Mosquitoes

They’re Old

• 30 Million Years old

Abilities

• Can Sense CO$_2$ and lactic acid from 100ft
• Can see contrasts, if it moves it’s food
• Can detect heat
Mosquito Anatomy 101

Head - This is where all the sensors are, along with the biting apparatus. The head has two compound eyes, antennae to sense chemicals and the mouth parts called the palpus and the proboscis (only females have the proboscis for biting).

Thorax - This segment is where the two wings and six legs attach. It contains the flight muscles, compound heart, some nerve cell ganglia and tracheoles.

Abdomen - This segment contains the digestive and excretory organs.

Diseases Transmitted by Mosquitoes

- West Nile Virus
- Eastern Equine Encephalitis
- Western Equine Encephalitis
- Malaria
- Yellow Fever
- St. Louis Encephalitis
- Dengue Fever
- LaCross Encephalitis
West Nile Virus

- West Nile Virus is a flavivirus commonly found in Africa, West Asia, and the Middle East. It is closely related to St. Louis encephalitis virus which is also found in the United States. The virus can infect humans, birds, mosquitoes, horses and some other mammals.

How did West Nile Get Here?

Encephalitis

- 20% of people who become infected with WNV will develop West Nile fever.
- Fever, headache, tiredness, and body aches, occasionally with a skin rash (on the trunk of the body) and swollen lymph glands.
- It is estimated that approximately 1 in 150 persons infected with the West Nile virus will develop a more severe form of disease.
- 80% of people infected with WNV show no symptoms.
How do you tell the difference between a male and female mosquito?
Emerging Adult

Water Management Tunnels along the Des Plaines River.
West Nile Virus Transmission Cycle

Catch Basins

[Image of West Nile Virus Transmission Cycle]

[Image of Catch Basins]

[Image of Construction Site]
Populations most at Risk

- Over 55 years of age
- With underlying health conditions

Anatomy of a Gravid Trap

A: **Plastic Bus Tub**, filled with water and alfalfa, the organic/ stagnant water mixture attracts mosquitoes. The water also contains a chemical that stops the growth of mosquitoes before they get to be adults.

B: **Fan**, operates off of 4 d-celled batteries draws female mosquitoes up from the water and into the netting.

C: **Mosquito Netting**, catches and holds the mosquitoes until they are collected, frozen and tested for West Nile Virus.
• Truck-mounted ULV spray units treat block by block with wind direction.
• Aerosol application is intended to drift within the control area.
• Swath-width of the spray pattern is typically 300 feet.

NISMAD Website

The parameters we generally use to initiate night-time adulticiding include:
A) The emergence of the combination of dead birds that are positive for WNV and,
B) Dead birds that are found in significant clusters/grouping and,
C) Positive mosquitoes, or D) Human cases of WNV, or
E) All of the above.
Note: Limitations on our ability to adulticide may include such factors as weather or wind conditions...

MOSQUITO LIFE CYCLE
Adult Female Feeds
Females Lay Eggs
Eggs
Larvae Develop
Pupa
Adults Emerge
All sided is a growth inhibitor
Deet Not Only Option Against West Nile

The CDC recommends picaridin and oil of lemon eucalyptus as "often comparable with DEET products of similar concentration" and oil of lemon eucalyptus provides protection time "similar to low-concentration DEET products in two recent studies."

Officials say consumers prefer both chemicals because they don't have the strong odor many DEET products have.