

Stanford University

Water-borne Insect Vector Control: West Nile Virus



Problem

Although new to the U.S., **West Nile virus** has spread from the east coast to the west, with California reporting its first human case in Sept. 2002. West Nile virus is normally spread to humans, animals and birds through the bite of an infected mosquito. While most people who are infected have no symptoms or may experience mild illness before recovering, in some individuals infection with West Nile virus can cause permanent neurological damage and/or encephalitis, a potentially fatal inflammation of the brain.

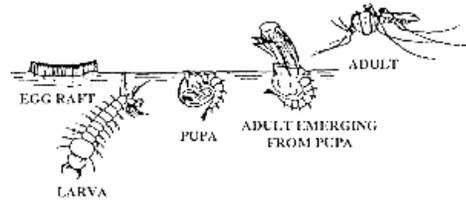
Action

Source reduction, or the elimination of mosquito larval habitats to prevent breeding, is often the most effective and economical method of providing long-term mosquito control. Source reduction falls into two categories- sanitation and water management. When source reduction is not feasible or insufficient, chemical controls may be required if surveillance indicates the presence of infected adult mosquitoes. Chemical pesticides shall comply with applicable state and federal requirements.

Source

Reduction

Ponds/fountains	Stock with mosquito fish or <i>Bacillus thuringiensis israelensis</i> (Bti) larvicides (Mosquito Dunks). Thin out aquatic vegetation.
Wading pool	Change water weekly, store indoor or upside down when not in use.
Containers (cans, bottles, toys, etc.)	Dispose of, turn upside down or store indoors.
Rain Gutters	Clean frequently to remove leaf litter.
Catch basins/storm drains	Check for standing water, drain if necessary.
Livestock watering trough	Stock large troughs with mosquito fish. Clean small ones weekly.
Tree hole	Check frequently for water. If possible, fill with sand or mortar or place Bti larvicides in hole.
In-ground utility boxes	Check for standing water, drain if necessary.
Window and door screens	Check and repair.



FAQs

- Symptoms of West Nile Fever
 - generally occur 5-15 days after bite of infected mosquito
 - high fever, confusion, muscle weakness, severe headache, rash, swollen nodes, conjunctivitis, or sensitivity to light
- You can not get West Nile encephalitis from another person
- Approximately 1:150 – 300 people who are bitten by an infected mosquito will develop West Nile Fever

Personal Protection

- When possible, wear long-sleeved shirts and long pants whenever you are outdoors
- Place mosquito netting over infant carriers when you are outdoors with babies
- Stay indoors at dawn, dusk and in the early evening, which are peak mosquito-biting times
- Apply insect repellent to exposed skin.
 - o Adults: use repellants with no more than 30 % DEET (*N, N-diethyl-m-toluamide* or *N, N-diethyl-3-methyl-benzamide*)
 - o Children over 3 years old: Products containing 15% or less DEET are recommended
 - o Children under 3 years old: consult pediatrician
- Apply repellent only to exposed skin or clothing, do not apply to children's hands
- Do not spray in enclosed areas and do not use near food
- After returning indoors, wash treated skin with soap and water; wash treated clothing before wearing again
- When applying pesticides, appropriate guidelines and regulations shall be followed

Note: Vitamin B-1 and 'ultrasonic' devices are NOT effective in preventing mosquito bites

Additional information available at: <http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>