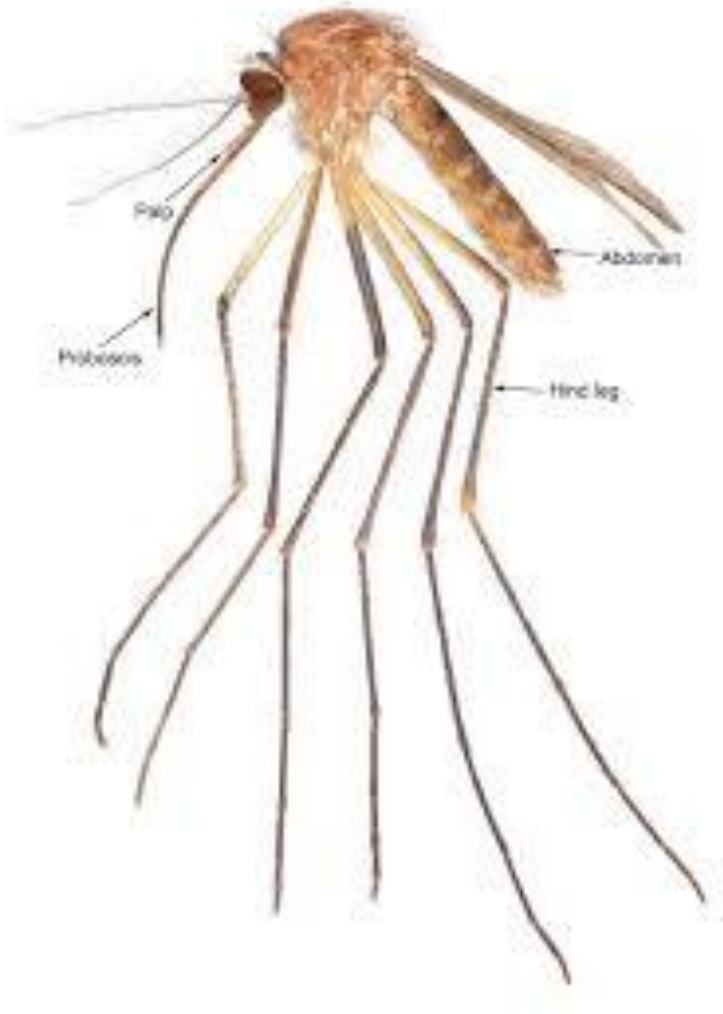
# Mosquitoes of Concern in Vermont




**Pest Management Professionals Meeting, October 1, 2026**

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*Vermont Agency of Agriculture, Food & Markets*

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# Overview



- VT Agency of Agriculture's surveillance program
- Adult mosquito control
- Mosquitoes of concern in the northeast
  - Life cycles, habitats, and hosts
  - Public health concerns
- Climate change
- Homeowner control measures

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# Surveillance vs Control

## collecting data

***Monitor*** **abundance and range**

***Identify*** **species**

***Track*** **changes (range, population expansion)**

***Test*** **for pathogens**



## eliminating pests

***Reduce*** **pest populations to tolerable levels, not eradicate**

***Protect*** **public health during outbreaks**

**Chemical, physical, habitat**



# Adult mosquito surveillance

## Resting box traps



- Target main vectors of Eastern Equine Encephalitis
- Attract blood-fed females
- Collected weekly
- Set in acidic swamps
- 100+ sites statewide

## Gravid traps



- Target main vectors of West Nile virus
- Attract gravid females
- Set at WWTFs
- Collected weekly

## BG Pro traps




- Target all host-seeking species using dry ice as bait
- Set near wetlands
- Provide info on species and numbers in the area
- Collected every 10 days

## Sweep-netting



- Targets host-seeking species in real-time
- Good for quick response to complaints
- Fast, cheap, portable

# Larval mosquito surveillance

**Larval count using dipper cups**



- Useful for justifying that larviciding treatment thresholds are met
- Lab can ID species microscopically to best target products
- Can do as needed or regularly
- Inexpensive and fast
- MCDs in VT do this regularly

# And why surveillance matters

**Basic mosquito surveillance is useful because once you identify the predominant species in an area, you can know**

- Where they lay their eggs
- Who they bite
- How far they fly
- When they are active

**achieving better results and minimizing harm to the environment**

Know thy enemy!

*—Sun Tzu, ancient Chinese military strategist and philosopher*

# Mosquito control in Vermont

- The State of VT only treats for mosquitoes in response to a declared public health threat as determined by the VT Dept of Health (EEE, WNV) only in affected areas

- Two MCDs are permitted to conduct larviciding and adulticiding using truck-mounted and backpack sprayers

- All truck-mounted adulticiding requires an adulticide permit

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# Mosquitoes of concern



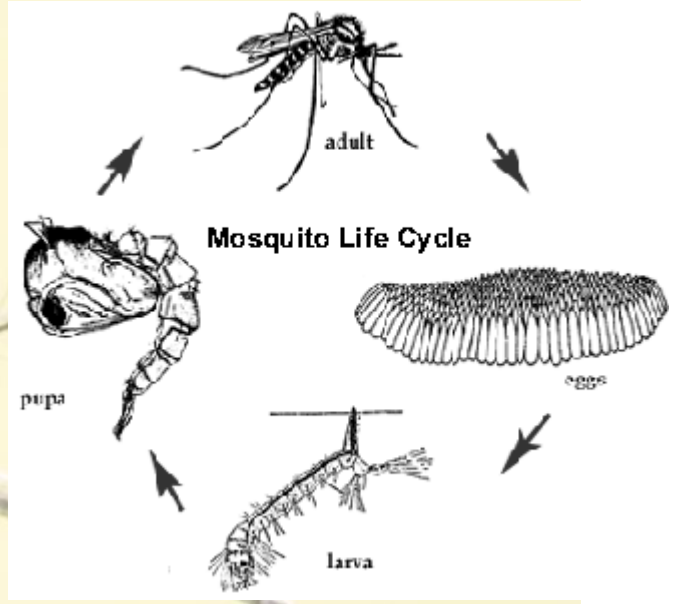
# Vermont has 47 species of mosquitoes



Mosquitoes vary widely in ways that affect how they may be controlled

Drawing courtesy of Allie Brosch

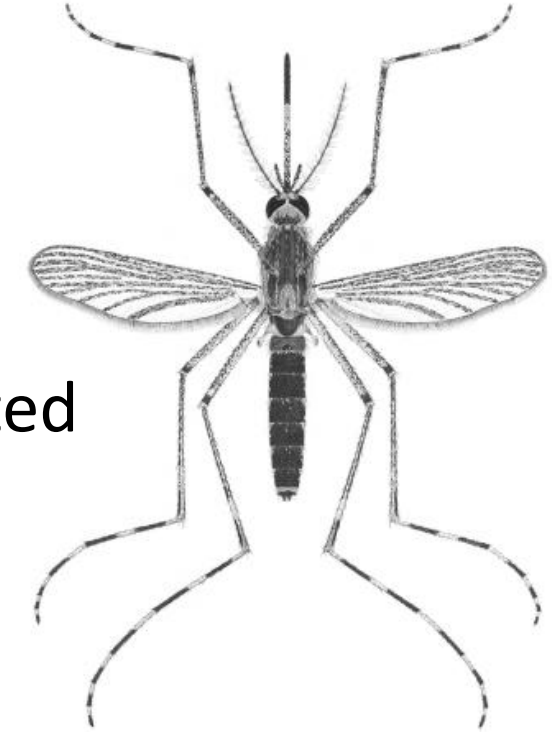
# Water



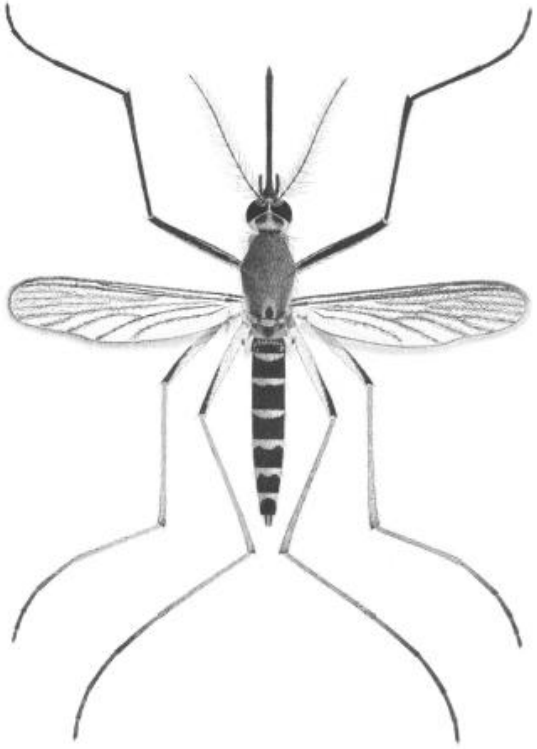

All mosquito species require water for three of their four life stages: eggs, larvae, and pupae are aquatic, only adults fly

# Basic body types

Abdomen: blunt or pointed
Legs: striped or not



Blunt abdomen, striped legs



Pointed abdomen, legs not striped

# Host preferences

Reptiles and amphibians



Birds



Mammals (including us!)



# Breeding habitats



Tree holes



Flood plains after snow melt



Waste tires



Artificial containers



Cattail marshes



Hardwood acidic swamps

# Other factors

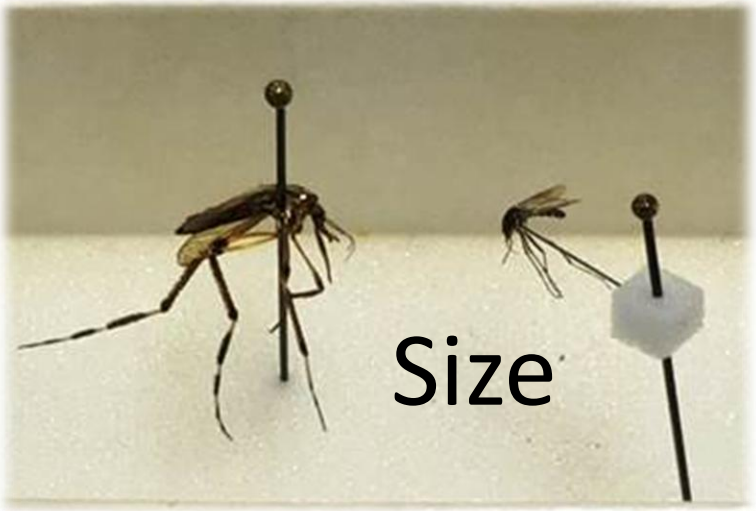


## Peak activity



All are active at dawn and dusk, but there are aggressive daybiters and some nighttime-only biters

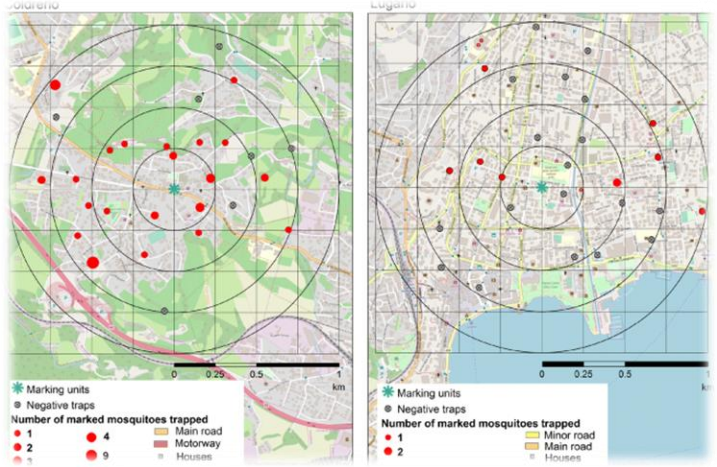
## Number of hatches per year



## Size

## Overwintering capabilities

Adults – basements, attics, sheds, natural cavities
Larvae – dormant phase
Eggs – some can survive 7 years



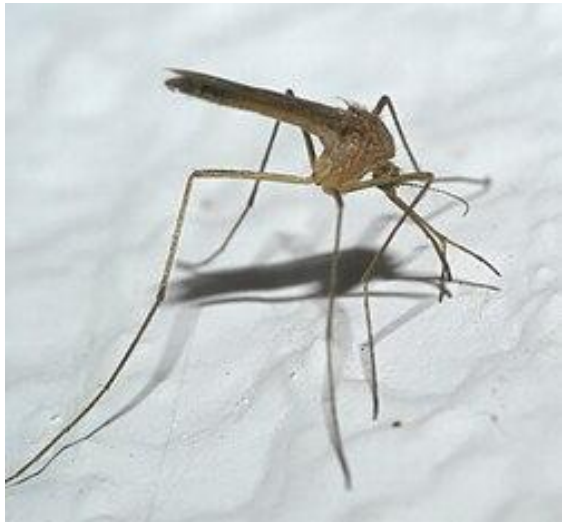

## Flight range

A couple hundred yards to several miles

# Bad actors: disease vectors

*Culiseta* spp (EEE)

- acidic swamps, bird-dense areas
- difficult to treat
- mostly bites birds






*Culex* spp (WNV)

- near humans, mammal-biter
- waste tires, artificial containers
- thrive in toxic water





# Bad actors: disease vectors

*Coquillettidia perturbans* (EEE, WNV)

- cattail marshes
- very difficult to treat
- abundant
- “powdery” (many scales)






*Anopheles* spp (EEE, WNV)

- semi-permanent ponds,
  stagnant streams
- indoor/outdoor biter, evenings
- can overwinter as adults





# Bad actors: mostly annoying

- For identification purposes, many have pointed abdomens
- Floodplain and snowmelt mosquitoes (many *Aedes* and *Ochlerotatus* species)
- Often short-lived in the environment
- Can be easy to larvicide when using good larval surveillance
- Ponds, ditches, swales, disused swimming pools, flooded riverbanks – easy to reach
- Some species can result in high complaint volume
- Dominant nuisance mosquitoes in Vermont are *Aedes vexans* (Inland Floodwater Mosquito) and *Ochlerotatus japonicus* (Rock Pool Mosquito)

*Aedes vexans*:

- Aggressive biter
- Eggs overwinter and can survive 7 years
- Massive hatches in June
- River floodplains



*Ochlerotatus japonicus*:
Wooded suburban and rural areas
Daybiters
Rock pools, tree holes, tires, containers



# Climate change

- Warmer temps speed larval development and extend breeding seasons
- Mosquitoes emerge earlier and survive later in the year
- Greater humidity supports mosquito survival
- Extreme rainfall results in stagnant pools that remain long enough to breed mosquitoes
- Drought conditions concentrate WNV mosquitoes around certain areas (human habitation, birds), increasing disease spread
- VT has seen an increase of 29 mosquito days from 1979 to 2022!




## TIP AND DRAIN

- Flowerpots and drainage trays
- Kiddie pools and toys
- Tire swings
- Storm drains
- Tarps
- Pet dishes
- Barrels and buckets
- Birdbaths
- Trash cans and piles
- Tires
- Wheelbarrows and other tools

**KEEP EAVES AND DOWNPIPES CLEARED**

**REPAIR BROKEN SCREENS AND DOORS**

**KEEP VEGETATION CLIPPED IN HIGH-USE AREAS**

**PROTECT PETS AND LIVESTOCK**

# Self protection

- Cover up
- Use an EPA-registered insect repellent
- Avoid dusk to dawn outdoor activity if possible
- Repair broken or ripped screens and doors
- Remove standing water






# Thank you for your time and attention!




# Questions?

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