

Mosquito Control Around Your Home

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The key points:

- 1. The best way to control mosquitoes is to get rid of all standing water on your property. Mosquitoes do not breed in moving water such as streams.**
- 2. The larvicide Bti can be used in ornamental water features and other standing water that remains for more than a few days.**
- 3. Natural predators exist and can be attracted by providing good habitat.**
- 4. Insecticides will reduce adult populations temporarily but will also kill or harm beneficial insects. Do not spray native or flowering plants or woodland areas.**
- 5. Some plants may be helpful mosquito repellents.**

1. Best Practices:

Most mosquitoes are poor fliers. If you are being bitten by them, they are probably breeding close by. Many mosquitoes prefer to breed in all sorts of still water held in artificial containers. Mosquitoes need only a few tablespoons of water to breed.

The most effective way (and least expensive!) to control mosquitoes is to eliminate or treat the standing water where mosquitoes lay their eggs and their larvae live and grow. Once an adult mosquito has emerged from its water-breeding site, air-borne chemical spraying provides only temporary relief. Even more effective is to enlist your neighbors in the hunt for potential mosquito breeding areas. Best practices:

- **Turn over or remove containers in your yard** where rainwater collects, such as potted plant trays, buckets, toys, wheelbarrows, and other yard gear.
- **Empty bird baths once a week.**
- **Remove old tires from your yard.**
- **Clean roof gutters:** leaves and debris should be cleaned out of gutters frequently to ensure that water flows freely and does not accumulate.
- **Downspout drainage:** Be sure that flexible plastic pipes used for downspout drainage are installed so that water may drain freely. **The grooves in these plastic pipes can hold enough water to breed mosquitoes.** --- (From the Fairfax County website)

2. Larvicide

Standing water that cannot be drained and lasts longer than a week should be treated with a mosquito larvicide. *Bacillus thuringiensis israelensis* (aka Mosquito Dunks) is a naturally occurring

bacteria is used as a larvicide in ponds and other areas where mosquitoes are breeding. The larvae die when they feed on it in the water.

Bti is commercially produced by companies that grow it in fish meal or soy flour and sell it in pellets. The pellets are sold at home and garden stores, usually by the brand Mosquito Dunks. The pellets can just be dropped into water where they will slowly release Bti.

Once the larvae eat the bacteria, it develops into several toxic substances in their stomachs, quickly killing them. Bti is not harmful to animals, birds. It will kill larvae of some other insects such as midges, fungus gnats and black flies. It is effective against larvae only and has no effect on adult mosquitoes. -- info from <http://www.mosquitoworld.net>

3. Mosquito Predators!

Yes, many insects and animals like to eat mosquitoes and their larvae, so habitats for the predators will help control your mosquito population. Birds, bats, amphibians and many insects dine on mosquitoes and their larvae.

Nearby ponds or streams provide habitat for dragonflies and frogs. Salamander larvae will eat mosquito larvae, if you are lucky enough to have a wooded area that supports mole salamanders.

Dragonflies may look like scary biters, but they are only dangerous to mosquitoes. Dragonfly larvae, "nymphs," feed on mosquito larvae, and adult dragonflies feed on adult mosquitoes.

The key to attracting dragonflies is to provide an environment that is comfortable and safe for them. A small pond, shallow at one end and deep at the other, with vegetation that grows out of the water and plenty of flat rocks surrounding it should do just fine. The nymphs will eat mosquito larvae in the water, and the adults will sun themselves on the rocks, waiting for the adults to leave the water. Some towns in Maine have been buying and releasing dragonfly nymphs in local waters for decades and attest that the insects help keep local mosquito populations under control.

Birds: Many birds eat mosquitoes - including common area birds such as chickadees, house wrens, and swallows.

Bats: Install a bat house. We have lots of bats around and they will make a home in your bat house and eat many, many mosquitoes. See more at:

<http://www.batcon.org/index.php/get-involved/install-a-bat-house.html>

Information about predators is from:

<http://www.wbrcouncil.org/catsubcat/CatSubCatDisplay.asp?p1=136&p2=Y&p7=36&p8=565&p9=csc1>

4. Insecticides

- **Bottom Line: Insecticides are at best a temporary solution. However, they will likely harm most, if not all, pollinator populations. Insecticides will also significantly reduce the population of some mosquito predators as well as the food sources (other insects) for all of the mosquito predators, in effect reducing the ability of natural controls to work. If you resort to using sprays, avoid spraying around native plants, any plants and foliage that are flowering or are insect-attracting plants, and wooded natural areas.**

- **Note: The insecticides will work for several days when applied to shrubbery or grass. When released into the air through fog or mist, they usually are good only for a few hours before they become too dissipated to be effective. Rainfall further reduces their performance.** Source: <http://www.mosquitoworld.net/mosquitoinsecticide.php>

Bifenthrin - Bifenthrin (active agent in Ortho's Home Defense and used by some local commercial mosquito control companies) Bifenthrin is a pyrethroid with low toxicity reported in humans and animals, moderately toxic to many bird species and is toxic to most aquatic species. It is also very toxic to bees and other beneficial insects. Source: http://sdda.sd.gov/ag_services/Agronomy_Services_Programs/Pesticide_Program/MPBBall2012CommlTrtmt.pdf

Pollinators, including butterflies and other beneficial garden inhabitants, will be harmed by even very dilute solutions of bifenthrin. Researchers found that in honey bee colonies exposed to sublethal amounts of these pyrethroids, the queens didn't lay as many eggs, the number of eggs that hatched was far fewer, and the number of hatchlings that made it to adulthood was even fewer. Since the honey bee life cycle—from egg to adult worker—is just 21 days, you could go from a very strong hive to a very weak one in less than a month. Source: <http://www.honeybeesuite.com/pesticide-poisoning-of-honey-bee-larvae/>

Permethrin is the active ingredient found in Astro and Dagnet. Permethrin has very low toxicity to birds but is toxic to aquatic life and is very toxic to bees and other beneficial insects. (http://sdda.sd.gov/ag_services/Agronomy_Services_Programs/Pesticide_Program/MPBBall2012CommlTrtmt.pdf) FYI, Permethrin is toxic to cats. Permethrin based topical flea products are usually labeled "for use in dogs only." There is a wide safety margin for permethrins in dogs. Cats, however, are exquisitely susceptible to the toxic effects of permethrins. Application of permethrin-based insecticide to a cat will usually result in toxic signs within 6 hours. Source: <http://www.petplace.com/cats/permethrin-and-pyrethrin-toxicity-in-cats/page1.aspx>

Malathion is an organophosphate often used to treat crops against a wide array of insects. It is sprayed directly onto vegetation or used in a 5 percent solution to fog the yard. In the small amounts used for mosquito control it poses no threat to humans or wildlife. In fact, malathion is also used to kill head lice. Malathion is highly toxic to bees and other beneficial insects, some fish, and other aquatic life. Malathion is moderately toxic to other fish and birds, and is considered low in toxicity to mammals. Source: <http://npic.orst.edu/factsheets/malagen.pdf>

5. Plants:

Some plants have reputations as mosquito repellents - while these won't kill mosquitoes, maybe they will help around your patio area. Lemon thyme, citrosa, marigolds, catnip and rosemary are often cited as effective deterrents.

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