

***Culex coronator* is coming  
your way!**

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# Acknowledgments

- **Marcee Toliver, maps**
- **Jung Kim, photos**
- **Bobby Moulis, photos**
- **David Jenkins, records**
- **Rick Hickman, records**

# Coronator Complex

## Six species

- *Culex camposi* – Venezuela to Peru
- *Culex coronator* – USA to Argentina
- *Culex covagarciai* – Venezuela
- *Culex ousqua* – Mexico to Colombia
- *Culex usquatissimus* – Costa Rica to  
Venezuela
- *Culex usquatus* – Mexico to Argentina

# Coronator Complex – Big Identification Problems

- Cannot separate females
- Cannot separate larvae
- Cannot separate pupae
- Can only separated on basis of male genitalia structures and distribution!
- The US species has been confirmed as *Culex coronator* based on male genitalia differences!

# Distinguishing Characteristics

## ➤ Head:

- proboscis with median patch of white scales on venter (no band)\*\*

## ➤ Thorax:

- scutum frequently with 2 white spots like *Cx. restuans*
- postspiracular white scales often present\*\*

## ➤ Abdomen:

- segments with broad white basal bands

## ➤ Legs:

- femur and tibia with small white bands at the apex
- tarsi with narrow white bands
- hindtarsomeres with white bands across the joints\*\*
- hindtarsomere 5 with basal and apical white bands\*\*

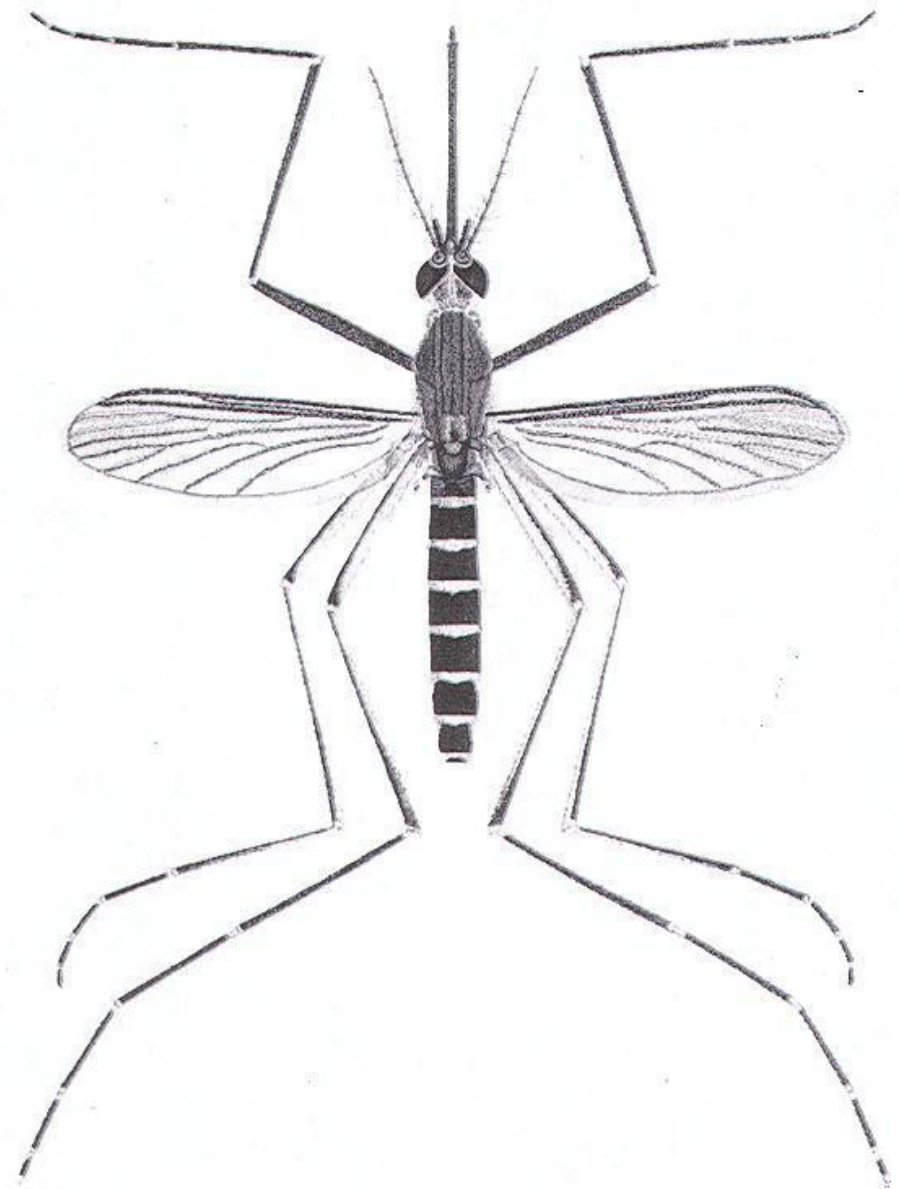


Plate 103. *Culex coronator* Dyar and Knab, female.



**Pale patch underneath  
the proboscis  
(Not a band)**



Pale spots on scutum



Spiracle

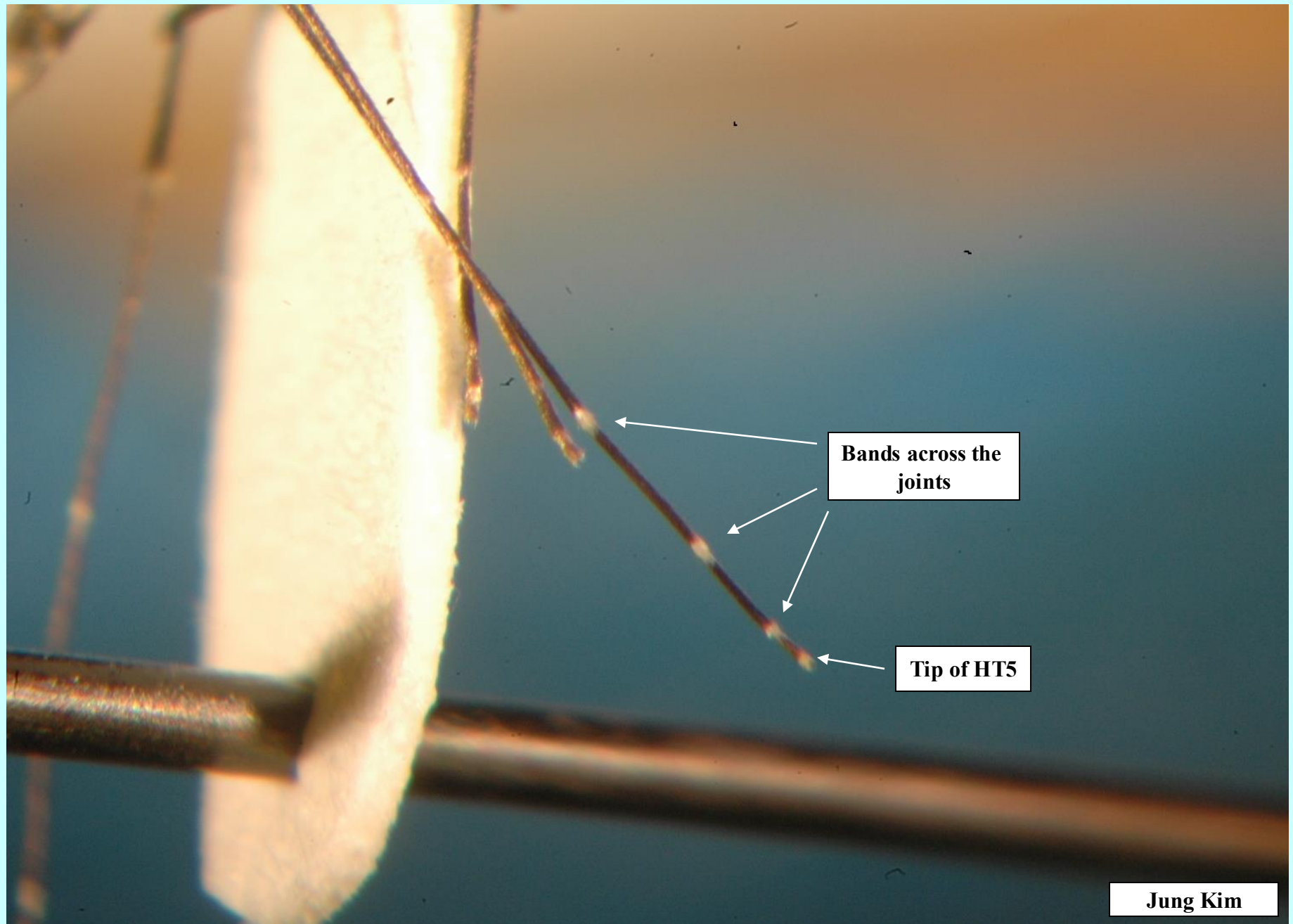
Postspiracular pale scales

Jung Kim



**Dark spots**

**Jung Kim**



**Bands across the  
joints**

**Tip of HT5**

# ***Culex coronator* Biology/Behavior**

- **Collected in traps with over 30 other species in USA**
- **Very hardy species, survives trips well, and can be reared easily in the laboratory**
- **Adults primarily active between dusk to dawn, with 60-80% of collections in the first half of night**
- **Twice as many adults collected in CDC traps set at 1 to 1.5 meters as in traps set at 3 meters height**

# **Successful Trapping/Collection Methods for *Cx. coronator***

- **Human landing (aspiration)**
- **Collections off equines (aspiration or vials)**
- **Larval Collections**
- **CDC L. T.**
- **ABC L. T.**
- **CDC miniature ULV**
- **Hourly Rotator Trap**
- **EVA Trap**
- **Mosquito Magnet X Trap**
- **Malaise Trap**
- **Portable Bait Traps**
- **Fay-Prince Trap**
- **CDC Gravid Traps**
- **Ovitrap (1 gallon)**

# Bloodmeal Hosts in USA

## Birds

- Carolina Chickadee
- Tufted Titmouse

## Mammals

- Humans
- White-tailed deer
- Horses
- Burros
- Raccoon
- River otter
- Virginia opossum
- Wild rabbits
- Ground squirrels

# ***Culex coronator* Vector Capabilities**

- Remember that in Central and South America the females of the 6 species in the Coronator Complex cannot be separated. Thus, virus isolates from those areas need confirmation that they are *Cx. coronator*.
- WNV – 2 positive pools – TX(1) and LA(1) (**Confirmed**)
- SLE – 2 positive pools in Trinidad
  - 2 positive pools in Peru
- ILH – 1 positive pool in Peru
- VEE – positive pool in Mexico

NOTE: *Cx. coronator* is refractory (cannot transmit) subtype IIIC of VEE virus (Turell et al. 2005)

## Distinguishing Characteristics

### ➤ Head setae:

- seta 6-C with 3-4 branches
- seta 5-C with 4-5 branches
- antenna seta distal, not at middle

### ➤ Mesothorax:

- seta 1-M and 2-M short, equal length

### ➤ Siphon:

- length 7-9 times width at base
- widest at base and gradually tapering to tip
- usually with crown of spines just before tip
- 4 pairs of very short 2-branched siphon setae

### ➤ Saddle:

- saddle seta short, saddle with dense spicules

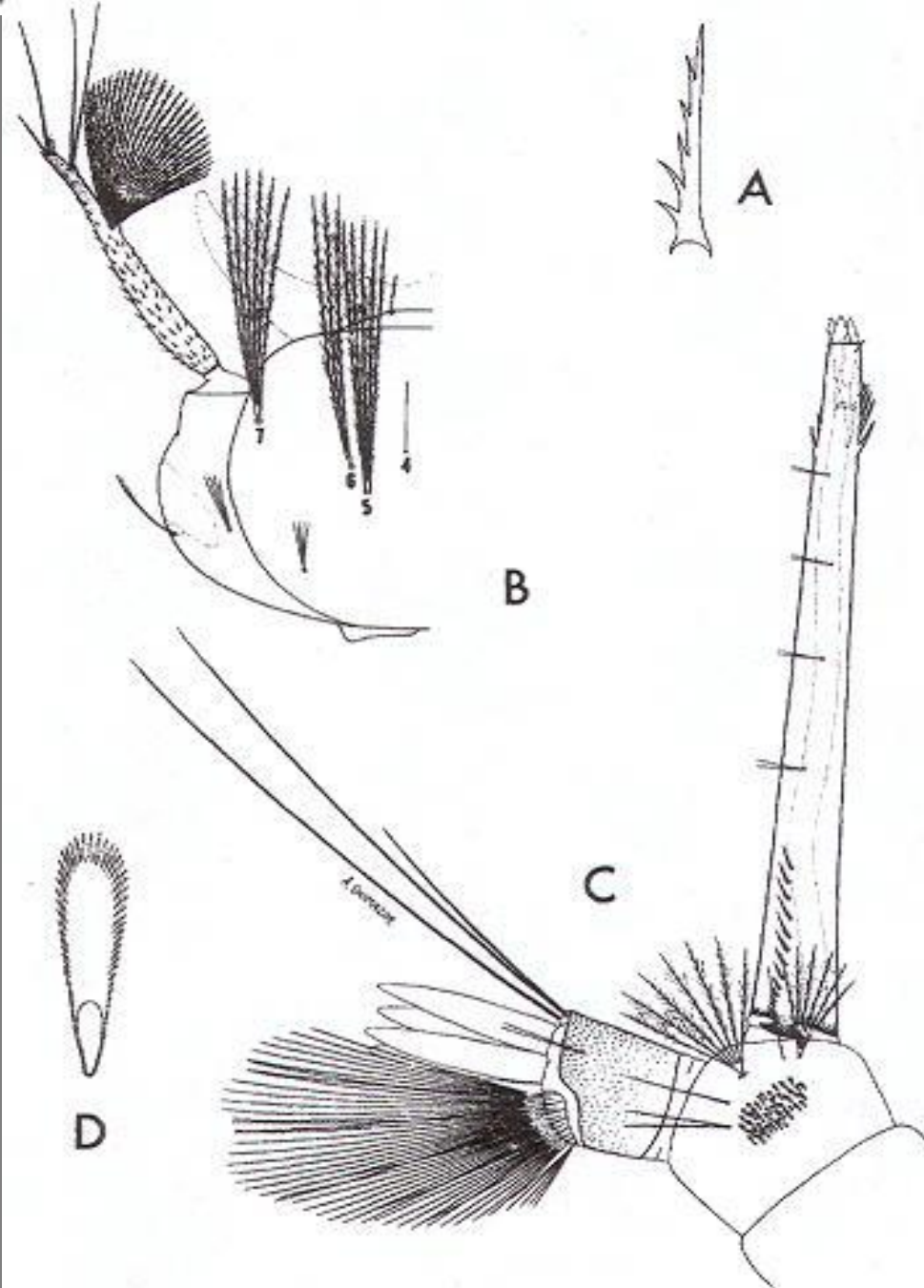
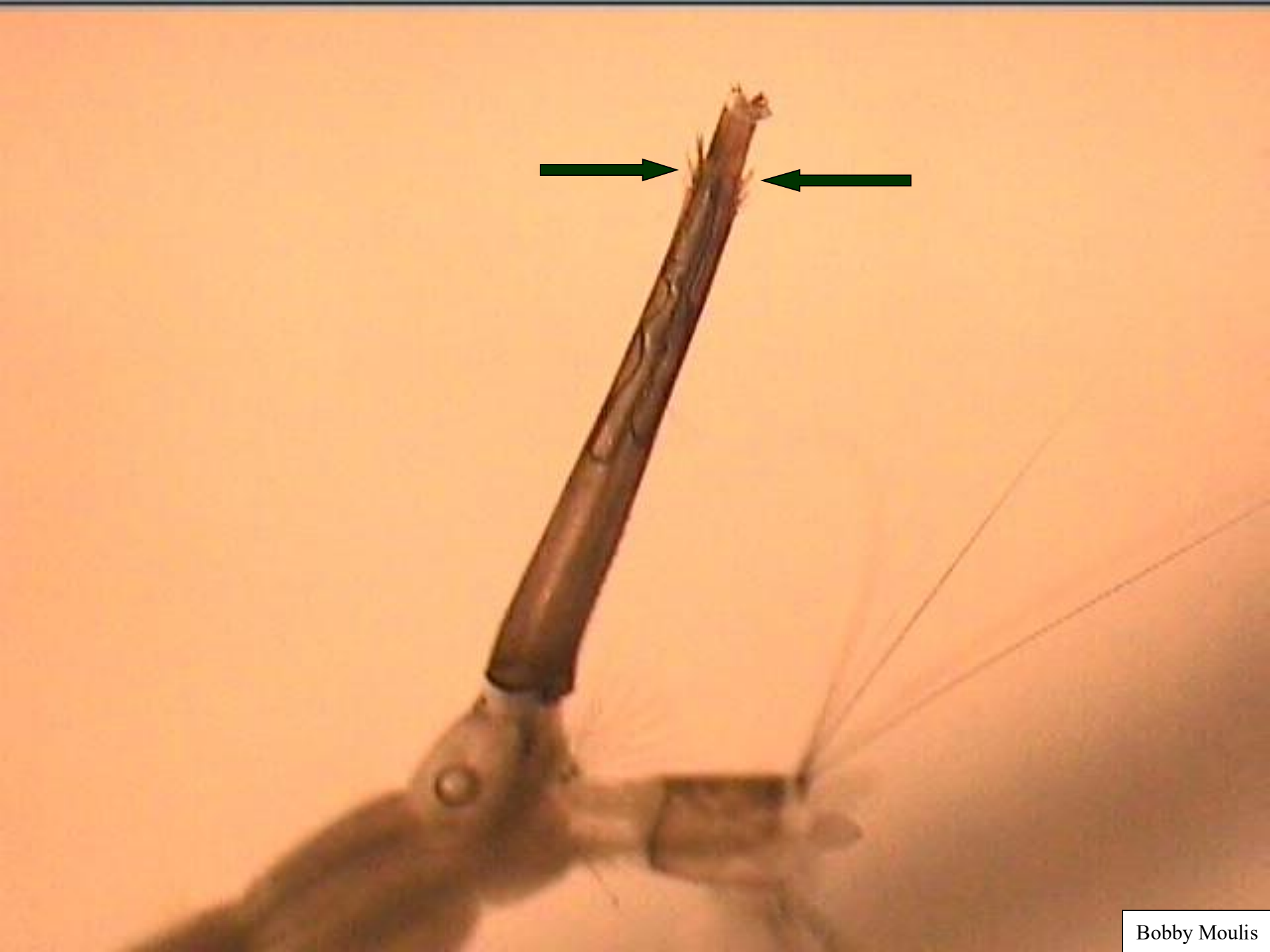


Fig. 234. Larva of *Culex coronator* Dyar and Knab. A, Pecten tooth. B, Head. C, Terminal segments. D, Comb scale.

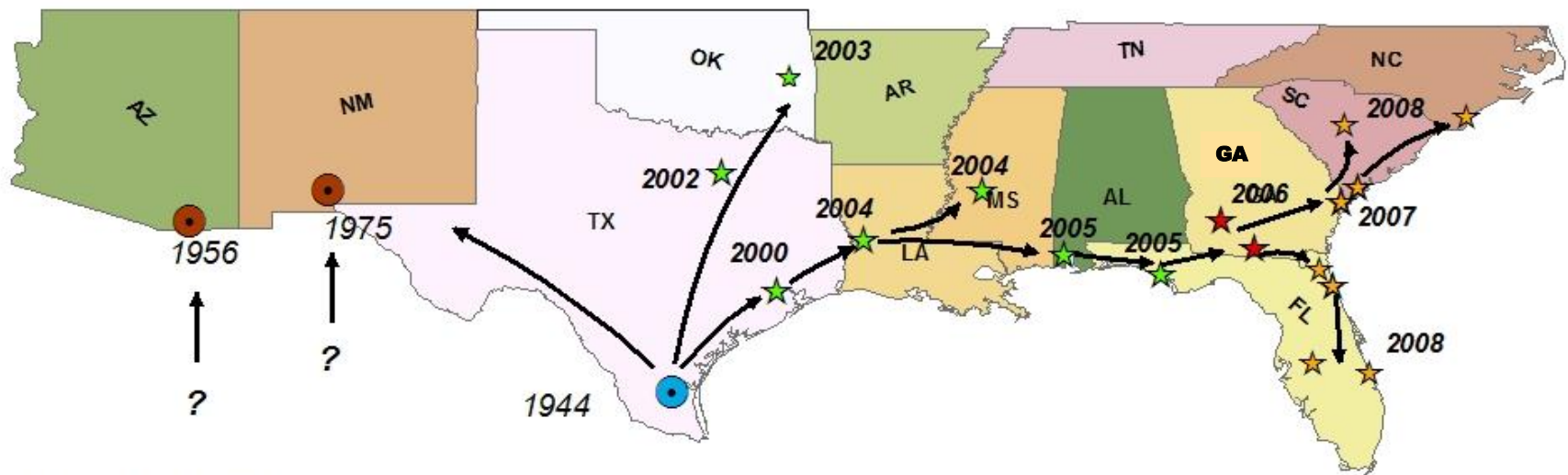




# Notes on Larval Habitats

- Water can be clear, highly organic, stained, turbid, and even slightly brackish
- Sites usually in open sunlight (61%), partially shaded (36%), or fully shaded (3%)
- Examples of common habitats
  - pits
  - ground pools
  - rock pools
  - flood pools
  - isolated stream pools
  - seepage
  - marshy depression
  - wheel/tire ruts
  - ditches
  - concrete animal troughs
  - hole in log
  - various containers
  - quarry

# Expanding Distribution of *Culex coronator*



## *Culex coronator* expansion

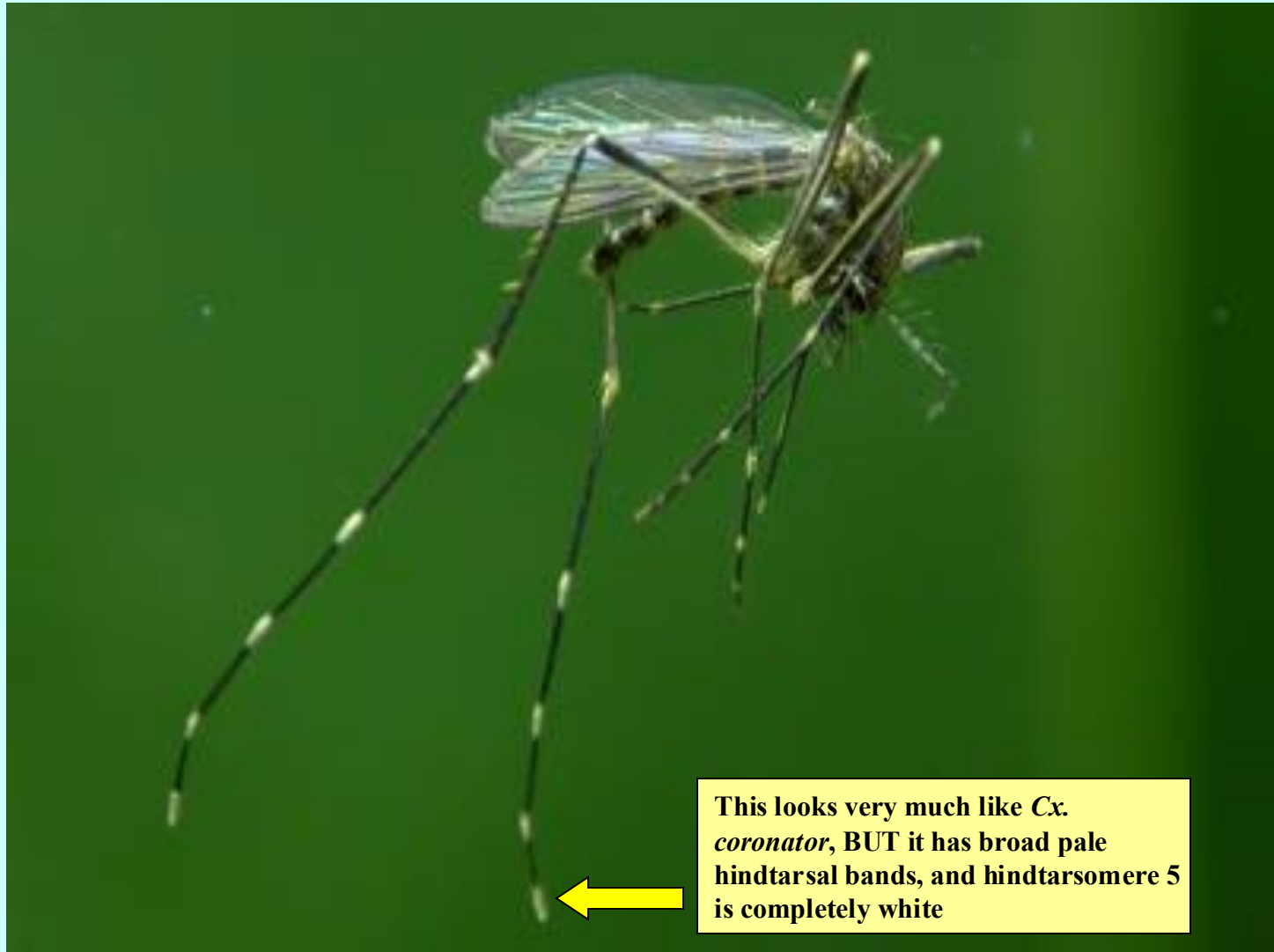
- ★ 2008
- ★ 2007
- ★ 2006
- ★ Pre-2006

Data: Dr. Bruce Harrison  
Map: Marcee Toliver  
10-21-08

# Distribution of *Culex coronator* in NC



# ***Ochlerotatus atropalpus***



*Culex tarsalis*



## Quick ID for *Culex coronator*

