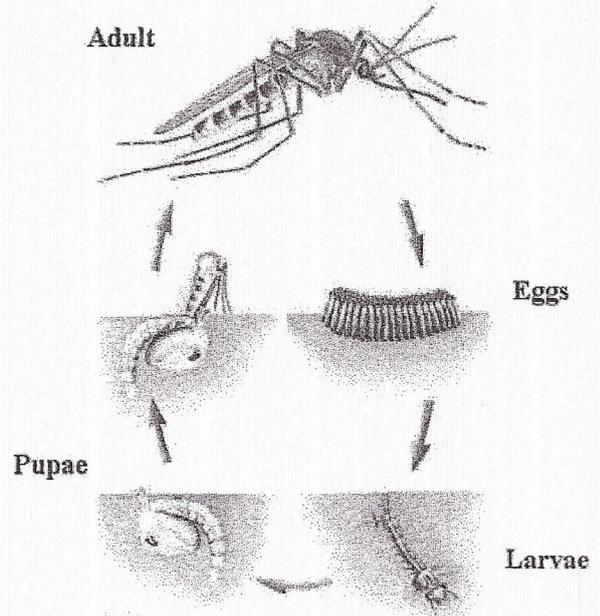


MIDDLESEX COUNTY MOSQUITO EXTERMINATION COMMISSION

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 surfaces. Since the water source is constant, egg hatching and larval development is an on-going process. Mosquitoes take approximately one week to develop from egg to adult. After emerging from the aquatic stages, adult mosquitoes mate and females seek a blood meal to obtain nutrients necessary for egg development. Only the female mosquitoes bite. 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/~xxjelfic/MosqCycleY6.JPG>

How many kinds of mosquitoes are there?

In Middlesex County, there are more than 40 different mosquito species, with more than 63 species found in New Jersey.

Fortunately, most mosquitoes either do not prefer to feed on humans 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) are several diseases that 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 and SLE are mosquitoes commonly found around homes. They are mosquitoes that will readily utilize tires or any container holding water. Both of these diseases can pose a significant threat to the very young and old, as well as individuals with compromised immune systems. EEE, while rare in Middlesex County, is a more dangerous disease and is transmitted by mosquitoes that are produced in permanent swamps and saltwater marshes.

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. Fortunately, a preventative medicine to protect your dog from contracting heartworm is available. WNV and EEE are threats to horses as well as to humans. Vaccines that can protect your horse against EEE and WNV are also readily available. 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 (the Commission) has been in existence since 1914, providing the residents of Middlesex County with over 90 years of quality mosquito control. Presently, as in the past, mosquito-borne disease control and quality of life assurance are the principal 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

MIDDLESEX COUNTY MOSQUITO EXTERMINATION COMMISSION

which will tend to exterminate mosquitoes within the county.” Key to the Commission’s activities is a comprehensive surveillance program. The presence of a mosquito problem must be documented before any control measures can be initiated. Emphasis is placed on the elimination of mosquito production habitat and the control of mosquitoes while they are still in the aquatic stages of their development. The Commission’s Board 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. An IPM program employs 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. These 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 derived from the bacteria, *Bacillus thuringiensis* var. *israelensis* (Bti), which is specific to the mosquito’s metabolism. 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 accomplished 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 larval production sources for mosquitoes. The Commission has collected and recycled well over 100,000 illegally discarded tires since the programs inception in 1991. If surveillance indicates that a nuisance level of mosquitoes is reached or disease is detected, a spray for adult mosquitoes may be applied by hand-held or truck-mounted sprayers or from the air. All pesticides used are registered with the US Environmental Protection Agency (USEPA), and the NJDEP, and 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 larval production sources are not active. However, 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 larval production sources continues beyond the active mosquito season. The inspection routes are reviewed and revised as necessary to record new larval sources and remove sources that no longer exist. Larval production sources 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 sources then may have paths cleared to allow easier access during the next mosquito production 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 pesticide exposure to honey bees in the event adult mosquito spraying (adulticiding) is required. 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-production 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 larval sources 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 water surface. Items such as pet water bowls and birdbaths should be emptied and refilled at least once a week.

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MIDDLESEX COUNTY MOSQUITO EXTERMINATION COMMISSION

- 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-production sources and to verify the presence of adult mosquitoes. If an adult mosquito problem is identified, spraying 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. 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.co.middlesex.nj.us/mosquito>) on the Middlesex County's website. Individual homeowners can request to be notified prior to an adulticide application by their home. Contact the Commission for details on the procedure to request notification.

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

3-30-08