

Apply  
a Splash

of  
Eco-Logic

To support our  
**POLLINATORS . . .**



. . . and control  
concerning **PESTS!**

Jean Ponzi – Green Resources Specialist



MISSOURI BOTANICAL GARDEN



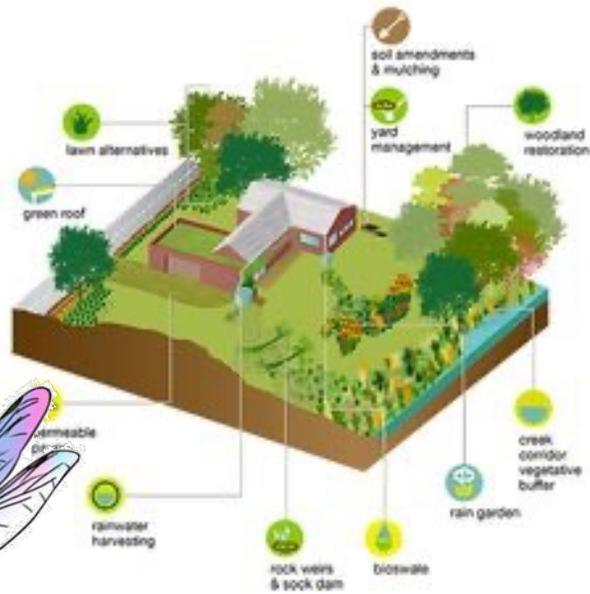
# STL Pollinator Gardening



SUPER  
Popular



# Green Infrastructure is booming . . .



. . . significantly powered by Native Plants

# Join the SWAT Team!

Identify mosquitos, report bites, and protect your neighborhood from pests.



Project  
Launched  
2021



[www.mobot.org/MosquitoAlertSTL](http://www.mobot.org/MosquitoAlertSTL)



What do you know about this  
Insect?

CLEMSON UNIVERSITY - USDA



# MOSQUITO EGGS



## MOSQUITO FUN FACT:



Tiger mosquito eggs, laid on sides of containers just above a water line, can remain dormant for up to several weeks and rehydrate to hatch when water covers them.

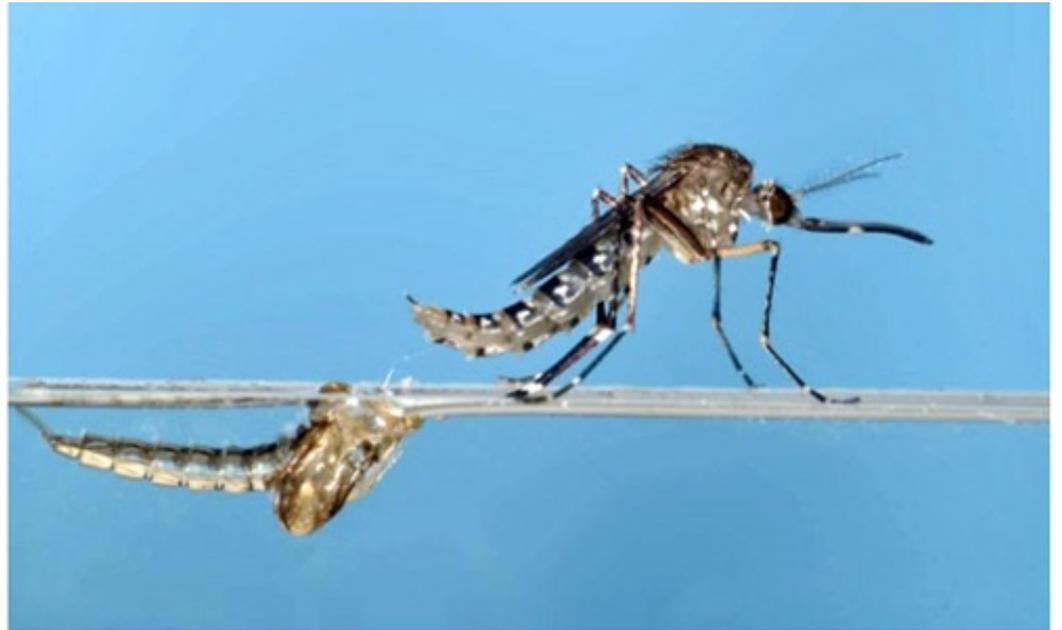
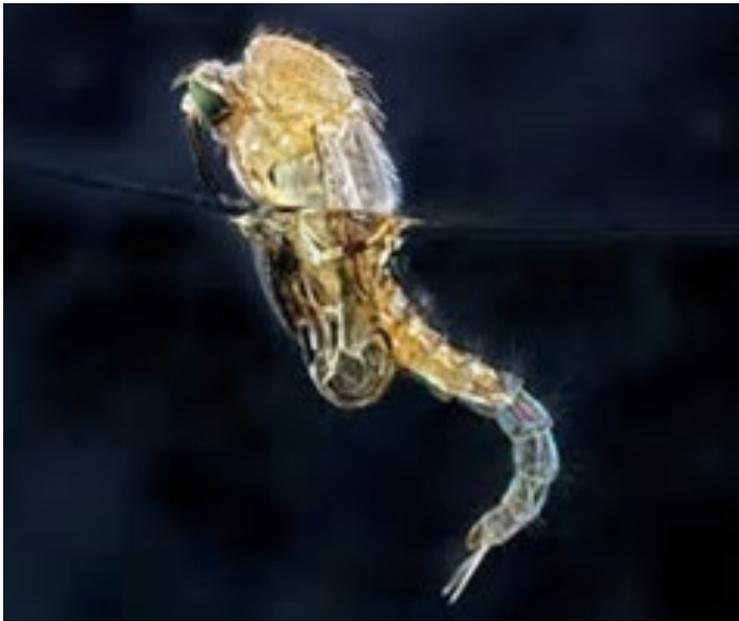
# MOSQUITO LARVAE ("wigglers")



## MOSQUITO PUPA ("tumblers")



# MOSQUITO ADULTS EMERGING



# Mosquitos can be Disease Vectors



The infographic is set against a red background with a faint pattern of mosquito silhouettes. It features a central illustration of a mosquito biting a hand. On the left and right sides, there are close-up photographs of a mosquito's head and legs on a plant stem. The text is arranged in a clear, hierarchical layout, starting with a title, followed by a 'DID YOU KNOW?' section, a central explanatory paragraph, a list of diseases, and a logo at the bottom.

**HOW MOSQUITOES SPREAD DISEASE**

**DID YOU KNOW?**  
Mosquitoes often feed in a method called sip feeding. A mosquito doesn't suck all of the blood it needs from one source — **it takes multiple meals from multiple sources.**  
This exposes more people to infection.

Diseases that are spread by the bite of an infected mosquito are known as mosquito-borne diseases.

*These include:*

- Zika
- Dengue
- Chikungunya
- Malaria

NEWS18  
creative

So why don't we just  
get rid of them ALL?!?

- Mosquitos are food for fish
- They're food for other insects
  - DRAGONFLIES are their #1 predator
- Birds eat them
- Bats eat them
- They pollinate plants
- Only some species take a blood meal from humans
  - They also feed on snakes, frogs and birds
  - Most mosquitos have nothing to do with humans!



## MOSQUITO FUN FACT:



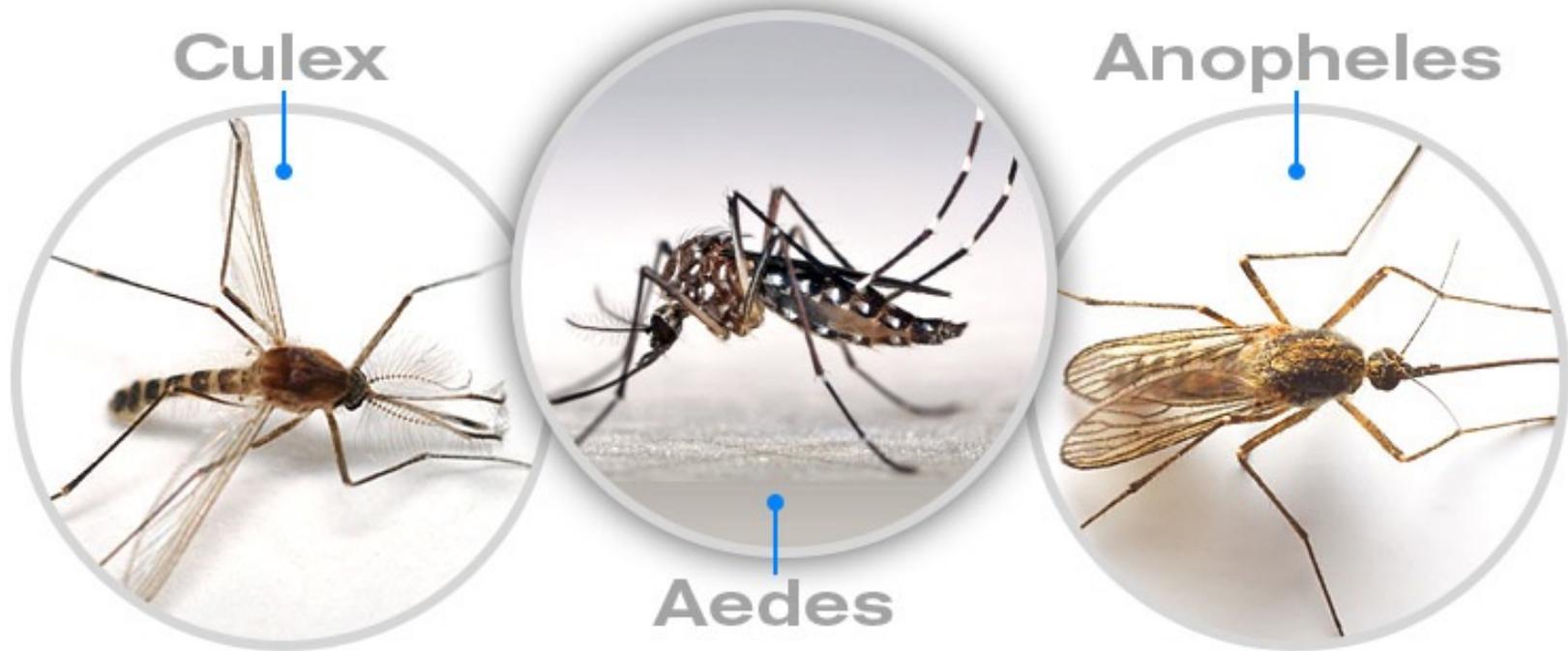
**Dragonflies** are key mosquito predators thanks to:

- Speed
- Vision
- Leg agility
- Nymph and adult appetites
- Species longevity
- **Shared aquatic habitats**

Which situation will be most hospitable to Mosquitos?



Over 3500 kinds of Mosquitos on Earth . . .



. . . but only a few species threaten humans.



**Aedes albopictus**  
(the tiger mosquito)

- Aggressive daytime biter
- Vector of: Chikungunya, Zika, Dengue



**Culex pipiens**  
(northern house mosquito)

- Bites at twilight, in the evening
- Vector of: West Nile Virus, St. Louis Encephalitis

this  
Mosquito  
is not  
in our area  
at this time



## **Anopheles** (malaria mosquito)

- Bites early morning, early to late evening
- Vector of: Malaria

## MOSQUITO FUN FACT:

*Sabethes cyaneus*, the rare neo-tropical paddle-legged mosquito, is considered the world's most beautiful . . . and IS a disease vector.



James Gatheny for Science Photo Library 2024

## MOSQUITO FUN FACT:

*Toxorhynchites rutilus* – “elephant,” the world’s largest mosquito – has been mobilized to help control populations of disease-vector mosquito species.

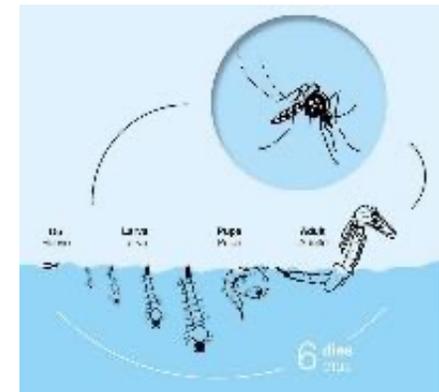


Consuming larva of Culex species



Comparison with Aedes species

# Mosquito Alert - 2016 - Barcelona, Spain



# MOSQUITO FUN FACT:

**JOIN THE SWAT TEAM**

**MOSQUITO ALERT STL**

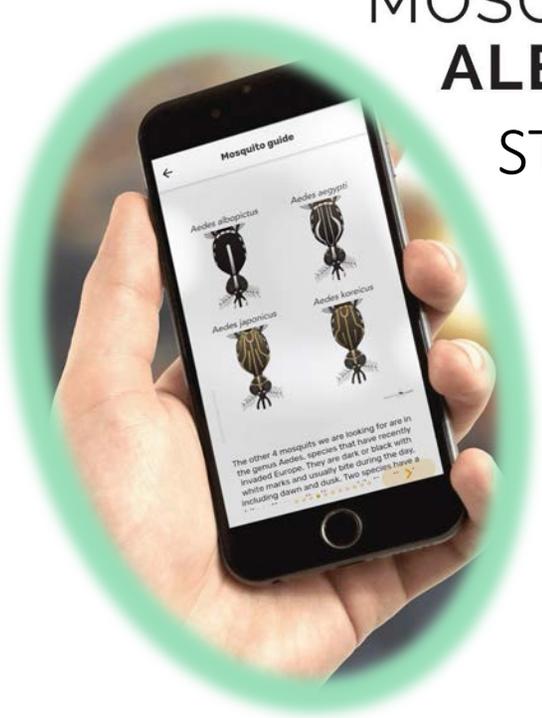
**Use the app!**  
**Protect yourself and our community!**  
**Protect pollinators!**

MISSOURI BOTANICAL GARDEN  
SAINT LOUIS UNIVERSITY  
SAINT LOUIS COUNTY Public Health  
UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE

St. Louis made the first Citizen Science use of this app in the U.S.



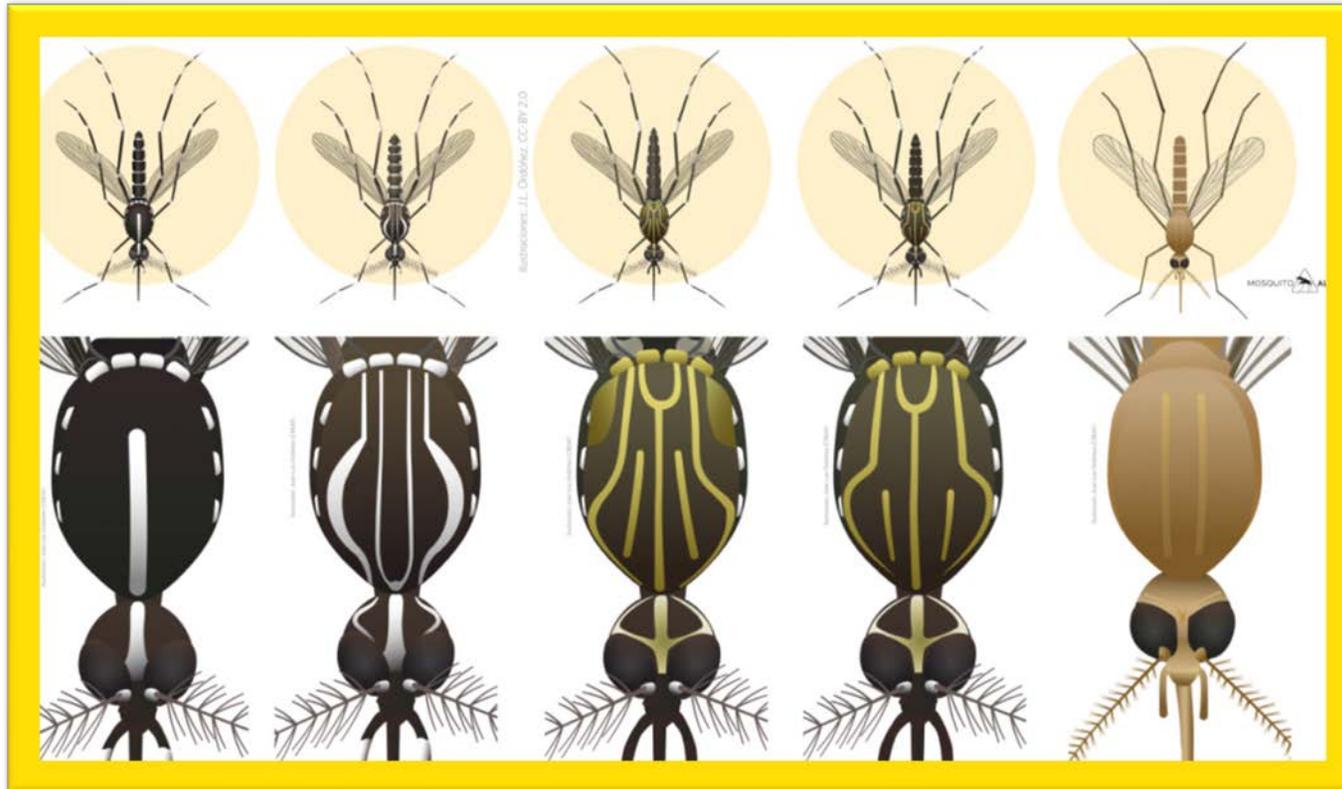
## MOSQUITO ALERT STL



## MASTL is easy to use

- ✓ Download the app
- ✓ Photograph mosquitos, mosquito breeding sites or mosquito bites
- ✓ Use mosquito ID guides as needed
- ✓ Professional entomologists review all community reports
- ✓ Mosquito Alert is privacy-protected
- ✓ You'll get a response to your report
- ✓ Community "eyes and minds" add person-power to the capacity of our Public Health agencies
- ✓ Protect your health as you protect pollinators!

## MASTL graphic guides help you ID the mosquito species you report

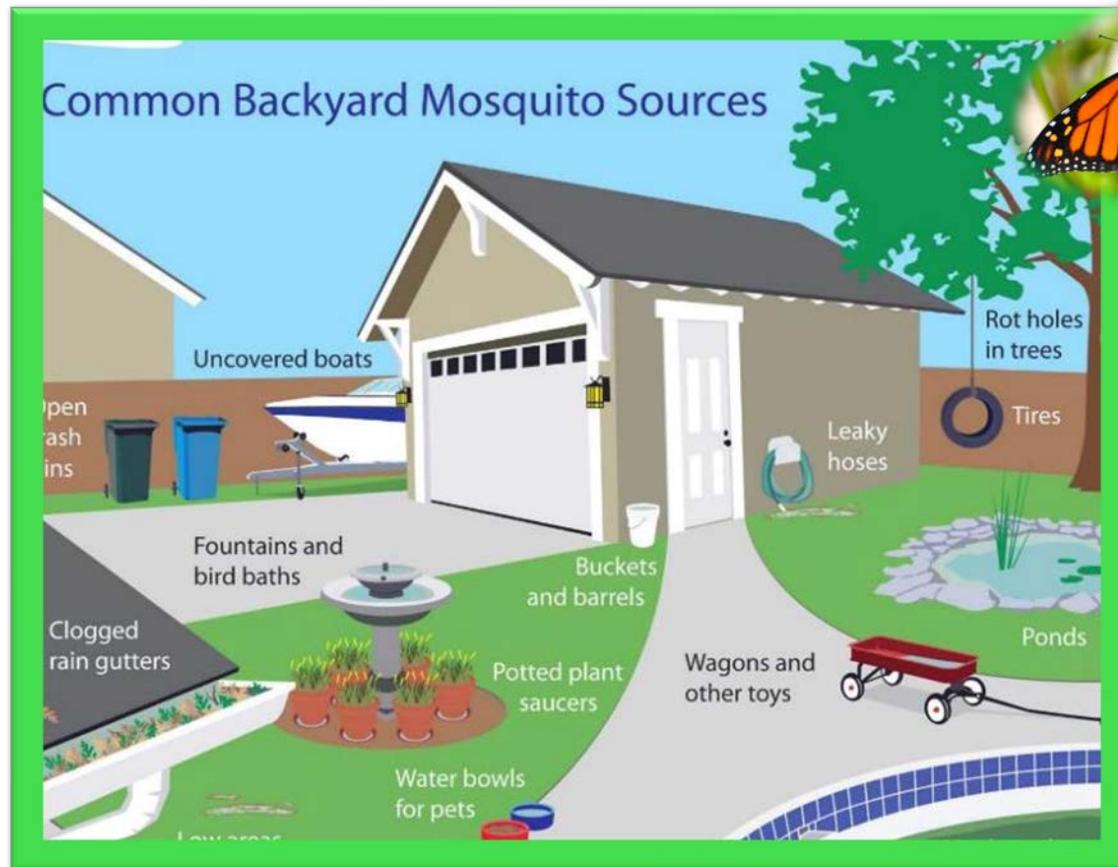


# MASTL Team Activity

- Regular posts to [Instagram](#) and [Facebook](#)
- [Website](#) hosted by Missouri Botanical Garden
  - [www.mobot.org/MosquitoAlertSTL](http://www.mobot.org/MosquitoAlertSTL)
- Public Health internships
- Frequent, diverse media coverage
- Outreach at environmental festivals, community events
  - Including collaboration with *TickWatch*
- Publication from Saint Louis University in *Citizen Science Theory and Practice (anticipated 2026)*
- **Project will be dormant as of 2026**
  - Materials archived on website may be used with attribution



# How can you protect yourself AND Pollinators?



Find it  
and  
DUMP it!



# Control Mosquito Breeding



*Bacillus thuringiensis israelensis*  
"Bti"

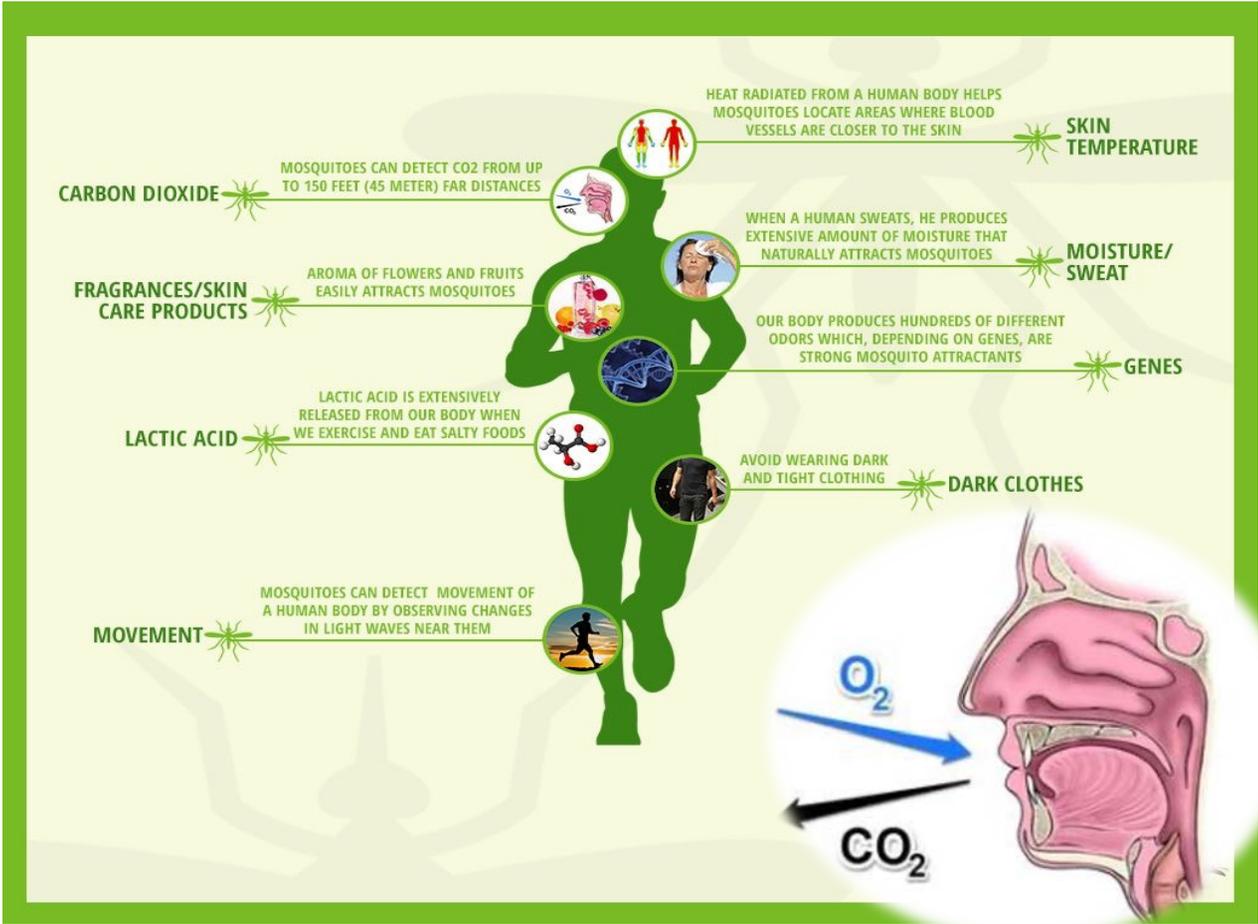
- ✓ Drop-in Mosquito Dunks
- ✓ Broadcast Mosquito Bits
- ✓ Biological larvicide is only lethal to insects in Diptera family (mosquitoes, flies)
- ✓ Will not harm pets, birds, fish, amphibians, reptiles
- ✓ Naturally occurs in soil spores
- ✓ Blocks larvae from eating
- ✓ Purchase at home improvement stores and garden centers

Let's get personal!



WHAT ATTRACTS

*Mosquitos?*



# What discourages mosquitos?



## EPA Approved Active Repellant Ingredients

- Deet
- **Catnip Oil**
- **Oil of Lemon Eucalyptus**
- **Citronella Oil**
- Picaridin
- IR-3535
- 2-undecanone
- PMD (p-Menthane 3.8-diol)

## MOSQUITO FUN FACT:



Female mouthpart, called the Proboscis, is a tubular sheath around SIX unique parts that slice skin, hold skin apart, inject “anesthetic” saliva, and syphon blood from prey.



Mosquito  
Bite?  
**TELL US  
ABOUT IT!**  
Prevent  
mosquito  
borne illness.

Download the mosquito alert app today!



# The hard fact of “pest control”



Bug Fogging Kills Bugs. Period.



We CAN and MUST eco-logically “control pests”



**SAINT LOUIS COUNTY**  
Missouri

# What the Public Health Professionals do: **Surveillance**



**In the field**  
wherever mosquito breeding  
is reported or suspected

# Analysis



## **In the laboratory**

run by your county or state public health agency

# Larviciding



## **In the community**

on public property, to control mosquito breeding in identified locations

# Adulticiding (Fogging)



- Rarely done now on regular routes.
- Effective only where mosquito species of concern are known to be breeding
- People can “opt out” of fogging schedules
- Only kills adult insects – ***DOES NOT STOP BREEDING!***

# Key Differences in Pest Control Fogging Chemical Use

## Public Health Agency

- Droplet size calibrated small to target mosquitos
- Equipment tuned to maintain calibration
- No chemical residuals
- Droplets remain active ~15 minutes then disperse
- **Use prompted only by presence of disease-carrying species**

## Private Pest Control Company

- Chemical residuals intended to remain active on plants for up to 30 days
- Customer demand, prompted by advertising
- **Applications are lethal to all insects**



## MOSQUITO FUN FACT:



GOVERNMENT RESIDENTS BUSINESSES DOCUMENTS EVENTS

For several years, the Public Works Department provided mosquito adulticide services, a weekly application of mosquito control spray in residential areas throughout the City from late May to mid-September. In August 2025, the Board of Aldermen voted unanimously to discontinue this service. They noted adulticide services were not effective in reducing the mosquito population and instead harmed other, beneficial insects. The Public Works Committee discussed this issue during several meetings in 2025 and previous years. Effectiveness, not cost, was a key factor in the decision to discontinue the service.

*Website of City of Ballwin MO, population 31,103*

# Use Your Eco-Sense



Where you **PLANT** for Pollinators . . .



. . . don't **SPRAY**  
for Mosquitoes . . .

. . . **DUMP**  
standing water  
and **USE** Mosquito  
Alert!





## Green Questions?

Missouri Botanical Garden's  
Green Resources Answer Service  
*is at your service*

[greenresources@mobot.org](mailto:greenresources@mobot.org) – 314-577-0246



MISSOURI BOTANICAL GARDEN