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IPM Mosquito Management – Fight the Bite

Mosquitoes have serious impacts on the health, comfort, and economic welfare of people. They can cause a variety of health problems due to their ability to transfer (vector) viruses and other disease-causing pathogens. There are two main types of mosquitoes in Arizona: Stagnant water mosquitoes (*Culex* mosquitoes) and Intermittent water mosquitoes (flood water mosquitoes). An exotic species of mosquito known as *Aedes aegypti*, while not native to Arizona, has been spreading into many populated areas of Arizona as well.

Mosquito-borne Encephalitis viruses, such as St. Louis Encephalitis virus (SLE), Western Equine Encephalitis (WEE), and West Nile virus (WNV) are found every year in Arizona. The presence of these three viruses has been detected in parts of Maricopa County. On March 27, Maricopa County Environmental Services Department (MCESD) reported mosquito traps returning with an increased number of mosquitoes (http://www.maricopa.gov/pr_detail.aspx?releaseID=2283), and one sample tested positive for West Nile virus (WNV). This confirms the early start of this year's West Nile virus season. It is important to remind Arizona residents to "Fight the Bite". Maricopa County's Vector Control Division investigates citizen complaints. If mosquitoes are biting in a particular area, report the problem by calling (602) 506-6616 and file an environmental complaint during working hours (<http://www.maricopa.gov/EnvSvc/VectorControl/>).

Mosquitoes need water to complete their life cycle. As temperatures start to increase, mosquito populations build up. The best way to control West Nile virus is preventing mosquitoes from breeding. Here are some tips on what you can do by using IPM to manage mosquito and eliminate mosquito-breeding sites in your school or on your property.

1. Check standing water in plant pots, bird-baths, fountains, tires, depressions in tarpaulins, and backyard trampolines. Drain the water regularly (twice a week is ideal).
2. Remove unnecessary clutter. Keep rain gutters free of leaves and other debris that prevent water from draining. Store boats, canoes and other objects so they do not collect rainwater.
3. Repair water leaks (leaky pipes, sprinkler systems, and outside faucets). Correct drainage problems in yards and playing fields. Report drainage problems in ditches, etc. Fill holes or depressions in trees with sand.
4. Empty water containers for pets and check livestock watering troughs and tanks, or add *Gambusia* (mosquito eating fish). The fish are available free of charge from the Vector Control office. Just call at (602) 506-0700 to schedule a pickup time.
5. Larvacides use bacteria (*Bti*) that are specifically targeted against the larval life stage of an insect, while harmless to humans, pets and the environment. Mosquito larvacides will kill mosquito larva in a non-consumptive water source.

Additionally, when outdoors, consider the following safety tips:

1. Wear light colored clothing with loose fitting long-sleeves, long pants and socks. Use protective clothing when exposure to mosquitoes cannot be avoided.
2. If possible, avoid outdoor activity before dawn and after dusk when mosquitoes are most active and avoid being bitten by mosquitoes at any time.
3. Properly apply insect repellent even if you are outside for just a short period of time, and share your insect repellent with those around you. For additional help selecting which repellent is right for you, go to the EPA search page: <http://cfpub.epa.gov/oppref/insect/#searchform>

Consider the following tips for relieving the itch of mosquito bites:

The first step is to clean the bite area with soap and water. Topical corticosteroids can reduce the rash, itching, and discomfort. Topical diphenhydramine and caine-containing derivatives should be avoided because of concerns about inducing allergic contact sensitivity. Oral antihistamines can be effective in reducing the symptoms of mosquito bites. Use of a cold compress can be helpful, but do not apply ice directly to the skin.

With education and awareness, we can limit the health threat posed by these pests.

For more information, visit:

- Article featuring mosquitoes and West Nile Virus: <http://cals.arizona.edu/apmc/westernschoolIPM.html#schoolspstpress>
- Mosquito general information: <http://www.maricopa.gov/EnvSvc/VectorControl/Mosquitos/MosqInfo.aspx>
- West Nile Virus in Maricopa County: <http://www.maricopa.gov/wnv>

Promote Bed Bug Awareness

The EPA is partnering with the National Pest Management Association (NPMA) to help raise public awareness about bed bugs and what people can do to help curb infestations. The EPA has resources for communities to learn how to prevent, detect and control bed bug infestations. Obtaining accurate information is the first step in both prevention and control. While there are no quick fixes, there are effective strategies to control bed bugs using both non-chemical and chemical methods.



The new [2013 Bugs Without Borders survey](#), conducted by the National Pest Management Association and the University of Kentucky, found that 41 percent of pest management professionals surveyed indicated they had treated schools and day care centers for bed bugs over the past year. That number is up from 36 percent in 2011 and 10 percent in 2010.

With the continued prevalence of this pest in schools, it's important that all schools and school systems are proactive in developing a bed bug plan. Pest management professionals are encouraged to join the program as well, because effective control begins with a healthy partnership between stakeholders. Here

is a protocol developed by NPMA titled "[Response to bed bugs in schools](#)", providing guidelines to help schools deal effectively and reasonably with a bed bug incident.

Learn all about bed bugs - from [bed bug basics](#) to [prevention tips](#). All Things Bed Bugs is your resource for bed bug information, [best practices](#) for handling an infestation, current [bed bug news](#), [frequently asked questions](#), bed bug [photography](#), [video](#) and more.

In addition, simple precautions can help prevent bed bug infestation in your home:

1. Check secondhand furniture, beds and couches for any signs of bed bug infestation before bringing them home.
2. Reduce clutter in your home to reduce hiding places for bed bugs.
3. When traveling, set your luggage in the bath tub as opposed to on the bed or floor. Conduct an inspection of beds and headboards before sleeping. Vacuum suitcases after returning from a vacation, and store them outside your home in the garage or outdoor storage cupboard.
4. Launder new or secondhand clothes before hanging in the closet.
5. Launder bedding weekly.

The EPA has the following bed bug resources:

- Information website: <http://www.epa.gov/pesticides/bedbugs/>
- Bed Bug Clearinghouse: <http://www.epa.gov/bedbugs/bedbug-clearinghouse.html>
- Ten Tips to Prevent Bed Bugs: <http://www.epa.gov/pesticides/factsheets/bed-bugs-faq-fs.html>
- "Travelers: Beware of Bed Bugs!" – handy reminder cards: <http://www.epa.gov/oppead1/Publications/bedbug-traveler.pdf>
- Our AZ specific info can be found at: <http://cals.arizona.edu/pubs/insects/az1563.pdf>

For information from the NPMA on bed bugs, visit <http://www.pestworld.org/all-things-bed-bugs/>

Protecting Predators from Rodenticides

Rodenticides are poisons intended to kill rodents. However, managing rodents by using mammalian toxicant baits can have detrimental impacts on non-target animal species, including predators (such as raptors and owls). Predators, scavengers, and pets may be poisoned if they eat rodents that consumed bait from bait stations or pellets. The latest issue of [Utah Pests News](#) reported the survey results that both California and New York veterinarians conducted for anticoagulant ingredients in the blood and organs of dead raptors and other wildlife. Of the species tested, anticoagulants were found in 79% of fishers, 78% of mountain lions, 70 to 81% of owls, and 49 to 92% of raptors. Based on the article, 80% of the secondary poisonings of raptors are caused by rodenticides.

They recommended that single- or multiple-entrance snap traps or other humane devices should be used before rodenticides. If a rodenticide must be used, use these relatively safer active ingredients for raptors or other wildlife: bromethalin, vitamin D3, chlorophacinone, warfarin, or warfarin



sodium salt. Baits should always be in protective boxes, and never used during nesting season, when adult raptors could potentially feed poisoned rodents to their young and to each other. EPA provides a list of [home-use rodenticides that are safer](#) for humans and wildlife, and information on [managing rodents in the home](#).

For more information, see Utah Pests News, Spring 2013

<http://utahpests.usu.edu/htm/utah-pests-news/up-news-spring-2013/protecting-raptors-from-rodenticides/>

Recent School IPM Publications

Tim Stock, Robert Corrigan, and Dawn Gouge recently published a school IPM publication titled "Integrated Pest Management of the House Mouse in Schools". View the full article at:

<http://ir.library.oregonstate.edu/xmlui/bitstream/handle/1957/38106/em9062.pdf>

A new School IPM newsletter about drain flies written by Jennifer Snyder from Oregon State University. View the full text at: http://schoolipm.wsu.edu/pdf/PNW_PPDrainFlies.pdf. You can view more by visiting the following Web site: <http://schoolipm.wsu.edu/press.html>

These articles are great educational tools – place them in your schools' staff lounge areas.

Environmental Education News and Reports

The final [Next Generation Science Standards](#), a new set of voluntary, rigorous, and internationally benchmarked standards for K-12 science education, were released this week. The NGSS include content relating to human impacts on the natural world, including climate change, natural resource depletion, and habitat loss, and emphasize the development of problem solving skills students will need in order to contribute solutions to environmental challenges. For more information, visit:

<http://www.nextgenscience.org/>

The U.S. Fish and Wildlife Service released a [report](#) on its environmental education efforts. The report describes work to use National Wildlife Refuges as a teaching tool. Other publications of note: The National Research Council published a [booklet](#) that summarizes the current state of knowledge about climate change; explains some impacts expected in this century and beyond; and (3) examines how science can help inform choices about managing and reducing the risks posed by climate change. The [2012 National Survey of Science and Mathematics Education](#) offered by the National Science Foundation provides up to date information and identifies trends in the areas of teacher background and experience, curriculum and instruction, and the availability and use of instructional resources.

Health and Wellness: Nutrition, Fitness and Environmental Health

[USDA Summer Meals Program Kickoff](#)

Children who experience hunger in the summer are more likely to suffer from health problems and summer learning loss, which interfere with academic success. To close that gap, the USDA partners with schools, local governments, and community organizations to provide free meals to children when school is out for the summer.

[Training Tools for Healthy Schools](#)

The Center for Disease Control and Prevention (CDC) has created Training Tools for Healthy Schools, a national network of trainers who provide workshops on using and implementing the CDC's school health tools. You can learn about available workshops, or download a workshop request form [online](#).

[EPA's School Flag Program](#)

EPA's School Flag Program uses brightly colored flags based on the Air Quality Index. Schools raise a flag each day that corresponds to the forecast so that everyone can know the air quality conditions. EPA has partnered with CDC to provide school staff with guidance on how to promote activity while taking into account air quality.

National Kids to Parks Day

Children, families, teachers, cities, towns, and parks are gearing up for this year's National Kids to Parks Day (KTP), a nationwide day of outdoor play organized by National Park Trust (NPT) in cooperation with a host of national collaborators. This year's KTP Day will be held on Saturday, May 18, 2013, the week before the official start of summer.

NPT is encouraging children across the country to explore their neighborhood parks and discover the history, nature and adventure right around the corner or just across town. Use [this website](#) to help you start your adventure.



Upcoming Webinars and Events

[Attend Free Sessions](#) of the Green Strides Webinar Series

The [Green Strides Webinar Series](#) provides school communities the tools to reduce their schools' environmental impact and costs; improve health and wellness; and teach effective environmental literacy, including STEM, green careers, and civic engagement. Find more sessions for educators, facilities managers, and advocates weekly, click [here](#).

May 1, 2013, 4-5 p.m. Eastern / 1-2 p.m. Arizona: [Bringing Climate Change Home \(USFS/PLT\)](#)

May 8, 2013, 1-2 p.m. Eastern / 10-11 a.m. Arizona: [School Siting Webinar: Understanding the Challenges and Opportunities for Communities and Decision-makers \(EPA\)](#)

May 8, 2013, 2-3 p.m. Eastern / 11-12 p.m. Arizona: [Drinking Water Best Management Practices for Schools and Child Care Facilities \(EPA\)](#)

May 15, 2013, 4-5 p.m. Eastern / 1-2 p.m. Arizona: [Engaging your Community on Green Apple Day of Service \(USGBC\)](#)

May 22, 2013, 4-5 p.m. Eastern / 1-2 p.m. Arizona: [Teacher Ranger Teacher \(NPS\)](#)

May 29, 2013, 4-5 p.m. Eastern / 1-2 p.m. Arizona: [Authentic Student Voice and Leadership in GreenSchools! \(USFS/PLT\)](#)

May 3, 2013, 1-2 p.m. Central / 11-12 p.m. Arizona: [Don't Bug Me Webinar: Protect Your Loved Ones from Fire Ants](#)

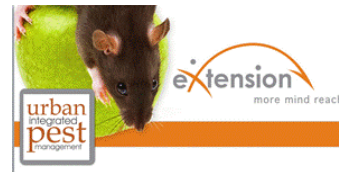
No one likes fire ants. People who live in areas with fire ants spend time trying to rid their yards of fire ants, and also trying to teach their children and pets to stay away from the distinctive mounds. Here is a link to a promotional story about the webinar: <http://www.extension.org/pages/67916/learn-how-to-protect-loved-ones-from-fire-ants>

May 17, 2013, Friday: [22nd Annual Desert Horticulture Conference 2013](#), Casino Del Sol Resort, 5655 W Valencia Road, Tucson, AZ 85757

Desert Horticulture is the premier annual conference for all members of the Green Industry: landscape architects, designers, growers, retailers, contractors, maintenance personnel, and suppliers. Our goal is to distribute timely, research-based information relevant to urban landscapes in the arid Southwest. Concurrent sessions are offered for Plants and Landscapes, Plant Health, and Hands-on Workshops. Participants can earn Continuing Education Units for different professional organizations including OPM, ISA and others. Please visit our website at <http://ag.arizona.edu/deserthort>

For more information about the EPA Schools program, visit:
<http://www.epa.gov/schools/>

For more information about the Community IPM, visit:
<http://www.extension.org/pages/23359/urban-integrated-pest-management-community-page>



For more information about School IPM in Arizona, visit:
<http://cals.arizona.edu/apmc/westernschoolIPM.html>

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