com](https://www.firstcoastnews.com)

# Removal of New World Screwworm Larvae

- The larvae were large enough that they clogged the suction. The doctor had to remove them one by one using different instrumentation.
- "And it [removal] hurt because they weren't coming willingly either."

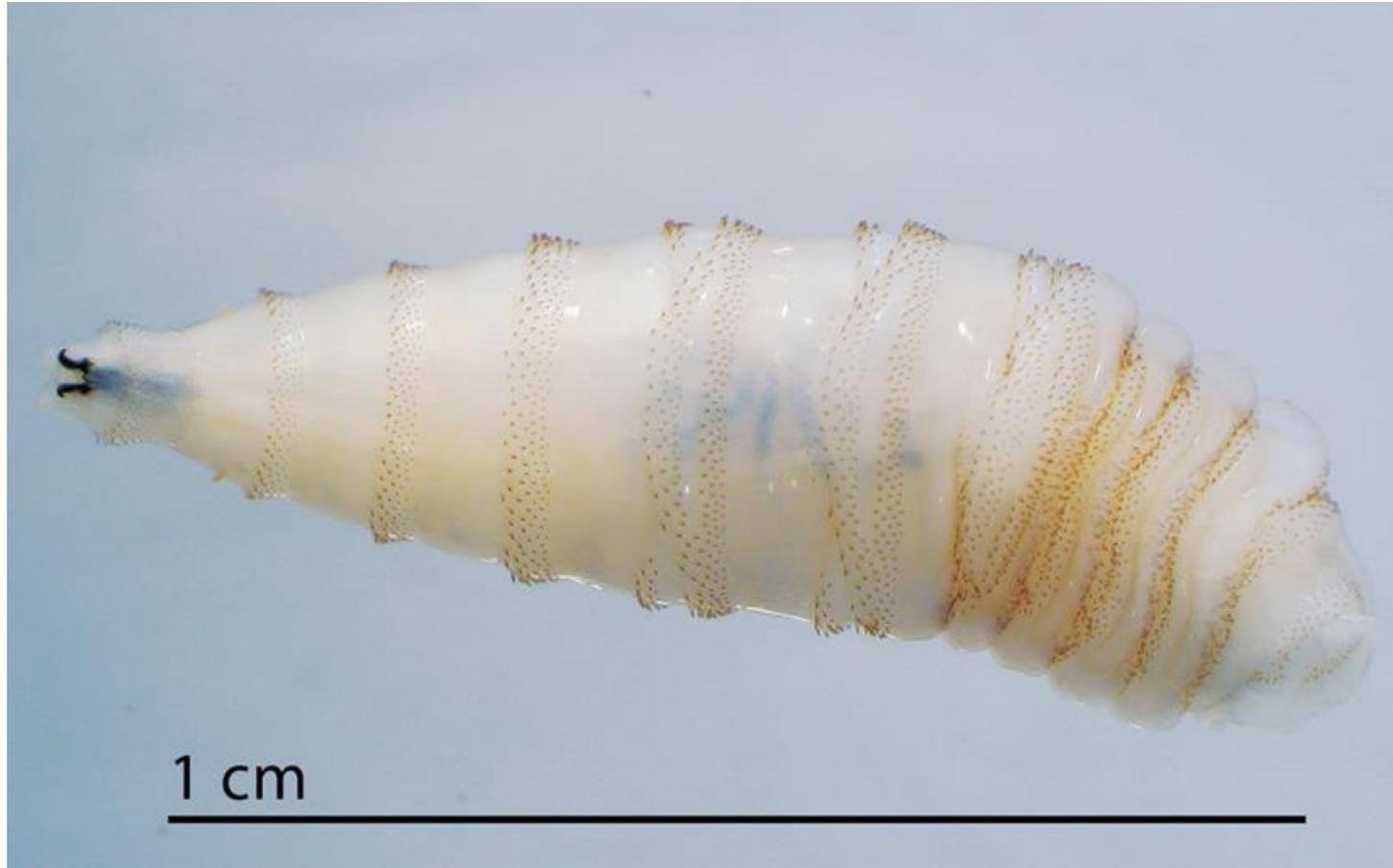


Image courtesy of First Coast News Jacksonville  
[More than 100 living bugs removed from inside of man's face. | firstcoastnews.com](https://www.firstcoastnews.com)

# 2024 Imported Case Challenges

- **Correct disposal.**
- **Larvae possibly exiting wound en route to airport or hospital.**
- **Delayed reporting.**

# Morphologic Identification of New World Screwworm Larvae



Larvae are usually 6.5 – 17 mm long, muscidiform (tapering anteriorly and truncate posteriorly) in shape, with encircling bands of short 1- 2- and 3-pointed spines on each body segment.

Ventral view showing mandibles. Image courtesy of Mark Fox, CDC

# Gross Appearance of *C. hominivorax* Third-Instar Larvae

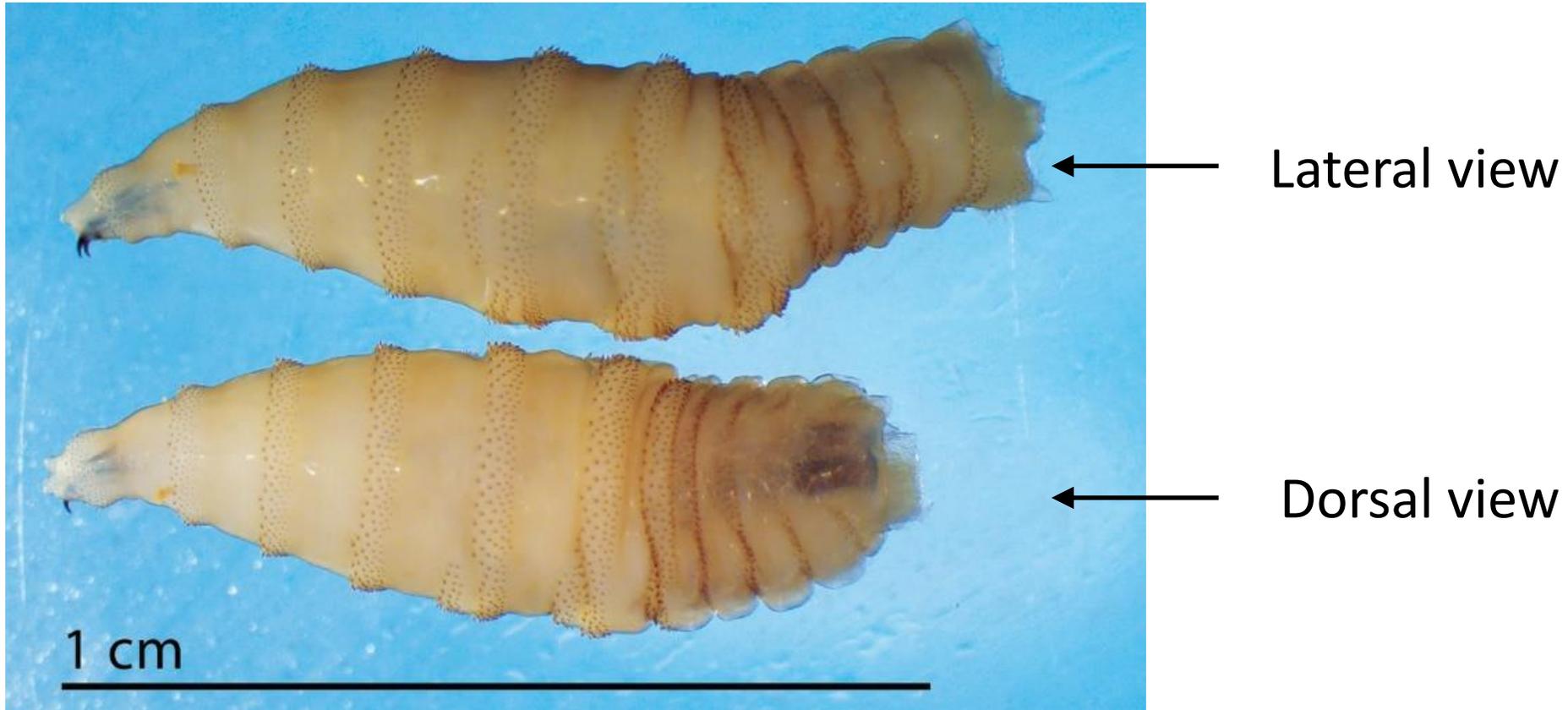
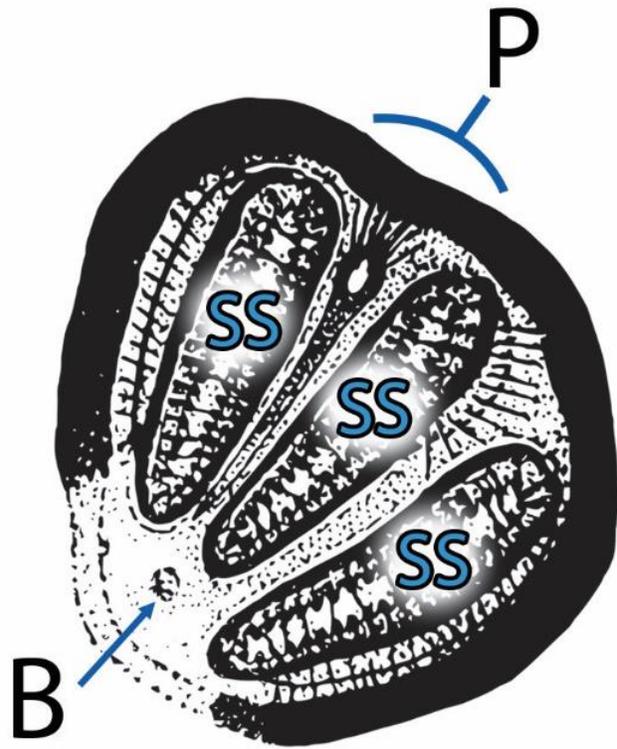


Image courtesy of Mark Fox, CDC

# Morphologic Identification of New World Screwworm Larvae: Peritreme

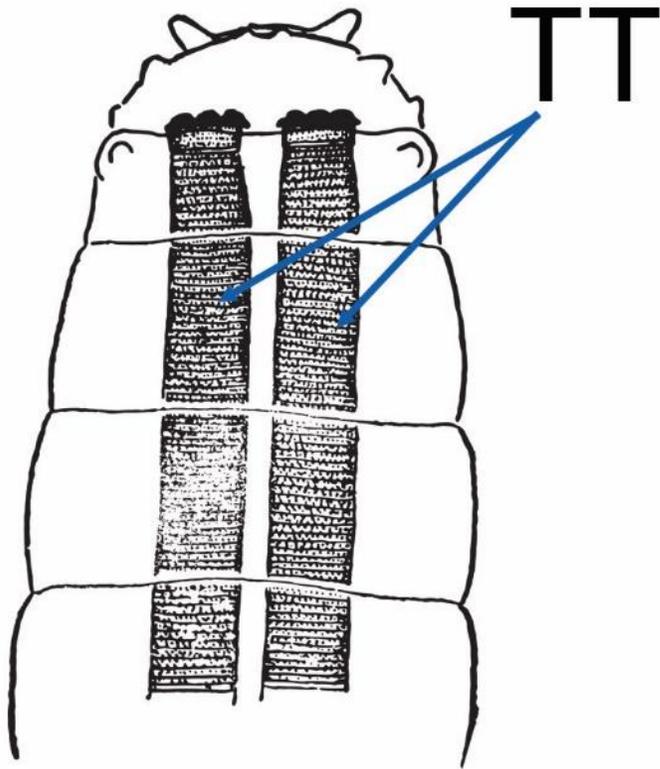


Peritreme of posterior spiracle incomplete, not enclosing the button (which is usually indistinct).

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). Image on right courtesy of Mark Fox, CDC.

# Tracheal Trunks of New World Screwworm



**Tracheal trunks (best distinguishing feature) leading from posterior spiracles are pigmented dark brown to black, with pigmented portion extending anteriorly across at least two full body segments.**

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). Image on right courtesy of Mark Fox, CDC.

## Knowledge Check #2

Which of the following statements about the diagnosis of suspected New World screwworm myiasis is true?

- A. Wound myiasis is not an endemic issue in the United States, so any such case is very likely to be New World screwworm.
- B. There are many morphologically similar species of fly that can cause myiasis, so differential diagnosis should incorporate travel and exposure history as well as clinical presentation.
- C. If larvae with an incomplete peritreme and indistinct button are observed by the clinician, the species can only be *C. hominivorax* and confirmatory morphological examination by a reference lab is not needed.
- D. Since New World screwworm larvae primarily infest wounds and cutaneous sites, any larvae found in other body locations would not be New World screwworm.

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# Handling of New World Screwworm Larvae

- Larvae should be sent to a clinical lab for morphologic identification.
- Collect ***all*** larvae and place into a leak-proof container with **70% ethanol**.
  - The volume should be sufficient to fully submerge larvae.
  - This will kill larvae and preserve them for confirmatory diagnostic examination.
- Alternatives include **70% (or greater) isopropyl alcohol** or **5 – 10% formalin**.
- ***Do not discard live larvae in the trash.***



# Treatment of New World Screwworm

- **Physical removal of *all* larvae**
- **Debridement of necrotic tissue**
- **Wound care of the lesion**
  - Prevent reinfestation
  - Allow the lesion to heal
- **Pain management as needed**

# Use of Ivermectin

- **Anecdotal reports of ivermectin to treat or prevent New World screwworm, but no appropriate studies to demonstrate benefit.**
- **In vitro lab studies and studies in livestock show efficacy of ivermectin for killing New World screwworm eggs and larvae.**
  - Lower dose required to kill eggs and 1<sup>st</sup> instar larvae than 3<sup>rd</sup> instar larvae in vitro (Ring, 1980).
  - Incomplete protection of ivermectin-treated calves vs infestation with NWS (Moya-Borja et al, 1997).
- **There have been no such studies in humans, but there are case reports of off-label ivermectin use as a supplement to attempted removal of all larvae.**
  - Subcutaneous injection of ivermectin used effectively in six cases of oral NWS myiasis (Duque & Ardila, 2011).
  - Oral ivermectin used in two patients with severe orbital NWS myiasis who had underlying skin carcinomas (Osorio et al., 2006).

# Report to Health Departments

- Report suspected human cases immediately to your [local or state health department](#) officials, followed by CDC at [parasites@cdc.gov](mailto:parasites@cdc.gov) or 404-718-4745.
- Diagnostic assistance for suspected human cases is available through CDC's DPDx at [dpx@cdc.gov](mailto:dpx@cdc.gov).
  - Clinical inquiries and case management questions from healthcare providers and health departments is available from CDC at 404-718-4745 or [parasites@cdc.gov](mailto:parasites@cdc.gov).
  - Direct inquiries outside of regular business hours to CDC's Emergency Operations Center at 770-488-7100.
- Report suspected animal cases immediately to your [state animal health official](#) and [USDA-APHIS](#) for diagnosis.

# Laboratory Diagnostic Bench Aid

August 23, 2024

## Lab Identification of 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, occasionally including humans. Female flies oviposit on or near pre-existing wounds or on mucous membranes inside the nose, mouth, and ears. Eggs hatch into larvae which burrow into the tissue and feed on the living flesh for approximately 7 days, after which they drop from the host and pupate. The adult screwworm fly emerges from the soil after 7 – 54 days depending on temperature and humidity.

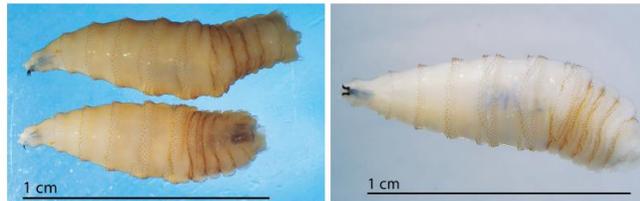
NWS is endemic in South America, parts of southern Central America, and some Caribbean islands. NWS primarily infests animals; human cases are uncommon. However, human cases can occur among people who tend livestock in endemic areas, and in travelers to these regions, particularly among people with open wounds who sleep outdoors. Untreated infestations can result in severe tissue destruction and are potentially fatal.

### 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 shown below:

#### General appearance

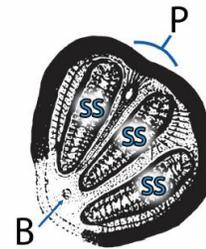
Maggots are usually 6.5 – 17 mm long, muscidiform (tapering anteriorly and truncate posteriorly) in shape, with encircling bands of short 1-2- and 3-pointed spines on each body segment.



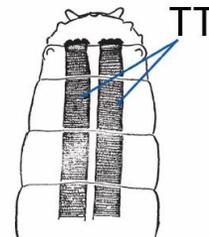
Gross appearance of *C. hominivorax* third-instar larvae; Lateral view (left image, top), dorsal view (left image, bottom), and ventral view showing mandibles (right image).

#### Specific 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).



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).



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).

### DIAGNOSTIC ASSISTANCE

Collect all suspected New World screwworm larvae and place in a leak-proof container with 70% ethanol. The volume should be sufficient to fully submerge larvae to kill and preserve them for confirmatory diagnostic examination. If 70% (or greater) ethanol is unavailable, 70% (or greater) isopropanol or 5 – 10% formalin are acceptable alternatives, although not preferred.

Last Updated: August 23, 2024

Lab Identification of New World Screwworm

2

### CONTACT INFORMATION

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

**Report both human and animal infestations immediately.** Human infestations can be an indication of infestations in animals. Clinicians and laboratory professionals should report any suspected cases immediately to their [local or state health department](#). Veterinarians should report any suspicious animal cases immediately to their [state animal health official](#) and [APHIS office](#).

Last Updated: August 23, 2024

Lab Identification of New World Screwworm

3

# Education Materials for Providers

 Myiasis

EXPLORE TOPICS ▾

Q SEARCH

AUGUST 5, 2024 [ESPAÑOL](#)

## Clinical Overview of New World Screwworm Myiasis

**KEY POINTS**

- New World screwworm (NWS) myiasis is typically a disease of livestock but can also affect humans. Countries in Central America where NWS was previously controlled are reporting an increase in animal and human cases.
- NWS is endemic in South America and the Caribbean.
- NWS occurs in people with open wounds; it can also occur in other body cavities with mucus membranes (e.g., nasal passages).
- There is no medication to treat NWS; prevention and quick removal are key.
- Healthcare providers should remove the NWS larvae from the affected site.
- Kill and preserve the larvae by placing it directly into concentrated (70%) ethyl or isopropyl alcohol.
- Send all suspected NWS specimens to CDC for identification and diagnosis.



## [Clinical Overview of New World Screwworm Myiasis](#)

 Myiasis

EXPLORAR TEMAS ▾

Q BUSCAR

9 DE SEPTIEMBRE DEL 2024 [ENGLISH \(US\)](#)

## Información clínica sobre la miasis por el gusano barrenador del Nuevo Mundo

**PUNTOS CLAVE**

- La miasis por el gusano barrenador del Nuevo Mundo por lo general es una enfermedad del ganado, pero también puede afectar a los seres humanos. Hay países en América Central, donde se había controlado al gusano barrenador del Nuevo Mundo, que están notificando un aumento de casos en animales y personas.
- El gusano barrenador del Nuevo Mundo es endémico en América del Sur y en el Caribe.
- El gusano barrenador del Nuevo Mundo se presenta en las personas que tienen heridas abiertas; también puede presentarse en otras cavidades del cuerpo con membranas mucosas (p. ej., las fosas nasales).
- No hay medicamentos para tratar la infestación por el gusano barrenador del Nuevo Mundo; la prevención y la extracción rápida son clave.
- Los proveedores de atención médica deben extraer las larvas del área afectada.
- Maten y preserven las larvas al ponerlas directamente en alcohol etílico o isopropílico al 70 %.
- Envíen todas las muestras de presunto gusano barrenador del Nuevo Mundo a los CDC para que se haga la identificación y el diagnóstico.



## [Información clínica sobre la miasis por el gusano barrenador del Nuevo Mundo](#)

# Education Material for General Public

 Myiasis

EXPLORE TOPICS ▾

Q SEARCH

SEPTEMBER 13, 2024 [ESPAÑOL](#)

## About New World Screwworm Myiasis

**KEY POINTS**

- Myiasis is a parasitic infection of fly larvae (maggots) in human tissue.
- New World screwworm (NWS) is a species of parasitic worms that can cause myiasis and feed on live tissue.
- It primarily affects livestock, but it can, rarely, infest people.
- NWS is typically found in South America and the Caribbean.
- You are at higher risk for NWS if you travel in these areas, are around livestock in rural areas where the flies are, and if you have an open wound.



## [About New World Screwworm Myiasis](#)

 Myiasis

EXPLORAR TEMAS ▾

Q BUSCAR

13 DE SEPTIEMBRE DEL 2024 [ENGLISH \(US\)](#)

## Acerca de la miasis por el gusano barrenador del Nuevo Mundo

**PUNTOS CLAVE**

- La miasis es una infestación parasitaria de larvas de mosca en un tejido humano.
- El gusano barrenador del Nuevo Mundo es una especie de gusano parasitario que puede causar miasis y alimentarse de tejido vivo.
- Afecta mayormente al ganado, pero en raras ocasiones puede infestar a las personas.
- El gusano barrenador del Nuevo Mundo se encuentra generalmente en América del Sur y en el Caribe.
- Usted tiene un riesgo mayor de ser afectado por el gusano barrenador del Nuevo Mundo si viaja a estas regiones, si pasa tiempo cerca del ganado en áreas rurales donde se encuentran las moscas y si tiene una herida abierta.



## [Acerca de la miasis por el gusano barrenador del Nuevo Mundo](#)

# Summary Messages

# When Should New World Screwworm be Suspected in Patients?

- Recent travel to areas endemic for NWS or countries in Central America currently experiencing re-emergence.
- Painful lesions, sensation of movement, malodorous bloody discharge or visible larvae.
- Lesions with extensive tissue invasion and destruction.
- Signs and symptoms of secondary bacterial infection.



A bot fly larva (*Dermatobia hominis*) is pictured on the left, and an NWS larva (*Cochliomyia hominivorax*) is on the right.

Image courtesy of Mark Fox, CDC.

# Personal Prevention of New World Screwworm

- Keep skin wounds clean and covered.
- Limit exposed skin by wearing loose-fitting, long-sleeved shirts and long pants, and socks.
- Use effective insect repellent, ideally one containing DEET ([Repellents: Protection against Mosquitoes, Ticks and Other Arthropods | US EPA](#)).
- Treat clothing and gear with 0.5% permethrin.
- Sleep indoors or in rooms with screens.

# Important Public Health Messages

- Animal cases are an indicator of the presence of flies.
- Human cases can continue to occur in areas where the flies are circulating and laying eggs.
- NWS infestation can be prevented.
- Handle larvae appropriately and send for identification.
- Treatment requires extraction of *all* NWS larvae.
- Public health officials should be notified of human cases of NWS infestation.
- Ending the outbreak will require more than just sterile fly release.

# Thank you.

For more information, contact CDC/ATSDR  
1-800-CDC-INFO (232-4636)

TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov) [www.atsdr.cdc.gov](http://www.atsdr.cdc.gov)



Image courtesy of Denise Bonilla, U.S. Department of Agriculture

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention and the Agency for Toxic Substances and Disease Registry.



**ATSDR**

# Joining the Q&A Session

**Susan Montgomery, DVM, MPH**

Veterinary Medical Officer, Team Lead

Parasitic Diseases Branch

Division of Parasitic Diseases and Malaria

Centers for Disease Control and Prevention

**Mark Fox, MS, MS**

Biologist, Entomologist

Laboratory Science & Diagnostic Branch

Division of Parasitic Diseases and Malaria

Centers for Disease Control and Prevention



Larva found in the sloth that died.  
[\(Photo courtesy/Sinac\).](#)

# To Ask a Question

- Using the Zoom Webinar System
  - Click on the “Q&A” button
  - Type your question in the “Q&A” box
  - Submit your question
- If you are a patient, please refer your question to your healthcare provider.
- If you are a member of the media, please direct your questions to CDC Media Relations at 404-639-3286 or email [media@cdc.gov](mailto:media@cdc.gov).

# TRAIN

- **January 1, 2024:** Move from Training and Continuing Education Online (TCEO) to CDC TRAIN (<https://www.train.org/cdctrain>).
- **Existing Activities:** Continue to use TCEO for existing activities that have CE set to expire in 2024, since these courses will not move to CDC TRAIN. You may also use TCEO for existing activities with CE set to expire in 2025, before the courses transition to CDC TRAIN sometime next year. If you begin one of these courses in TCEO, we will let you know when the course will move to CDC TRAIN.
- **Transcripts & Certificates:** You can access and download CE transcripts and certificates in TCEO through the end of 2025.
- Instructions will be available on both platforms and a learner support team will be available to answer questions.

# Continuing Education

- All continuing education for COCA Calls is issued online through CDC TRAIN at CDC TRAIN (<https://www.train.org/cdctrain>).
- Those who participate in today's COCA Call and wish to receive continuing education please complete the online evaluation by **November 11, 2024**, with the **course code WC4520R-101724**. The **registration code** is **COCA101724**
- Those who will participate in the on-demand activity and wish to receive continuing education should complete the online evaluation between **November 19, 2024**, and **November 19, 2026**, and use **course code WD4520R-101724**. The **registration code** is **COCA101724**.

# Today's COCA Call will be Available to View On-Demand

- **When:** A few hours after the live call ends\*
- **What:** Video recording
- **Where:** On the COCA Call webpage
  - [https://emergency.cdc.gov/coca/calls/2024/callinfo\\_101724.asp](https://emergency.cdc.gov/coca/calls/2024/callinfo_101724.asp)

*\*A transcript and closed-captioned video will be available about one week after the live session.*

# Additional Resources

- Continue to visit <https://emergency.cdc.gov/coca/> to get more details about upcoming COCA Calls.
- Subscribe to receive notifications about upcoming COCA calls and other COCA products and services at [emergency.cdc.gov/coca/subscribe.asp](https://emergency.cdc.gov/coca/subscribe.asp).

# Thank you for joining us today!



<http://emergency.cdc.gov/coca>

For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

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