

MIDDLESEX COUNTY MOSQUITO EXTERMINATION COMMISSION



200 PARSONAGE ROAD
EDISON, N.J. 08837-2118



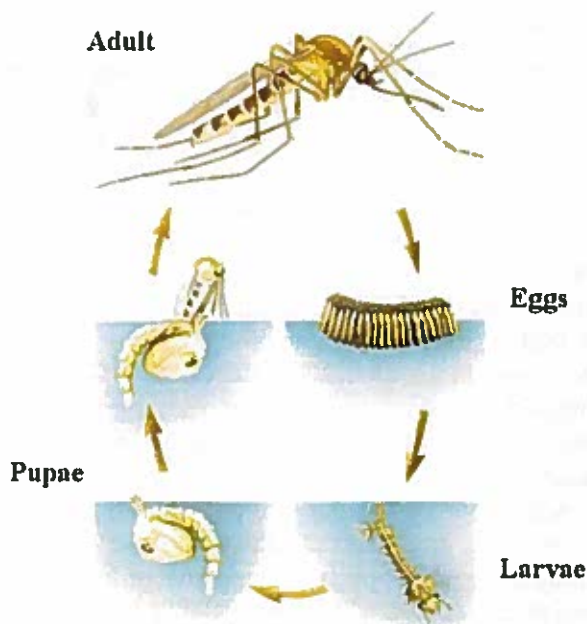
TELEPHONE: (732) 549-0665
FAX: (732) 603-0280

Deepak Matadha, PhD
Superintendent

MOSQUITOES...WHAT EVERYONE SHOULD KNOW Questions & Answers

What is the life cycle of mosquito?

Mosquitoes have four stages of development - egg, larva, pupa and adult. They spend their larval and pupal stages in water. Female mosquitoes of most species deposit eggs on moist surfaces such as mud or fallen leaves. Rain re-floods these surfaces and stimulates the hatching of the eggs, starting the life cycle. Other mosquito species lay their eggs on permanent water since the water is constant; there are always eggs hatching and larvae developing. The Asian tiger mosquito breeds in a wide range of natural and man-made containers that hold water for more than seven days. Mosquitoes take approximately one week to develop from egg to adult. Only the female mosquitoes bite. After emerging from the aquatic stages, adult mosquitoes mate and females seek a blood meal to obtain nutrients necessary for egg development. Adult male mosquitoes feed on plant nectar and die shortly after mating. The average life span for adult mosquitoes is 2 – 3 weeks.



<http://www.uq.edu.au/~xxiel/fic/MosqCycleY6.JPG>

How many kinds of mosquitoes are there?

In Middlesex County, there are more than 41 different species with more than 63 species found in New Jersey. Fortunately, most mosquitoes do not prefer to feed on people or do not occur in high enough numbers to cause a problem.

What human diseases do mosquitoes transmit?

West Nile virus (WNV), St. Louis (SLE) and Eastern Equine encephalitis (EEE), chikungunya & Zika are several diseases, which can be transmitted by mosquitoes found in Middlesex County. WNV was first identified in the United States in New York City and surrounding areas in the fall of 1999. The primary transmitter of WNV, SLE, chikungunya & Zika are mosquitoes commonly found around homes. They are mosquitoes that will readily breed in tires or any container holding water. Diseases like WNV & EEE have a greater impact on the very young and old and individuals with compromised immune systems. EEE is a more dangerous disease and is transmitted by mosquitoes that breed in permanent swamps and salt-water marshes. Chikungunya and Zika viruses are transmitted to humans mainly through the bite of an infected *Aedes*-species mosquito (*Aedes aegypti* & *Aedes albopictus*).

What animal diseases do mosquitoes transmit?

Dogs and horses are also susceptible to mosquito-transmitted diseases. Dog heartworm is a serious threat to your pet's life and is costly to treat once it is contracted through the bite of an infected mosquito. There is a preventative medicine to protect your dog from contracting heartworm. WNV and EEE are threats to horses as well as to humans.

There is a vaccine that can protect your horse against EEE. A WNV vaccine for horses has recently been approved. Contact your local veterinarian to get more information. WNV has also been responsible for the death of numerous birds, mostly in the wild bird population.

What does the Commission do?

The Middlesex County Mosquito Extermination Commission (Commission) has been in existence since 1914. The Commission has provided the residents of Middlesex County with almost 100 years of quality mosquito control. Presently, as in the past, vector/disease control and quality of life assurance are the concerns of the Commission. The statutory mandate of the Commission is "To perform all acts which in its opinion may be necessary for the elimination of mosquito breeding areas, or which will tend to exterminate mosquitoes within the county." Key to the Commission's activities is a comprehensive surveillance program. Prior to any pesticide being applied, a fish being stocked or a water management project being initiated the presence of a mosquito problem must be documented. Emphasis is placed on the elimination of mosquito-breeding habitat and the control of mosquitoes while they are still in the aquatic stages of their development. The Commission is comprised of a Freeholder and Freeholder appointed citizens whose job it is to oversee the Commission's operations.

What control efforts does the Commission utilize?

The Commission uses an Integrated Pest Management (IPM) approach to controlling mosquitoes. IPM uses various methods of control including but not limited to surveillance, water management, source reduction, biological control, biological and man made pesticides and education. With an IPM strategy, control efforts focus primarily on the immature, water borne stages of the mosquito. The immature stages are more concentrated and accessible than the adult mosquitoes, which disperse after emerging. The primary insecticide applied from the ground is a bio-rational insecticide comprised of the bacteria, *Bacillus thuringiensis* var. *israelensis* (Bti). Fish are available to the Commission from the NJ Division of Fish, Game & Wildlife as part of the State Mosquito Control Commission's bio-control program. The fish available are Fathead minnows, Fresh Water killies, sunfish and the Mosquito fish. The Commission will supply fish free of charge to any county resident to control mosquitoes after NJ Department of Environmental Protection (NJDEP) fish stocking criteria are satisfied. The Commission conducts year round water management/source reduction projects that control mosquitoes by eliminating mosquito habitat water. These operations are done following the NJDEP Best Management Practices manual. Hand labor and excavating equipment are utilized for this work. The Commission also collects illegally discarded tires to eliminate them as breeding sources for mosquitoes. The Commission has collected and recycled approximately 100,000 illegally discarded tires since the programs inception in 1991. If a nuisance level of mosquitoes or disease is detected, a spray for adult mosquitoes may be applied by hand held or truck mounted sprayers or from the air. It bears repeating that the objective of the Commission is to prevent the appearance of adult mosquitoes and to do as little spraying for adult mosquitoes as necessary. All pesticides used are registered with the US Environmental Protection Agency (USEPA), and the NJDEP which means that they are legal for use in New Jersey. These products are also reviewed and recommended by the New Jersey Agricultural Experiment Station, Cook College/Rutgers.

What are the winter activities of the Commission?

While the Commission practices an IPM approach to mosquito control, the pesticide portion of the IPM program is not conducted during the time of year when the mosquitoes are not actively breeding. All other activities are continuous throughout the year. Appropriate permits are pursued for the water management projects. Necessary repairs and maintenance are performed on excavation and pesticide application equipment. Follow-up record keeping on the past season's mosquito control activities at all the breeding sites continue beyond the active mosquito season. The inspection routes are reviewed and revised as necessary to record new breeding sites and remove sites that no longer exist. Breeding sites that were difficult to access due to the presence of dense vegetation are inspected after the foliage falls for a clearer view of the areas. These breeding sites then may have points cleared to allow easier access during the next breeding season. Debris dams are cleared from drainage structures. Site evaluation is conducted on potential areas for fish stocking or for water management. Beehives are located to avoid accidental exposure to honey bees in the case an adult mosquito spray (adulticide) may have to be done. Presentations are made at schools, civic organizations and interested groups on mosquitoes and mosquito control. Commission employees attend training classes to maintain their NJDEP issued Certified Pesticide Applicators license.

What can homeowners do?

- Homeowners can control mosquitoes by eliminating standing water on their property. Any container holding water is a potential mosquito-breeding source and is likely to cause problems around your home.

Of particular concern are clogged gutters, scattered tires and unopened swimming pools. All tend to collect leaves and water and provide very attractive breeding sites for mosquitoes. These containers dry out very slowly. Keep gutters clean and free flowing.

- Remove or overturn containers that may collect water. Remove water from swimming pool covers. If pools are not covered, make sure the water is clean so it is not attractive to mosquitoes. Natural depressions in your yard can hold water. They will not be a problem, however, if the water disappears within 4 to 5 days. Artificial containers will remain wet for a much longer period-of-time. If you wish to collect rainwater, tightly screen the tops of the containers to prevent mosquitoes from depositing their eggs on the waters surface. Items such as pet water bowls and birdbaths should be emptied and refilled at least once a week.
- Small depressions in your yard can be filled to prevent the collection of water. If larger wet areas exist on your property, bring them to the attention of Commission personnel.
- Make sure windows and door screens are properly fitted and holes are patched to prevent mosquitoes from entering the house.
- A wide variety of repellents are available to provide relief from mosquitoes and other insects. Always **read and follow the label** before using any repellent.

What can I do if there are adult mosquitoes around my home?

If mosquitoes present a problem in your area, contact the Commission's office at (732) 549-0665. Our staff will investigate your call promptly. Each area is inspected to locate mosquito-breeding sites and to verify the presence of adult mosquitoes. If an adult mosquito problem is identified, spraying for adult mosquitoes may be conducted.

What pesticides are used to control mosquitoes?

The majority of the pesticides used are insecticides to control immature mosquitoes in the water. These insecticides may be applied either by ground equipment or aircraft. If an adult mosquito problem is identified, an adulticide may be applied throughout the area of infestation. For more information regarding the pesticides used for adult mosquito control, which may be applied by Commission personnel, please refer to the accompanying NJDEP approved pesticide fact sheets. It should be noted that some of the insecticides used for the control of mosquitoes are used to control other pests. The dosage rates used for mosquito control are usually much less, as low as 5/8ths of an ounce per acre to control mosquito larvae.

Where can I find more specific information on spraying for adult mosquitoes in Middlesex County and will I be notified of the spraying?

All spraying for adult mosquitoes on more than 3 acres aggregate whether it is conducted from the ground or air will be advertised in the Home News Tribune and the Star Ledger as well as on the County's website. The advertisements will contain information such as intended application dates or range of application dates, location, contact name and phone number. The Commission's automated phone system (732-549-0665) can also be accessed during non-working hours to determine if an adult mosquito spray is scheduled for the county. This information is also available by accessing the Commission's web page (<http://www.middlesexcountynj.gov/Government/Departments/PSH/Pages/MCMosquito.aspx>) on the Middlesex County's website. Individual homeowners can request to be notified prior to an adulticide being conducted by their house. Contact the Commission for details on the procedure to request notification..

**MUNICIPALITIES ARE ENCOURGED TO SHARE THIS INFORMATION WITH ALL
RESIDENTS IN THEIR COMMUNITY**

6-16-16

