

If You Have Questions About Mosquitoes or Stormwater Management Facilities...

Contact the County Customer Service Center at 3-1-1 or visit mc311.com

Outside Montgomery County: 240-777-0311, TTY: 301-251-4850



The County has monitored, and will continue to monitor, stormwater management facilities for potential mosquito issues.



However, it is important that we all do our part to eliminate mosquito breeding areas in our own backyards and balconies.

For More Information about mosquitoes, mosquito-borne viruses and more, visit: montgomerycountymd.gov/mosquito
about stormwater management, visit: montgomerycountymd.gov/water

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PREVENTING MOSQUITOES



Learn about mosquitoes, where they breed, and how to prevent them

montgomerycountymd.gov/mosquito



What You Can Do On Your Property

Eliminate Breeding Places

Preventing mosquitoes is easy as long as you understand these 3 key points:

- To stop mosquitoes, you need to stop their breeding;
- To stop the breeding, you must eliminate standing, stagnant water; and
- For most of us, the sources of standing water are in our own backyards.

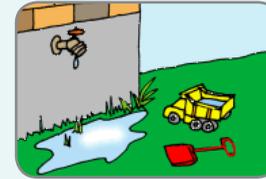
As little as a teaspoon or bottle cap of water standing **for more than a week** is enough for eggs to develop into adult mosquitoes!

- ✓ Eliminate all standing water on your property. (Follow the checklist below at least once a week)
- ✓ Scrub and dump containers left outdoors. *It is not enough to dump standing water. Mosquito eggs can stick to the sides of containers too!*
- ✓ If you own a rain barrel, make sure to use debris screens, keep the barrel tightly closed and use collected water within a week.
- ✓ Kill mosquito larvae using a recommended larvicide. (See next page.)
- ✓ Share this brochure with your neighbors.

Where to Check for Standing Water:



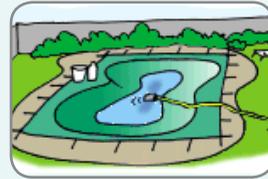
Clean out roof gutters & downspout screens.



Fix dripping outdoor water faucets.



Add a fountain to your ornamental pond.



Drain water that collects on pool covers.



Store recycling & trash bins out of the rain. Dump any water at least weekly.



Flush birdbaths & saucers under potted plants at least once a week.



Drain water trapped in folds and arrange tarps so water runs off.



Get rid of puddles from window air conditioners.



Turn over children's toys, wading pools, buckets, wheelbarrows, canoes, etc. (Even better: bring them inside if able)



Cap outlet with old nylon stocking and seal downspout connections. If possible, replace corrugated with smooth PVC.



Properly dispose of used tires. For tire swings, drill holes in bottom of the tire so water will run out.



Properly dispose of trash, recycle opened cans and bottles and return any plastic bags to a grocery store.

Recommended Larvicides

Chemicals should be used as a last resort when trying to eliminate mosquitoes. If after eliminating their breeding places you still find an overabundance of mosquitoes, then consider using a larvicide.

B.t.i. Larvicide (a.k.a. Mosquito Dunks and Bits) kill mosquito larvae. It can be purchased in home improvement stores and online. Bti larvicide should only be used in standing water in containers on your property that do not drain to open waterways, storm drains, ponds or wetlands. The scientific name for Bti is *Bacillus thuringiensis* var. israelensis.



Mosquito Bits



Mosquito Dunks

VectoLex (*Bacillus sphaericus* or Bs) is another bacterial larvicide that is successful at targeting mosquito larvae over other aquatic insects.

VectoLex can only be purchased and applied by someone with a pesticide applicator license.

Appropriate Places for Mosquito Dunks or Bits:

- Flower pots
- Birdbaths
- Roof gutters
- Rain barrels
- Old tires
- Swimming pools
- Ornamental ponds, such as fish ponds. (Dunks are NOT for stormwater management ponds)
- Animal watering troughs

Don't Use Mosquito Dunks or Bits In These Locations:

- Water that drains to natural water bodies, such as creeks or streams
- Ponds, lakes, stormwater ponds or wetlands
- Water that is moving (mosquitoes can't breed in moving water)
- Any water on parkland

Mosquito Life Cycle



2-3 days

Egg - Mosquito eggs are oval and about 0.635mm long and are either laid singly or as a group floating on the water.



5-6 days

Larva - There are four developmental stages called instars and some species can grow to a 1/2 inch long. Larvae move through the water in a serpentine motion.



2-3 days

Pupa - About the size of a sesame seed. Pupae move in a somersault fashion through the water. They remain at the surface unless they are disturbed.



Adult Asian Tiger

Adult - Process begins again with a female adult mosquito collecting a blood meal (for protein) to lay her eggs. Adults typically live 2-3 weeks.

Photos: James Gathany (CDC)

Did You Know...

- *Aedes* mosquitoes include the Asian Tiger and the Yellow Fever mosquitoes. These two species have the potential to carry the Zika Virus.
- *Aedes* mosquitoes are non-native to Maryland. They prefer to breed in small amounts of standing water near human activity, rather than natural areas.
- The other mosquito species of concern is the native *Culex* which is most active at night.
- The *Culex* mosquito can carry the West Nile Virus.



Culex pipiens

Stormwater Management & Mosquitoes

Stormwater management facilities remove pollutants and prevent stream damage, erosion, and flooding. They include large scale infrastructure projects (such as stormwater ponds), as well as, homeowner installed RainScapes (such as rain gardens or rain barrels).

There are thousands of stormwater facilities in the County, some of which contain and treat water from large drainage areas. These facilities are essential to reducing the adverse effects of human impacts on the environment.

Stormwater management facilities are often thought to be the source of large numbers of mosquitoes because they contain rainfall runoff.

Mosquito larvae cannot complete their life cycle to become adult mosquitoes if:

- Water is flowing or moving, like in a stream, or a pond with a fountain;
- There are predators that feed on mosquitoes, such as fish, frogs, birds, salamanders, dragonflies, and aquatic insects; or
- The water drains within a week.

But if a stormwater management facility is designed, built and maintained properly, it should not promote excessive mosquito breeding.

Practices that Hold Water Permanently



Stormwater pond

Stormwater management ponds typically are not preferred breeding habitats for mosquitoes.

Stormwater ponds and stormwater wetlands maintain balanced ecosystems with natural predators that control mosquito populations.



Dragonflies and turtles prey on mosquito larvae and keep their populations in check.



Practices that Hold Water Temporarily



During the rainstorm

Green Streets, such as bioretention gardens and swales, or rain gardens are designed to hold and infiltrate stormwater. They fill up during storm events and then release the water within two to three days.



24 hours later

Because these systems hold water for only short periods of time, mosquitoes will not have enough time to reach maturity.



Green Street bioretention

Most Green Streets are designed to drain water in less than 72 hours.