

Mosquito Biology

Two types of mosquitoes plague our region:

1. Nuisance

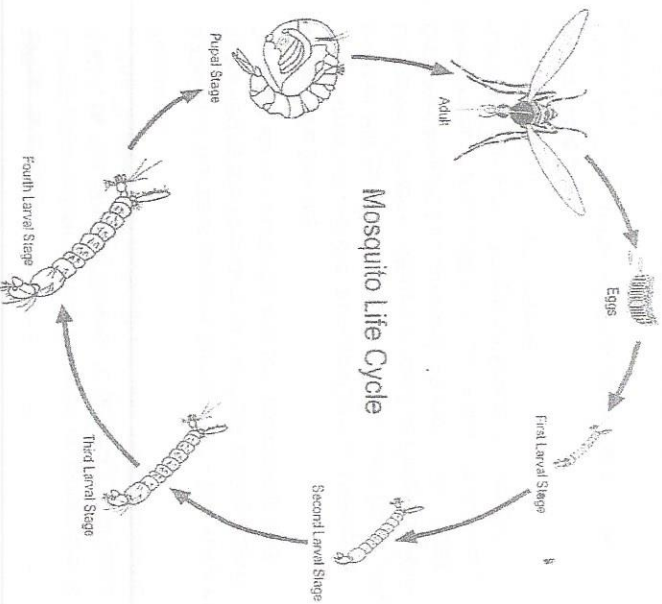
2. Vector

Nuisance mosquitoes affect quality of life

- Nuisance mosquitoes are more abundant
- They lay their eggs in low-lying areas that will eventually become flooded with water
- The most common of these is the *Aedes vexans*
- The *Aedes vexans* is a vicious biter and is most active at dusk and after dark

Vector mosquitoes are capable of transmitting diseases

- *Culex pipiens* mosquitoes are the primary carriers of West Nile virus in our region
- These mosquitoes typically lay their eggs directly on stagnant water
- They will lay their eggs in anything that holds water
- *Culex* mosquitoes are more abundant during hot and dry periods.



Fight the Bite

You can help minimize your exposure to mosquito bites by doing the following:

- Wear insect repellent applied to skin and clothing according to the label instructions
- Avoid being outdoors during peak mosquito activity, dusk until dawn
- Wear long pants and long sleeved shirts to cover exposed skin
- Repair holes in door and window screens
- Clean roof gutters and downspout screens on a regular basis
- Properly dispose of old tires, buckets, drums, bottles, cans and any other items that can hold water
- Fill in or drain any low-lying areas on your property that hold water for seven days or more
- Keep drains, ditches and culverts clean of weeds and trash so water will drain properly
- Cover trashcans to keep out rainwater
- Empty wading pools, birdbaths, planters or drip trays every four to five days
- Children's toys are notorious collectors of stagnant water, be sure to empty them out on a regular basis
- Store boats with a cover over them or upside down
- Add sand to outdoor plant drip trays to absorb excess water
- Tree rot holes and hollow stumps can hold water; make sure they are filled with sand or concrete
- Keep your grass cut short and shrubbery well trimmed around your property so adult mosquitoes will not have a place to hide during the day
- For places like small stagnant ponds, rain barrels and low lying wet areas, use environmentally friendly larvicides, which kill mosquito larvae without endangering people, pets and wildlife. Always follow product instructions.
- **If it can hold water, it can breed mosquitoes!**

North Shore Mosquito Abatement District

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About Adult Mosquito Control
Operations

Who We Are

A local government agency founded on December 8, 1927, by the State of Illinois, to protect the citizens of the district from mosquitoes and mosquito borne illnesses.

A Board of Trustees governs the NSMAD – five members appointed by the President of the Cook County Board. Trustees serve voluntarily and are uncompensated.

Who We Serve

The District serves the municipalities of Deerfield (east of Pingsten and south of Lake Cook Road only), Evanston, Glencoe, Glenview (east of Pingsten Road), Golf, Kenilworth, Lincolnwood, Morton Grove (east of Washington Street), Niles (east of Harlem Avenue), Northbrook (east of Pingsten Road), Northfield, Skokie, Winnetka and Winnetka.

What We Do

The NSMAD controls mosquito populations in the District to:

1. Reduce the risk of disease from mosquito-borne illness
2. Minimize the negative impact mosquitoes have on quality of life

Public Health and Mosquitoes

Mosquitoes are responsible for the transmission of many potentially deadly diseases around the globe, such as malaria, yellow fever, dengue, Zika, filariasis and many forms of viral encephalitis.

In the United States, mosquito-borne viral encephalitis is the primary health concern of public health agencies. West Nile Virus (WNV), St. Louis Encephalitis (SLE), Eastern Equine Encephalitis (EEE), Western Encephalitis (WE), and La Crosse Encephalitis (LAC), are serious diseases with symptoms ranging from mild or flu-like to severe, including paralysis, coma and death. In northern Illinois, WNV is the mosquito-transmitted virus of greatest concern. Recovery from these diseases can be a long and painful process, with some people never fully recuperating. Unfortunately, there are no vaccines for humans for any of these diseases at this time, and prevention relies on mosquito control and avoiding mosquito bites.

How We Control Mosquitoes -

Integrated Pest Management

Our abatement program is based on the principles of integrated pest management (IPM). IPM utilizes a thorough understanding of the biology and ecology of the mosquitoes and mosquito-transmitted viruses that occur in the District and employs a comprehensive surveillance program to provide the information needed to develop action thresholds and to make sound decisions about mosquito control activities. There are four principal components of the NSMAD Integrated Pest Management Program:

- Surveillance/Action Thresholds
- Larval Control/Source Reduction
- Adult Mosquito Control
- Public Outreach/Education

Surveillance Program and Determining

Action Thresholds

The surveillance program monitors local mosquito population abundance and the prevalence of WNV-infected mosquitoes in the area. We also collect data about weather patterns that are associated with mosquito abundance and WNV activity levels. This information is evaluated against our evidence-based action thresholds and helps us make decisions regarding appropriate control methods.

Environmental Surveillance

Weather conditions have a significant influence on the type and number of mosquitoes found in District. Heavy, flooding rains early in the year tend to create large broods of nuisance mosquitoes that can affect the quality of life in the area, while warm and dry early-season conditions tend to create a favorable environment for increased *Culex* mosquitoes and a greater risk of WNV transmission during the latter part of the summer.

Monitoring Mosquito Populations

We utilize two types of mosquito traps (New Jersey Light Traps and gravid traps), strategically placed throughout the District to monitor mosquito abundance and WNV infection rates.

Mosquitoes collected from the gravid traps are tested in our laboratory for WNV via Rapid Analyte Measurement Platform (RAMMP®) Test.

Larval Mosquito Control/Source Reduction

Larval control is the primary course of action we take to reduce the mosquito population. Larval control is the application of materials that either kill mosquito larvae or prevent their ability to grow into adult mosquitoes. These materials are placed into known and potential breeding sites throughout the district such as catch basins and known flood sites. We treat approximately 50,000 storm water catch basins annually.

We use bacterial larvicides, growth regulators and surface oils to control mosquito larvae and pupae.

Bacterial

Control products derived from bacteria affect either the digestive system or nervous system of the larvae.

Growth Regulator

Growth regulators prevent mosquito larvae from maturing to the adult stage.

Surface Oils

Surface oils are used when late stage larvae and pupae are present. These products inhibit mosquito larvae and pupae from breathing at the water's surface.

Adult Mosquito Control

Barrier Treatment

Barrier treatments consist of applying a mosquito insecticide to vegetation (shrubs and bushes, tall grasses, hedges) and surfaces where mosquitoes rest. It is utilized to protect a limited area for a short period of time. Under ideal conditions, these applications can provide up to four weeks of control. The NSMAD uses barrier treatments to reduce mosquito biting for public events held in public spaces.

Truck Mounted UV Applications

Truck mounted UV applications are used to immediately reduce the adult mosquito population and/or reduce the risk of WNV transmission in a large area. This type of application is a non-residual treatment. We use synthetic pyrethroids when conducting adult mosquito control.

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