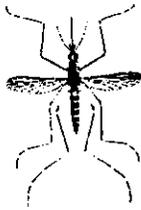


Monmouth County MOSQUITO EXTERMINATION COMMISSION

Questions & Answers



Who we are and what we do....

The Commission operates under the Public Health Statutes of New Jersey. As mandated by the Laws of 1912 chapter 104, the Board of Chosen Freeholders of the County of Monmouth established the "Monmouth County Mosquito Extermination Commission", and the first meeting of this Commission was held on July 23, 1914. The Monmouth County Mosquito Extermination Commission provides a county-wide integrated pest management program for the control of nuisance and disease-causing mosquitoes. Our mission is to provide County residents and visitors protection from arthropod vector-borne diseases, while maintaining an environmental comfort level that is suitable for the enjoyment of outdoor activities. . The program is based on the standards adopted by the New Jersey Mosquito Control Association as an EPA approved sub-partner of the American Mosquito Control Association's, Pesticide Environmental Stewardship Program.

Since 1976, the Commission has obtained permits from State and Federal agencies to undertake activities of remediating wetland habitat. The Water Management Program of the Commission serves to enhance the environment while reducing mosquito-breeding habitat. The efforts of our entire mosquito control program have been instrumental in relieving the residents of Monmouth County from mosquito-borne diseases and pestiferous mosquito problems.

How many kind of mosquitoes are there in Monmouth County?

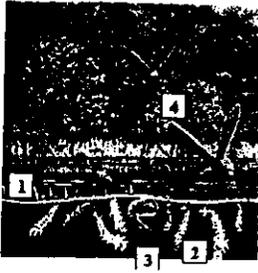
There are more than 30 different types, or species, of mosquitoes in Monmouth County. The differences between these species can be negligible, but at the same time, they can be quite dramatic. For instance, some species of mosquitoes never bite people, rather they prefer birds or amphibian hosts. Certain mosquito species prefer to feed during the daytime, while others feed at night. Regardless of these differences, all mosquito species have a similar life cycle that is dependent upon water.

What is the life cycle of a mosquito?



When the adult female mosquito feeds, she ingests blood from the host animal. From this bloodmeal, the female is able to extract all the proteins and other nutrients required to produce 100 to 300 eggs. These **eggs(1)** are laid on or near bodies of water.

Various mosquito species have evolved to seek out and lay their eggs in specific locations. In general, mosquitoes of the genus *Anopheles* lay single eggs that float on the water's surface. *Aedes* mosquitoes also lay single eggs; however, their eggs aren't laid directly on the water's surface. They prefer to lay their eggs just above the water line. As the water level rises during flooding events, these eggs then hatch. Other mosquito species will lay groups or clusters of eggs, often called egg rafts. *Culex* mosquitoes, for example, lay egg rafts on the surface of the water. The **larvae(2)** hatch from the eggs within hours and begin filter-feeding on decaying plant matter. Mosquito larvae are very active in their aquatic environments and have been called "**wrigglers**" because of their almost constant wriggling movements. Larvae breathe at the surface of the water through a specialized tube or siphon. Within 3 or 4 days they grow and pass through four stages or instars.. The final, non-feeding aquatic stage is called the **pupa(3)**.



Pupae are less mobile than larvae; however they can often be seen "tumbling" from the water's surface. Pupae, like larvae, breathe at the surface. While in the pupal stage, the mosquito larvae are changing into the adult form, a process requiring several days to complete. The adult(4) mosquito carefully emerges from the pupal case at the water's surface and immediately rests for several days to harden its outer cuticle.

Typically, male mosquitoes will emerge first and wait near the emergence area for the females to emerge and mate. After mating is complete, the adult females begin searching for a suitable host and subsequent bloodmeal. Between bloodmeals, the female feeds on nectar from flowers. This sugar meal is necessary for the mosquito to sustain herself. Although the male mosquito doesn't seek a bloodmeal, it does require a

sugar meal for sustenance as well. Adult mosquitoes are alive for several weeks to several months, depending upon numerous environmental conditions. Remember that only the female mosquito bites and that water is essential for the completion of the mosquito life cycle.

How do we control mosquitoes in Monmouth County?

Surveillance is the key component in our integrated mosquito management program, and our mosquito control decision making process relies on surveillance data to formulate control strategies. Pesticide usage is part of our surveillance based IPM approach to mosquito control- as is our water management program and biological control program.

Chemical larval control: The Commissioners recognize the necessity to use chemical control measures to reduce the impact of nuisance mosquitoes upon the residents and visitors of Monmouth County. We use only those products that are reviewed and recommended by the New Jersey Agricultural Experiment Station/Cook College/Rutgers. These products including the appropriate applications rates are published on an annual basis in *Insecticides for Mosquito Control in New Jersey*. All products used are registered with both the USEPA and the NJDEP; which means that they are legal for use in New Jersey. The Commission maintains records on over 3,000 known mosquito breeding sites within Monmouth County. During the active mosquito season, routine larval surveillance is conducted at these sites and if the locations are found to be breeding they are treated appropriately with ground application equipment. In addition, approximately 160 air blocks are treated with the Commission's Bell 206 helicopter. The larvicides of choice are Abate 5BG and Bti – a bacteria larvicide specific against mosquito and black fly larvae.

Water Management /Source Reduction: As part of our integrated mosquito management approach to mosquito control, the Commission has adopted a strategy to reduce mosquito breeding by physically managing the water's flow. This can range from simple handwork of removing log jams and blocks from a ditch or waterway to excavating accumulated sediment from a ditch, stream or lake. For our water management projects, the Commission follows "Best Management Practices for Mosquito Control and Freshwater Wetlands Management prepared by NJDEP.

Biological Control : The stocking of the mosquitofish *Gambusia affinis* and other selected species such as sunfish and fathead minnows in selected mosquito breeding habitats throughout Monmouth County is an integral aspect of our IPM approach to mosquito control. This work is done in cooperation with the NJ State Mosquito Control Commission and the NJ Division of Fish, Game and Wildlife. When used correctly, the introduction of mosquito-eating fish in suitable breeding habitats is an efficient, cost effective and environmentally sound method for the control of mosquito populations.

Adult Mosquito Control: The philosophy of the Commission is to use the most effective least impacting modality to control mosquito populations. Consequently, the reliance on adulticides is extremely infrequent and is considered to be necessary only when all other modalities have not brought about satisfactory control of nuisance mosquitoes and when mosquito populations become a public health issue. The Commission utilizes state-of-the-art truck mounted ULV machines, and if needed, we can equip our helicopter with a highly sophisticated Simplex ULV spray system.

What pesticides are used to control adult mosquitoes?

The professional staff of the Monmouth County Mosquito Extermination Commission is continually striving to decrease our reliance on pesticides for controlling mosquito populations. When pesticide use is necessitated, the staff of NJDEP licensed commercial pesticide applicators use larvicides, pupicides and adulticides that are registered with both the USEPA and the NJDEP. Being registered with both agencies, means the pesticides are legal for use in New Jersey. When it becomes necessary to target adult mosquito populations, the product of choice is the resmethrin Scourge. The other product that we could potentially use is Malathion. For more information regarding these pesticides for adult mosquito control please refer to the accompanying Questions & Answers Sheets and the For Your Information fact sheets published by the the US Environmental Protection Agency.

When spraying for adult mosquitoes-- how can I avoid exposure? What safety considerations are there?

The EPA does not require relocating or taking special precautions during mosquito control spraying. However, some individuals with preexisting health problems or concerns may prefer to avoid or minimize exposure by exercising common sense measures such as staying indoors during the application to the immediate area and keeping windows shut and air conditioners and window fans off during spraying.

What can the homeowner do to help? Mosquito Control Around The Home:

An effective strategy for mosquito control is to deny them a place to breed. In short, if there is no still or standing water, there will be no mosquitoes breeding in the area. There are many things that each homeowner can do to reduce the mosquitoes found in their backyard and neighborhood.

- Dispose of all useless containers and those that are saved should be turned upside down. Tires especially, can readily breed thousands of mosquitoes.
- Roof gutters and drainage ditches should be maintained and cleared of debris
- Swimming pools and wading pools should be emptied or covered when not in use
- The water in bird baths should be changed weekly
- Properly grade property to eliminate depressions and smooth out tire ruts
- Properly screening windows and doors will keep mosquitoes and other biting insects outside away from you, your family and your pets.

What personal precautions can I take?

To reduce the annoyance of mosquito bites and prevent transmission of mosquito-borne infections, a few common sense measures should be followed. These include:

- Avoid shaded areas where mosquitoes may be resting
- Limit evening outdoor activity when mosquitoes are most active
- Wear protective clothing such as long-sleeved shirts and pants
- Use insect repellants. Always follow the manufacturer's usage recommendations.

What do I do if there are adult mosquitoes or possible breeding areas around my home?

If you suspect that a mosquito problem exists in your area, contact the Commission at 732-542-3630. The Commission's professional staff will investigate your call usually within 48 hours. Calls that are received after our flexible working hours (7:00AM-5:30PM) are answered by an electronic answering machine. Callers are advised of our business hours and given emergency telephone numbers. The caller may also leave a voice message. If the results of the inspection verify a mosquito breeding problem, the appropriate remedial action will be taken. The public participation in the Monmouth County mosquito program is measured in part by the numbers of requests for service that the Commission receives.

Where can I get additional information?

All persons interested in obtaining additional information regarding the Monmouth County Mosquito Extermination Commission pesticide application activities are requested to contact our office at (732) 542-3630.

In the case of any pesticide emergency please contact the New Jersey Poison Information and Education System at 1-800-222-1222.

For routine pesticide-related health inquiries please contact the National Pesticide Information Center at 1-800-858-7378.

For information on pesticide regulations, pesticide complaints and health referrals contact the New Jersey Pesticide Control Program 1-609-984-6507.

A citizen has the right to ask the MCMEC for specific information about a planned adulticiding application in the county prior to the application. Attached is an example of a newspaper notice that the Commission places in two local newspapers throughout the season. One notice is in the Legal Notice section of the Asbury Park Press and the other notice is in the form of a display ad in the Greater Media??

