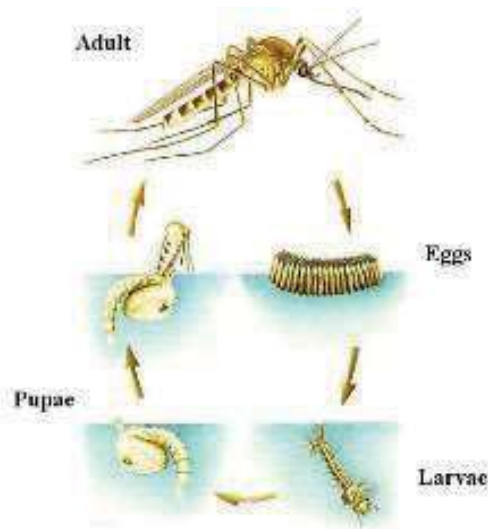


## MOSQUITOES...WHAT EVERYONE SHOULD KNOW

### 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. Other mosquito species lay their eggs on permanent water surfaces. Since the water source is constant, egg hatching and larval development is an ongoing 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 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.



#### How many kinds of mosquitoes are there?

There are more than 63 mosquito species found in New Jersey. Fortunately, most mosquito species either do not prefer to feed on humans or do not occur in high enough numbers to cause a problem. Between 24 and 28 problematic species occur regularly throughout the County during the year.

#### 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 Bergen 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. These mosquitoes will readily utilize tires or containers 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 Bergen 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, preventative medicines are available to protect your dog from contracting heartworm. WNV and EEE are threats to horses as well as to humans. Vaccines are also readily available to protect your horse against EEE and WNV. Contact your local veterinarian for more information. WNV has also been responsible for the death of numerous birds, mostly in the wild bird population.

**What does the Division do?**

Bergen County has been performing mosquito control since 1914. Mosquito-borne disease control and quality of life assurance are the principal concerns of the Division. The statutory mandate of the Division 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." The key to the Division'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.

**What control efforts does the Division utilize?**

The Division 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 Division from the NJ Division of Fish & Wildlife as part of the State Mosquito Control Commission's bio-control program. The fish available are fathead minnows, banded killifish, sunfish, and mosquitofish. The Division 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 Division 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. 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 sprayers, truck-mounted sprayers, or from the air. All pesticides used are registered for use in New Jersey with the US Environmental Protection Agency (EPA) and the NJDEP. These products are also reviewed and recommended by the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences/Rutgers University.

**What are the winter activities of the Mosquito Control Division?**

Pesticides are not used to control mosquitoes during the winter when they are inactive. However, many other activities are continued throughout the year. These include water management, necessary repairs and maintenance, and record keeping on the past season's mosquito control activities. The inspection routes are revised to include new larval sources and remove sources that no longer exist. Brush is removed to enable easy access to treat larval habitats during the following mosquito season. Site evaluation is conducted on potential areas for fish stocking or for water management projects. Beehives are located to prevent accidental pesticide exposure to honey bees during spray operations. Presentations are made at public events on mosquitoes and mosquito control. Employees attend training classes to fulfill NJDEP pesticide licensing requirements.

**What can homeowners do?**

- Homeowners can control mosquitoes by eliminating standing water on their property. Any container holding water is a potential source of mosquitoes and is likely to cause problems around your home. Of particular concern are clogged gutters, scattered tires and unopened swimming pools. These tend to collect leaves and water and provide very attractive habitats for mosquito larvae. 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.
- 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 the Mosquito Control Division.
- 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 are causing a problem in your area, contact the Division office at (201) 634-2881. 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 or larval mosquito problem is identified, insecticides may be applied for their control.

**What pesticides are used to control mosquitoes?**

The majority of the pesticides (insecticides) used are to control immature mosquitoes in the water. These insecticides may be applied either by ground equipment or aircraft. If a major adult mosquito problem is identified, or if disease-carrying mosquitoes are detected, an adulticide may be applied throughout the area of infestation. For more information regarding the pesticides used for adult mosquito control, please refer to the accompanying NJDEP approved pesticide fact sheets. Some of the insecticides used to control mosquitoes are also used to control other pests. However, the dosage rates for mosquitoes are usually much lower, 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 Bergen County and will I be notified of the spraying?**

All spraying for adult mosquitoes on more than 3 acres aggregate, whether conducted from the ground or air, will be advertised in The Record and The Herald News. The advertisements will contain information such as intended application dates, locations, contacts, and phone numbers. This information is also available by accessing the Bergen Bites Back web page (<https://www.co.bergen.nj.us/health-promotions/bergen-bites-back>). Individual homeowners can request to be notified prior to an adulticide application near their home. Contact the Division for details on the procedure to request notification.