

IN THIS ISSUE:

THEY'RE BAAAAACK....

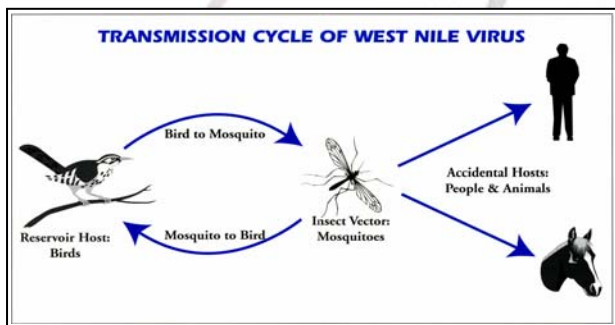
MOSQUITOES AND WEST NILE VIRUS IN ARIZONA

West Nile Virus (WNV) may *appear* to be a back-seat issue this year, with so much attention given to Sudden Acute Respiratory Syndrome (SARS) and Avian Influenza. But Arizona public health experts indicate that WNV is still a concern here to stay. They warn against complacency given that our very own backyards are a major breeding source for WNV-carrying mosquitoes. Arizona is right in the middle of its biggest mosquito-breeding months (July-September), so now is the time to be particularly vigilant about what each of us can do around our schools and homes.

A Brief Recap – *What Is West Nile Virus?*

West Nile Virus is a type of blood-borne virus that can cause encephalitis (a potentially fatal swelling of the brain). WNV is transmitted to humans through infected mosquito bites (it is possible but rare to contract the virus directly from an infected bird through improper handling). Health experts in Arizona indicate the recovery time for those who develop even a mild form of illness associated with this virus is 50-60 days. Approximately 20% of those who contract WNV will develop "West Nile Fever", and about 1 in 150 of those who contract the virus will develop encephalitis.

WNV has spread across the U.S. since its introduction in 1999. The basic cycle by which the virus spreads is shown below; virus-carrying mosquitoes bite and infect a bird, the bird becomes a reservoir for the virus and is able to transmit the virus to a mosquito upon being bitten. This mosquito-bird-mosquito transmission cycle is not mirrored in humans; when a human contracts WNV, he/she cannot retransmit the virus to another mosquito, human, or other animal. Humans are therefore called a "dead-end host" for WNV. The same is true of horses, dogs, cats, and other mammals.



For more information on the WNV transmission cycle, visit the Arizona Department of Health Services website:
<http://azdhs.gov/phs/oids/westnile/>.

There's More Than One Type of Mosquito...

During mosquito season and for the purposes of WNV-awareness, mosquitoes can be grouped into two categories: nuisance mosquitoes and "hot" mosquito species.

Nuisance mosquitoes in Arizona refers primarily to the flood water mosquito (*Psorophora* spp.). They are day-time biters, and pooled test results show they are less commonly carrying (and therefore transmitting) WNV. Because of their poor vectoring ability, they are considered more of a nuisance than a significant health threat.

"Hot" mosquito species is a phrase health experts use to describe mosquitoes that are key vectors of WNV; in this case, *Culex tarsalis* and *Culex quinquefasciatus*. These are the mosquitoes of primary concern in management efforts to minimize human cases of WNV.

Culex mosquitoes bite during the hours from dusk to dawn. These mosquitoes have been recognized as highly efficient vectors of WNV.

What You Can Do

Minimize the mosquito breeding habitat around your school's grounds and your home.

In our warm desert environment, mosquitoes can breed year-round and do so in large part because of OUR help. Some mosquito species do not need standing water, but rather only need wet conditions for part of their life cycle. HUMANS create the vast majority of the wet conditions used by mosquitoes to breed in the Phoenix valley, and many of us likely have mosquitoes developing in our neighborhoods and own backyards...

Steps to take:

1. Check flower pots and other containers for excess water after watering plants and after suspected rain.
2. Minimize backyard clutter, especially spare tires (>1 thousand mosquito larvae can be found in one tire).
3. Flush out the water in bird-baths and fountains every three days. Consider adding *Gambusia* (mosquito-eating fish) to ponds, fountains, cisterns, etc.; inquire at AZ Department of Health Services.
4. Empty the water containers of pets and check livestock watering troughs and tanks.
5. Use larvicides: mosquito "dunks" use bacteria (*Bti*) that is harmless to humans, pets and the environment.



Arizona Children's Environmental Health Program

The next Arizona Children's Environmental Health Coalition meeting will be the week of December 4-8, 2006 (exact date to be announced). Topics will include:

- ❖ Management strategies for roof rats
- ❖ SB1350 - the new law which becomes effective January 2007 and governs pesticide use notification in child care and school facilities.
- ❖ *If there are any other hot topics you would like to see addressed contact Dawn or Jennifer.*

NEW IPM RESOURCE... Pinto and Associates, a Pest Consulting Service, offers a *Techletter* newsletter (subscriptions available at cost) featuring up to date information on insect monitoring, pesticide news, safety information, pest ID and biology, and more. You can check out the website and subscribe to the newsletter at <http://www.techletter.com>

Things you might see around Arizona...

Yellow sulphur butterflies (*Phoebis* and *Lyside* spp.) are migrating northward from Mexico; male tarantulas are actively looking for females in burrows; white-lined sphinx (on ground) and rustic sphinx (on foliage) moth larvae are out and about; the metallic-green fig beetle is out looking for tasty soft fruit or sap; mosquitoes are at the peak of their breeding season....



Bruce Walsh, University of Arizona

Rustic sphinx moth larvae (*Manduca rustica*) on foliage

Information taken from:

Bennett, Gary W., John M. Owens, and Robert M. Corrigan. *Truman's Scientific Guide to Pest Management Operations*. 6th ed. Purdue University, 2003. 574 pp.

CDC: Division for Disease Control & Prevention, Fort Collins, CO www.cdc.gov/westnile

Maricopa County Vector Control website: <http://www.maricopa.gov/envsvc/water/vector/westnile.asp>

Olkowski, William, Sheila Daar, Helgo Olkowski. *Common Sense Pest Control*. The Taunton Press, 1991. 715 pp.

University of Arizona Cooperative Extension website: <http://cals.arizona.edu/urbanipm/insects/ants/ants.html>

For information on Arizona's IPM in Schools program contact Dawn Gouge or Jennifer Snyder 520-568-2273, dhgouge@ag.arizona.edu



Few bugs are bad! More than 95% of all insect species are beneficial to humans

"Dunks" will effectively kill mosquito larva in any breeding (non-consumptive) water source. Found over-the-counter at home maintenance supply stores.

6. Store outdoor objects so that they do not collect rainwater; remove water that collects in depressions on tarpaulins, and pooled water on trampolines and shade covers.
7. Free rain gutters of debris to allow water to drain.
8. Correct drainage problems in yards and playing fields to prevent rain and irrigation water from pooling for prolonged periods; report drainage problems in ditches or along roadways to your county's Vector Control.
9. Repair leaky pipes and outside faucets, and connect open waste-water drains to a sewage system, or construct separate sump or leach lines.
10. Fill depressions or holes in trees with sand.
11. Do not over-water lawns.
12. Report neglected/green swimming pools and other suspected mosquito-breeding sources to Maricopa County Vector Control....

1. **Call 602-506-6616 to "File an Environmental Complaint"**. This includes complaints/concerns about mosquito populations in your area, neglected pools, and any other suspected mosquito-breeding sites.
2. When you call, be prepared to provide the cross streets or address of the problem site, a description of the site, and your contact name/information. You will be given a case # to use for following up on your complaint.
3. An inspector will visit the site, though this can sometimes take up to 5 days. Do not be discouraged if the water drains in the meantime; larvae and site conditions may still justify action.
4. **Keep your case # and call 602-506-0705 to follow up on your complaint.**

~ School IPM Specialists ~

If your school grounds are plagued by mosquitoes and you suspect an off-site source, such as a nearby catch basin, you can file a complaint with Vector Control. Make sure you follow up to learn of the results!

- ✓ AS SOON AS A SUSPECTED PROBLEM SITE BECOMES "WET" you can file a complaint with Vector Control; a flooding incident is not required.
- ✓ NO trapping is required in order for Vector Control to treat a site with larvacides.
- ✓ Vector control must trap and find >300 "nuisance mosquitoes" (*Psorophora* sp.) or 20-30 *Culex* mosquitoes per night to fog for adults.
- ✓ Vector control larvacides are often in the form of charcoal-based methoprene "brickettes". The brickettes may become dislodged and wash away when flooding occurs, so keep a close eye on known sites.
- ✓ Mosquito traps are available from Dawn & Jennifer