Mosquitoes in our communities

The handy guide for busy families, concerned citizens, community leaders, and businesses

These SMALL insects have LARGE impacts on our way of life in Los Angeles County

Get the Answers You Need

- Which insect repellents work best?
- Should I worry about West Nile virus, Zika or dengue fever?
- How do I get rid of mosquitoes?

Protecting Public Health from Vector-borne Disease since 1952

www.GLACVCD.org  562-944-9656 | 818-364-9589
No one has ever welcomed mosquitoes into their neighborhood. These insects leave itchy bites and have the potential to vector (transmit) diseases to people and pets.

There are more than 3,500 species of mosquitoes worldwide. California is home to more than 50 species, at least 15 of which are found in Los Angeles County. A few species have negative impacts on human health. Working with residents, the Greater Los Angeles County Vector Control District monitors and controls mosquitoes year-round.

To understand how to keep your home mosquito-free, let’s go over some basics.

What is a Vector?
A vector is any animal or insect that is capable of transmitting a disease or causing discomfort to humans. More than 725,000 people die every year worldwide from diseases transmitted by mosquito bites.

Doing Our Part
Since 1952, the Greater Los Angeles County Vector Control District has controlled and monitored populations of the following vectors and nuisance species in your communities:

- **Mosquito**: 1/4 - 1/2 Inch
- **Black Fly**: up to 1/4 inch
- **Midge**: up to 1/2 inch
All mosquitoes need standing water to complete their life cycle. After a female mosquito takes a blood meal (bites), she will look for standing water to lay her eggs. Some species of mosquitoes can lay their eggs in containers as small as a bottle cap!

Larva (in water)
Larvae (“wigglers”) are often found at the surface of the water where they breathe. Larvae feed on bacteria and algae in the water and shed their skin four times as they grow.

Pupa (in water)
Pupae (“tumblers”) do not feed, but still breathe at the surface of the water.

Adult
Most people recognize adult mosquitoes. Mosquitoes feed on plant juices for food. Only female mosquitoes bite to receive protein needed to produce eggs.

Did you know?
Vector control delivers free mosquitofish that eat mosquito larvae and pupae in your fountains & ponds!

It takes only 7 days!
The Threat

Meet The Insects That

“W”e have mosquitoes?” Yes! At least 15 different species of mosquitoes live in Los Angeles County. However, for most residents, two groups (genera) of mosquitoes pose the most significant public health risks: Aedes and Culex.

Vector control continues to monitor and control these mosquitoes wherever they are found. These threats exist where you live, sleep, work and play.

**Aedes Mosquitoes**

Residents can quickly identify *Aedes* mosquitoes by their black-and-white stripes. The *Aedes* mosquitoes that pose the greatest health risks are *Aedes aegypti* (yellow fever mosquito) and *Aedes albopictus* (Asian tiger mosquito). *Aedes* mosquitoes thrive in man-made containers and do not fly far. If you are getting bites, the standing water is probably in your own yard.

**Remember!**

*Aedes aegypti* and *Aedes albopictus* do not belong in our Los Angeles environment. People can accidentally bring their eggs into our ecosystem through plant shipments, travel and commercial activities.

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**Known to Transmit:**
- To People: Zika, yellow fever, dengue fever, and chikungunya
- To Pets: Canine heartworm

**Lives and Breeds:**
- Indoors and outdoors - Prefers small containers with standing water

**When They Bite:**
- Aggressively all day, from dawn to dusk

**Primarily Bite:**
- People, occasionally other mammals

**Lay Their Eggs:**
- Individually - Eggs can survive on containers/plants for years

**Life Cycle:**
- From egg to adult in about 7 days
Bug Us The Most

**Culex Mosquitoes**

*Culex* mosquitoes are the most prevalent in our cities. They thrive in natural and man-made sources of highly organic standing water. *Culex* mosquitoes can fly a few blocks to 10 miles in search of a blood meal. While these mosquitoes primarily feed on birds, they occasionally feed on people, which is how West Nile virus is spread.

**Known to transmit:**
- To People: West Nile virus, St. Louis encephalitis and Western equine encephalomyelitis
- To Pets: West Nile virus (horses and birds)

**Lives and Breeds:**
- Outdoors - Prefers larger containers or sources such as pools, ponds and gutters with standing water

**When They Bite:**
- Dawn and dusk 🌅

**Primarily Bite:**
- Birds, people and other animals 🐦_people_unit_

**Lay Their Eggs:**
- Egg raft containing up to 250 eggs 🐛
- Dump standing water!

**Life Cycle:**
- From egg to adult in about **7 days**

**Did you know?**
The mosquito species in our cities do not swarm. If you see swarming insects, they’re most likely not mosquitoes.

**Remember!**
1/4 - 1/2 Inch
Size of Mosquito
It Only Takes One Bite,

Thousands of people become ill or die from mosquito-borne disease every month. Understanding what and where these diseases are is an important step in protecting yourself and your family. Vector control regularly uses mosquito traps to catch and test the mosquitoes in your community. Using trap results, we can more effectively prevent local outbreaks. Here are the diseases that are considered significant public health threats.

**West Nile Virus**

When mosquitoes infected by West Nile virus (WNV) bite, they can transmit the virus to people. Symptoms include body aches and fever. More severe cases can result in paralysis, coma or death. There is no cure or vaccine for humans.

**Canine Heartworm**

Certain *Aedes* mosquitoes can transmit a roundworm that lives in the hearts of dogs and cats. Heartworm is transmitted from one animal to another by the bite of a mosquito.

**Zika**

People infected with Zika can develop mild to moderate symptoms that include body rashes, conjunctivitis (red eye), and fever. Fetuses infected with Zika have a higher risk of developing severe birth defects. There is no cure or vaccine.

**List of Other Diseases of Concern**

- Yellow fever
- Dengue fever
- Chikungunya
- St. Louis encephalitis
- Western Equine encephalitis

**To Learn More:**

- [www.cdc.gov](http://www.cdc.gov)
- [www.publichealth.lacounty.gov](http://www.publichealth.lacounty.gov)

**Remember!**

Only female mosquitoes bite and are responsible for transmitting diseases to people and pets.
Don’t Risk Your Health

World’s Deadliest Animals

Number of people killed by animals per year

10,000 Freshwater snail (schistosomiasis)
10,000 Assassin bug (Chagas disease)
10,000 Tsetse fly (sleeping sickness)
25,000 Dog (rabies)
50,000 Snake

475,000 Human

725,000 Mosquito

SOURCES: WHO; crocodile attack.info; Kasturiratne et al. (doi:10.1171/journal.pmed.0050318); FAO (webcitation.org/6OVgp58S70); Limoli et al. (webcitation.org/6O9L7D8U9); Packer et al. (doi:10.1038NPJF66027a); Alessandro De Maddalana. All calculations have wide error margins.
Protect Your Family &

Did you know patios and yards are the #1 source of mosquito problems? While the Greater Los Angeles County Vector Control District protects your health year-round, you can do your part by hunting down these common sources at least once a week.

Where Do Mosquitoes Grow?

In anything that can hold water for more than 5 days

Avoid an embarrassing yard or patio full of mosquito sources:
- Tightly screen/seal containers
- Drill holes in bottoms of containers
- Dispose of old containers not in use
- Remove all standing water!
Take Back Your Home

Don’t Let Mosquitoes Take Over Your Home. Be the Master of Your Domain!

Dump out any standing water at least once a week.
Stop the Bites and

Insect Repellent - Which is Best?

Not all repellents are equal. Which repellent is best for you depends on your age, activities, and type of pest you’ll encounter. Use this guide to start your search for the most effective repellent ingredients registered with the U.S. Environmental Protection Agency and recommended by the CDC. **ALWAYS FOLLOW LABEL INSTRUCTIONS** when applying repellent.

**DEET**

Repellents containing DEET are available in a variety of forms. DEET is considered one of the most effective and popular ingredients to use against mosquitoes and other biting insects.

**For Children:** Over 2 Months

**Picaridin**

For many people, Picaridin is an effective alternative to DEET. Picaridin is generally odorless and colorless, allowing many brands to offer pleasantly-scented options.

**For Children:** Over 2 Months

**Oil of Lemon Eucalyptus**

This is a natural plant-based repellent that is available as pump sprays and lotions.

Oil of lemon eucalyptus repellents provide similar protection to that of products containing DEET.

**For Children:** Over 3 years

More info: www.epa.gov/insect-repellents
Repel the Mosquitoes

IR3535
Repellents containing IR3535 are available as aerosol, pump sprays and wipes. Be advised that this formula is an eye irritant.

For Children: Over 6 Months

Facts About Repellent

Bracelets only protect the area around the wrist.

Belt Fans and Candles only protect the area immediately around the device. A strong breeze can easily render these useless.

Citronella and other “mosquito plants” will not repel mosquitoes on their own. Leaves must be crushed and repellent oils extracted to be effective.

Stop the Bites!
In addition to eliminating standing water and using insect repellent, follow these steps to prevent further mosquito bites at home and when traveling:

- Maintain screens on windows and doors
- Wear loose-fitting long sleeves and pants
- Once a month, inspect your rain barrels to make sure lids are tightly screened and in good repair with no holes
- Stay alert, traveler! - Watch CDC’s travel advisories and follow recommendations

Notice mosquito breeding sources in your neighborhood? Are you experiencing mosquito bites? Contact us at www.ReportMosquitoes.org or call 562-944-9656
You’re not alone in the fight against mosquitoes. We work year-round because mosquitoes can survive the winter in Los Angeles County. We use an integrated approach by monitoring your community for disease, controlling for vectors, and educating the public.

Next time you see this: Think this:

Controlling and monitoring vectors in public areas:
- Inspecting underground storm drain in the middle of the road - Millions of mosquitoes seek safety and breeding sites right underneath your feet!
- Plowing away debris in concrete channels - Trash creates standing water sources. This pesticide-free approach keeps water moving and protects people along our waterways.
- Monitoring vectors using traps - Mosquitoes are analyzed and tested for mosquito-borne diseases to ensure swift response to protect your family.

Prevention Starts with Education:
- School Programs - Students “bug out” with state-certified Education Program Coordinators in grade-specific curriculum aimed at advancing science, technology, engineering, arts, and math (STEAM).
- Presentations, Workshops and Fairs - We can host a booth, and speak to clubs and other community organizations.

Patrolling Your Neighborhood:
- Inspecting street gutters - Standing water will gather in street gutters if people overwater or rain water is unable to flow freely.
- Inspecting dirty, green swimming pools - One pool can produce at least 10,000 mosquitoes a week! Working with our residents is critical.
Protecting Your Community

Public Health Pesticides

As part of our Integrated Vector Management (IVM) strategy, we always attempt to physically remove the source of mosquito breeding. That's why we always say “Get rid of stagnant water!”

However, when physical control isn’t possible or if there is a serious and immediate threat to public health, we will use pesticides to eliminate the public health threat. This environmentally-sensitive approach poses minimal risk to humans, animals, and the environment.

Fighting Larvae and Pupae

A majority of our pesticide use is on immature stages of mosquitoes. Tackling mosquitoes in standing water is extremely effective using the following materials.

- **B.t.i. (Bacillus thuringiensis) and B.s. (Bacillus sphaericus)**
  Naturally-occurring soil bacterium that targets mosquito larvae
- **Methoprene**
  Mosquito juvenile hormone
- **Spinosad**
  Naturally-occurring bacterium
- **Surface film oil**
  Prevents larvae and pupae from breathing.
- **Mosquitofish**
  These hardy fish will gobble up mosquito larvae and pupae in your pond and fountain

Fighting Adult Mosquitoes

It is more difficult to control mosquitoes when they’re flying, but tools are available to control a mosquito infestation or disease outbreaks. These materials target the adult mosquitoes (adulticides).

Most applications of adulticides use less than 1 fl. oz. (2 tbsp) per acre. They’re dispersed in diluted amounts as ultra-fine droplets, which break down to harmless ingredients very quickly in the environment.

- **Pyrethroid and Pyrethrin**
  Derived from chrysanthemum flowers
- **Organophosphates**
  Highly effective at controlling mosquito populations

For more information, visit npic.orst.edu/
There are many insects that look like mosquitoes, but they are not! Don’t let these mosquito imposters bug you. These insects have short life spans and will usually go away in a couple weeks.

**Midge**

- **Length:** up to 1/2 inch

**Crane Fly**

- **Length:** up to 2 inches

**Fungus Gnat**

- **Length:** up to 3/8 inch
Most mosquito problems exist in backyards and patios. Spending 10 minutes a week to dump stagnant water will greatly reduce the risk of getting bit by mosquitoes and getting sick. Here are the top mosquito problems commonly found around a home:

- Rain barrels and containers
- Trash and trash bins
- Roof rain gutters & street gutters
- Bird baths and fountains
- Plant containers and plant saucers
- Troughs and pet water bowls
- Toys that hold water
- Yard drains
- Tarps
- Old tires
- Ponds
- Swimming pools and spas
- Wheelbarrows

**Other Tips:**
- Fix broken window screens
- Fix leaking water
- Inform your neighbors

**Remember!**

*Aedes* eggs are stuck to containers, even if you dump out stagnant water. If you’re not using containers, dispose of them.

**No Standing Water. No Mosquitoes. No Diseases.**
You Need to Read This Mosquito Guide

Do any of these fit into your lifestyle or future plans? If you answer “Yes” to at least one of the following, then you need to read this!

- Travel
- Own or Rent Home
- Collect Rain Water
- Own Pets
- Have a family
- Go to Outdoor Events
- Share Plant Cuttings
- Hike or Camp

Mosquito Control is a Year-Round Effort in Southern California

You play a vital role in preventing a disease outbreak in your neighborhood

Did You Know...?

- GLACVCD covers more than 1,340 square miles - That’s almost as large as the state of Rhode Island!
- Our agency has a disease outbreak emergency plan that includes local and state public health agencies? If there’s a disease outbreak, such as Zika, know that multiple agencies will be there for you and your family.

General Info: www.GLACVCD.org
Educators: www.BugBus.org
Need Help? www.ReportMosquitoes.org or call us:

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