Disorganized Mosquito Control Will Make US Vulnerable to Zika
Submitted by: Andy Kyle

As Zika virus advances in Central and South America, and more US residents (almost 150 so far) return from the area with infections, public health officials are braced for the next likely step: the moment when Zika passes from a traveler bearing the virus in his or her blood, to a local mosquito, and then to another person. That viral traffic has the potential to ignite Zika outbreaks in the United States in the areas where the mosquito species which carry it already flourish, across the South, in the Mid-Atlantic states and as far north as Des Moines, Cleveland and New York.

And though no one is yet talking about it publicly, that presents an enormous problem. In the United States, mosquito control — the tracking, spraying and surveillance that, in the absence of a vaccine, provides the best defense — is conducted by a crazy quilt of local districts that are dependent on cities and counties for funding and personnel. Some belong to local health departments, and others to departments of agriculture, transportation, or parks and recreation; almost none of them answer to the Centers for Disease Control and Prevention, the federal agency that directs US response to new disease threats.

When Zika arrives, that unorganized patchwork could leave the United States vulnerable to a rapidly expanding epidemic. The time that it would take to reorganize mosquito control into a coordinated system may already be running out.

“There are more than 700 mosquito-abatement districts in the United States, and it can be very difficult to figure out where they fit into public health,” says Joseph Conlon, a former US Navy entomologist who serves as a spokesman for the American Mosquito Control Association. “Chesapeake, Va. has its own taxing district, nothing to do with the health department. Massachusetts has seven mosquito-control districts, run by the state; so does Delaware. Florida has a government body that establishes policy, but mosquito control is done at the (Continued on page 2)
(Continued from page 1) county level; I think they’ve got 66 local abatement districts.”

Some of those bodies, he cautioned, are as well-funded as if they were private industry: “Lee County, Fla., where Fort Myers is, has a budget of $24 million. They have 27 aircraft, more mosquito-control capability than anywhere else in the world. But other places don’t have the budget to do aerial spraying, or the capacity to do mosquito surveillance to drive their control programs. There’s not enough lab capacity, no funding for communication, which is critical.”

The uneven status of mosquito defenses is no secret among public health workers, who have been trying for several years to get policymakers’ attention. Last year, the Association of State and Territorial Health Officials presciently wrote in a report, “Before the Swarm,” assessing vector (that is, not just mosquitoes, but ticks and other insects) control efforts: The unpredictable nature and severity of vector-borne disease outbreaks demonstrates the urgent need for careful preparation and the incorporation of vector-control emergency-management activities into overall public health preparedness efforts. Since climate change is altering temperature and precipitation patterns across the country, it is critical that public health professionals also prepare for a potential increase in the geographic spread of existing vectors, such as Aedes albopictus or Aedes aegypti, and potentially for new vector-borne diseases.

In 2014, the Council of State and Territorial Epidemiologists examined staffing and budgets for mosquito control in state and large city health departments, comparing levels in 2012 and in 2004, the year that West Nile virus spread to all of the lower 48 states. They found dismaying drops:

- Overall federal funding down 60 percent, from $24 million to $10 million.
- Number of staff working at least half-time on West Nile surveillance: down 41 percent.
- Proportion of states conducting mosquito surveillance: down from 96 percent to 80 percent.
- States that had reduced mosquito trapping: 58 percent; states that had reduced mosquito testing: 68 percent.
- States that had reduced testing of human patients suspected of having West Nile: 46 percent.

The group warned that lab capacity in the states, crucial for detecting which of many mosquito- and tick-borne diseases have arrived, and where they are going next, had been deprived of enough money and expertise to be unrecoverable.

Although many state public health laboratories have the capability to test for St. Louis encephalitis (79%), Eastern equine encephalitis (59%), Western equine encephalitis (39%) or LaCrosse (42%) viruses, routine testing for these viruses by state laboratories in meningoencephalitis patient specimens actually occurs much less frequently than for West Nile virus (SLE 73%, EEE 27%, WEE 9%, La-Crosse 8%). In part, this disparity results from inadequate laboratory staffing. Further, only nine state laboratories perform testing for dengue, four for Powassan, and two each for Chikungunya and Colorado tick fever viruses.

“There’s a critical gap of efficiency,” says Dr. E. Oscar Alleyne, a senior advisor at the National Association of County and City Health Officials, who at the start of the West Nile epidemic was the director of epidemiology of Rockland County, NY. “Those that do it obviously try to do it as well as they can, but the reality is, the defunding of many of these vector-borne programs for the sake of other programs, or for the sake of something that’s a little bit more sexy, from a Congressional standpoint, has had an impact on the ability for folks to rapidly mobilize.”

Making things worse, he pointed out, is that whatever mosquito-control capacity still exists was built to respond to West Nile. But Zika is spread by different mosquito species that live in different environmental niches and bite at different times of day; existing lab tests and already-owned mosquito-catching equipment do not match those species. Alleyne said: “You have a defunded system, you have a lessened capacity, and now you have a new threat that, with the equipment that you have, doesn’t provide you with adequate mechanisms to know how to detect them and respond.”

Detecting the Aedes mosquitoes that spread Zika is a particular challenge because those species can breed in very small pools of water: puddles in discarded tires, upturned bottle caps. Anywhere with poor garbage collection, reduced municipal services, or low-quality housing represents prime habitat, and wiping out that habitat requires having enough personnel to scour private properties and go door to door. (Continued on page 3)
New Lyme-disease-causing bacteria species discovered

Submitted by: Louise Bugbee

The Centers for Disease Control and Prevention, in collaboration with Mayo Clinic and health officials from Minnesota, Wisconsin, and North Dakota, report the discovery of a new species of bacteria (*Borrelia mayonii*) that causes Lyme disease in people. Until now, *Borrelia burgdorferi* was the only species believed to cause Lyme disease in North America.

Scientists at the Mayo Clinic in Rochester, Minnesota, first suspected the possibility of new bacteria after lab tests from six people with suspected Lyme disease produced unusual results, according to the findings published today in *Lancet Infectious Diseases*. Additional genetic testing at the Mayo Clinic and CDC found that the bacteria, provisionally named *Borrelia mayonii*, is closely related to *B. burgdorferi*.

“This discovery adds another important piece of information to the complex picture of tickborne diseases in the United States,” said Dr. Jeannine Petersen, microbiologist at the Centers for Disease Control and Prevention.

So far, new Lyme species found only in upper Midwest. Limited information from the first six patients suggests that illness caused by *B. mayonii* is similar to that caused by *B. burgdorferi*, but with a few possible differences. Like *B. burgdorferi*, *B. mayonii* causes fever, headache, rash, and neck pain in the early stages of infection (days after exposure) and arthritis in later stages of infection (weeks after exposure).

Unlike *B. burgdorferi*, however, *B. mayonii* is associated with nausea and vomiting, diffuse rashes (rather than a single so-called “bull’s-eye” rash), and a higher concentration of bacteria in the blood.

The researchers believe that, like *B. burgdorferi*, *B. mayonii* is transmitted to humans by the bite of an infected blacklegged (or “deer”) tick. *B. mayonii* has been identified in blacklegged ticks (continued on page 9).

(Continued from page 2)

Dr. Peter Jay Hotez, a noted tropical disease expert who is dean of the National School of Tropical Medicine at Baylor College of Medicine in Houston, sees those practically outside his door.

“The Gulf Coast has both species of mosquitoes, and has the second risk factor for Zika, which is extreme poverty,” he told me. “People who live in poverty don’t have access to window screens, don’t have garbage collection; in many poor neighborhoods, you see plastic containers filled with water, cups discarded, tires lying on the side of the road.”

Without well-funded, well-staffed mosquito surveillance, he said, “We won’t know that Zika’s here until babies start showing up in delivery suites with microcephaly.”

The Obama Administration has asked Congress to authorize a $1.8 billion emergency fund to respond to Zika, with $828 million of that for the CDC. As welcome as that will be, if it is approved, public health experts worry it may not be enough, for two reasons. First, since many mosquito control bodies don’t belong to the public health pyramid—which has the Department of Health and Human Services at the top, then the CDC, then state health departments, then county or city ones—there is no existing mechanism by which money can be funneled to them quickly.

And second, the money—as abundant as it might be—is a one-time emergency appropriation. That means it is likely there will be specific things on which it can and can’t be spent. On the likely list: equipment, assays, physical goods. On the not-likely: ongoing salaries. But those working in the field say that what public health needs most is steady funding to prop up its depleted workforce—and in the past decade, it has been persistently deprived.

“On an annual basis, public health funding continues to be at best fairly flat, and emergency preparedness funding has declined since the bump-up after 9/11,” says Richard Hamburg, interim president and CEO of the nonprofit Trust for America’s Health, which studies public health capacity. “We should be learning that we can’t jump from one emergency funding vehicle to another. We need to maintain a constant higher level of funding to ensure foundational capabilities, no matter what emergency comes through.”

Update: Via Twitter, Tyler Dukes of WRAL.com in Raleigh, NC points out his colleague Mark Binker’s discovery that North Carolina has already sacrificed its mosquito-control funding to budget cuts.

What’s Happening in Region 1

Submitted by Ray Delaney

Staff from Bucks County will be attending the tick symposium in Washington, D.C. May 16th and 17th. Since 1997, there have been 9,118 cases of Lyme disease (an average of 480 cases/year) in Bucks County. Information gained at this training will assist Bucks in responding to these cases.

Bucks County’s WNV program is ready to go, and has recently purchased a new truck for use with their Cougar ULV sprayer, all other equipment has been checked and they are patiently waiting for spring. In 2015, Bucks County had 18 rabies positives (6-raccoons, 5-cats, 5-bats, 1-skunk and 1-fox). In addition to these animals, a rabies positive deer was found on the side of the road in Bucks County last summer, since it was suspected to have been hit by a car, it was taken to a rehab center in Montgomery County. While there, it was tested for rabies. Although this case was attributed to Montgomery County, there is a chance this animal was infected in Bucks.

Philadelphia’s Department of Public Health recently hosted a staff training on the spread of the Zika virus. In response to the recent outbreaks of Chik-V and Zika in the Americas and the Caribbean, Philadelphia’s Vector Control program will increase their surveillance of Aedes species mosquitoes in hopes to better catalog the population density of this species of arthropods.

Over the winter, tick samples collected throughout Philadelphia’s park system were submitted for testing. Tick Drags held in West Fairmount Park and in Wissahickon Park tested positive for Anaplasmosis and Lyme. Two ticks collected were co-infected with Babesiosis and Lyme. Philadelphia has tracked a few Babesiosis patients in recent years. Philadelphia’s Vector staff have also recently attended a ‘Rat Academy’ training with Dr. Bobby Corrigan. This one day workshop was an abbreviated version of the training offered by Dr. Corrigan and the NYC Department of Health and Mental Hygiene.

What’s Happening in Region 2

Submitted by Louise Bugbee

Truly the Year of the Monkey

Well, winter has been pretty much of a dud here in the Northeast. Of course, at this writing, it’s not over yet so we’ll have to wait and see what happens. Four counties have been approved for West Nile grants from DEP - Lackawanna, Lehigh, Luzerne, and Monroe and will be ready to go as soon as the funds are released.

Lyme cases are up. Bedbug calls are down, at least in the Lehigh Valley. Maybe all that public education is beginning to have an effect. It’s too soon to talk about black flies. The Northeast finished 2015 with 35 rabies cases, mostly in raccoons.

But as I write this little missive it is February 9th. At this very moment, one fifth of the world’s population is busy celebrating Chinese New Year. Millions of other revelers are dancing, drinking and engaging in minor feats of debauchery in the streets at Carnival or Mardi Gras festivals. But here in Eastern Pennsylvania all the good folks are feasting on Fastnachts - potato doughnuts. Church basements and fire halls have been frying up these regional sizzled delicacies for days and nights to meet the one day demand.

I am not sure how widespread in the Keystone State this particular Shrove Tuesday custom really is. But here in Dutch Country all the fat and sugar in the house is converted into greasy lumps and eaten in one last frenzy before the Lenten fast begins. Specific locales staunchly support their own unique enhancement of the dough ball. The contest amongst Karo syrup, molasses and powdered sugar is often debated but never decided. Many an office squabble ends without resolution.

(Continued on page 5)
What’s Happening in Region 3

Submitted by Thomas Smith

Region 3 has been fairly quiet this winter. One major snow storm was enough to shut things down for a couple of weeks.

On the West Nile front, participating counties should be receiving their 2016 Grant agreements. DEP will be holding our annual season kick-off meeting on Thursday, April 7th. In 2015, York County ranked 1st for West Nile detection and Adams County ranked 2nd. 2016 will most likely indicate similar results. It still comes down to having individual property owners and municipalities be responsible.

Since Zika virus has been a major discussion in the news Dave Schmidt from Lancaster and Lebanon Counties took it upon himself to create a brochure to answer questions about Zika, Chikungunya and Dengue. The message is the same. People just need to clean up.

2016 marked the 100th Anniversary of the Pennsylvania Farm Show. Penn State Extension Pesticide Education Program had a large display this year educating visitors about IPM, mosquitoes, ticks and protecting pollinators.

One in Four U.S. Deer Is Infected With Malaria

Submitted by: Jacqui Hakim

Like West Nile virus, scientists have recently discovered a new vector-borne disease in an American zoo: the malaria parasite Plasmodium odocoilei. This is probably not one that infects humans, fortunately. Found only in white-tailed deer (as the name suggests) the researchers suspect the undetected blood parasites have been present in the animals ever since they arrived across the Bering Land Bridge. It was previously detected in a single Texas deer in 1967.

The discovery was made in an engorged mosquito that was caught in a light trap while doing a study of avian pathogens at the Smithsonian Nation Zoo in Washington, DC. When performing PCR, they found malaria parasites that contained DNA from a white-tailed deer. Further research on blood and tissue from live-trap and necroscopy samples indicated that this parasite is probably present in 25% of the white-tails in the eastern US. The parasite-loads are so low that they had not been detectable during standard light microscope

(Continued on page 9)
Well, it’s now almost spring, and time to start preparing for what the world of mosquito borne disease has in store for us in 2016. This winter has been a little gentler than the past two, but even after the Polar Vortices of 2014 and 2015, larval mosquito samples were found in the Northcentral Region as early as April 1st, and positive West Nile Virus results were turning up by late May. (Not to mention the deer ticks, which were as plentiful as ever by late March).

Judging from the amount of interest the Zika virus is generating among the news media and general public, the subject of mosquitoes and disease surveillance may be on the front burner this season, which would be a good thing if it contributes to public awareness of vector borne illness.

With surveillance being conducted in thirteen of the fourteen counties in 2015, the number of WNV positive mosquito test pools in Region 4 totaled 106, up from 65 in 2014. There were four avian positives and no veterinary positives. There were no confirmed human cases of WNV in the Region in 2015. PADEP and County staff fielded 48 nuisance complaints from the public in 2015, as wet weather extended into mid-summer and produced standing water in areas not normally under surveillance and control.

To Prevent Malaria in Humans, Scientists Try Protecting Pigs

Submitted by Andy Kyle

For years, scientists have known of a sneaky way to kill mosquitoes: Give humans a deworming pill.

The active ingredient, ivermectin, kills not only worms infesting people but also mosquitoes who drink their drug-laden blood. (Ivermectin also kills lice, bedbugs and other blood-feeders. The drug’s inventors recently received a Nobel Prize in Physiology or Medicine.)

Turning everyone in a village into a walking mosquito bomb, many scientists agree, could stop or slow transmission of malaria, yellow fever, dengue, chikungunya and other diseases.

But villagers with worms normally receive only one or two pills a year. Researchers aren’t certain it is possible — or safe — to boost blood levels of ivermectin high enough to wipe out generations of mosquitoes during the biting season, which can last for months.

Scientists at the medical school of the University of Barcelona have come up with a novel alternative: Use livestock.

In a poster presentation at a meeting of the American Society of Tropical Medicine and Hygiene in Philadelphia last week, the researchers showed how they had implanted two-inch soft silicone rods releasing a steady dose of ivermectin under the skin of pigs.

Many poor farmers keep their animals near or even inside their homes to protect them from predators or thieves.

Some disease-carrying mosquito species alternate between biting animals and humans, said Dr. Carlos Chaccour, a researcher at the University of Barcelona’s Institute for Global Health and the University of Navarra. Ivermectin will kill most mosquitoes, but the dose needed varies by species.

Because not all poor farmers raise pigs — Muslims, for example, do not — the method will still need to be tested in cattle, goats, camels and other livestock.

Animals usually tolerate high doses of ivermectin safely, Dr. Chaccour said, but must be drug-free for some time before they are safe to eat. For example, cattle should not be slaughtered for food until 90 days after a single deworming treatment, according to guidelines by the United Nations Food and Agriculture Organization. (Continued on page 8)
The arrival of 2016 is ringing in several changes in Region 5. For one, I'll be serving as your new SW Regional VP. After 16 years of working in the WNV Program in one capacity or another, I figured it was finally time to step up and contribute! We're also going to start the season without my longtime partner in crime working in the DEP WNV Program. Ed Farrell is going to spend his final year before retirement working in the DEP Black Fly program. We're definitely going to miss his help and insight. Always an avid thermal fogger enthusiast, Ed was a nuisance mosquito killing machine last season. Let's just hope the rains hold off this year... We wish Ed all the best of luck this season as he learns a new program. At least he'll be spending his time in streams instead of sewage treatment facilities and junk yards!

While some things change, other things stay the same. Our region is entering 2016 with 4 counties participating in the WNV Program: Allegheny, Beaver, Cambria, & Fayette. In 3 of the 4 counties, each staff member has been in the program for over 10 years. We really appreciate their hard work and dedication. In the 4th county, Fayette, we're looking forward to the return of Ken Hess for his second consecutive season. Ken was also our DEP SW Regional intern in the 2008 and 2009 seasons. He's got the experience, and we're happy to have him back. (Be sure to check out Ken's cartoon on this page of the newsletter.)

On another front, the DEP is assisting the state Department of Agriculture and other agencies in preparations for the potential arrival of the Highly Pathogenic Avian Influenza (HPAI H5) in Pennsylvania. When HPAI ravaged the mid-West last year, nearly 50 million birds were lost. Those carcasses had to be disposed of properly. Aileen Evan is a Compliance Specialist in the Bureau of Waterways and Wetlands. She has been chosen as the point person for the bureau in this region. Part of her regular duties involve working with agricultural facilities and farms, so she was a natural choice as the point person for this project. Aileen is being tasked with compiling an inventory of the larger poultry operations in our region and working with them to ensure they have an adequate response plan in place in the event HPAI is detected on their premises. Other DEP bureaus have also designated staff to work with the project as it has the potential to impact various aspects of the environment including: water quality, waste management, air quality, and drinking water. Although highly contagious to poultry, the virus is not considered a major threat to human health at this time. If you interested in learning more about HPAI, please visit the PA Dept. of Agriculture website.

Updates from Allegheny County:

- This spring, Allegheny County is conducting pesticide applicator certification training classes for 8 weeks in order to help certify workers in local municipalities. This helps to promote a tag-team approach to pest-related issues throughout the county. In addition, Allegheny County is conducting three update training classes to provide pesticide update credits while informing municipalities of the current climate of pest control and public health. Training agenda topics will include West Nile Virus, rat control, Asian Tiger mosquito, Zika virus, ticks & Lyme disease, and pesticide issues in the news.

The Allegheny County Health Department is participating in the 15th year of the USDA’s raccoon vaccination program aimed at preventing the raccoon variant of the rabies virus from spreading westward into Ohio. Teams of 2 staff spend many days dispensing a vaccine-laden bait along every street in the County. The number of rabid raccoon incidents in the County has been markedly reduced and the feds say the program is working as planned.

The spread of bed bugs in multi-unit housing continues to make life miserable for anyone so afflicted. The lack of a state law requiring full disclosure allows landlords to rent previously infested units to new tenants who are unaware of the problem. As the blame game & lawsuits increase, Neighborhood Legal Services has been drawn into the fray and is consulting with the County Health Department.
What’s Happening in Region 6
Submitted by Ted Bean

Coming off a relatively high West Nile virus year in Northwestern PA and the hype and constant media attention over Zika, mosquito control will be on the minds of many residents. With the resources available we will conduct surveillance and control activities to the best of our ability. Deer ticks and Lyme disease are also on the rise in Northwestern PA. It is hard to believe that 15 years ago they were only found on Presque Isle State Park, but that has certainly changed. Lyme disease incidence is on the rise in all Northwestern PA Counties, Forest County included where the deer ticks most likely now outnumber humans. Erie County remains the hot bed with Lyme Disease cases increasing from 14 in 2012, to 25 in 2013, to 55 in 2014 to 70 in 2015. While these numbers are miniscule compared to Southeastern PA, we don’t like the trend!

I was fortunate enough to attend AMCA this year and attended some excellent talks on cross resistance work (larval and adult control products), seasonal peaks of certain species of mosquitoes over that past decade and, of course, mosquito born viruses. It was obvious from the CDC’s talk on Zika that there is a lot we simply do not know, yet. They have a team in Brazil trying to scientifically sort it all out. In the meantime, we will continue to concentrate on controlling mosquitoes.

Fire Ants Show off Survival Technique Amid Historic Flooding

Submitted by: Tom Smith

Like something out of a Victorian jungle story, big rafts of teeming fire ants have been seen this week floating in South Carolina on high water that has also ruined homes and businesses and killed nearly a dozen people.

When waters start to flood a fire ant colony, they take evasive action. Worker ants link legs and mouths together, weaving a raft in a process that can take less than two minutes.

The ants move their queen and larvae to the center of the raft, where they stay high and dry on top of the mass of bodies. The fine coat of hairs on the ants traps enough air that those on the bottom layer of the raft avoid being completely submerged.

Fire ants can survive in a raft up to several weeks, though they must eventually reach dry land if they are to restart their colony. In the water, they face constant danger from predators, particularly fish, who pick them off one by one. If enough ants are removed, the whole colony can collapse.

A single queen can lay three million eggs in her lifetime, so many of the workers lost in the struggle can be replaced.

Article Credit: Brian Clark Howard, National Geographic, October 6, 2015.

Red Imported Fire Ants (RIFA), *Solenopsis invicta* Buren, are stinging insects that belong to the same order as bees and wasps. The RIFA now infests more than 325 million acres in the southern United States, where it has become a considerable agricultural pest and a significant health hazard. Source: http://entoplp.okstate.edu/fireants/red-imported-fire-ants

(continued from page 6) A version of this article appears in print on November 3, 2015, on page D5 of the New York edition with the headline: Livestock May Become Defense Against Malaria.

(continued from page 3) collected in at least two counties in northwestern Wisconsin. The likely exposure sites for the patients described in Lancet Infectious Diseases are in north central Minnesota and western Wisconsin. It is highly likely, however, that infected ticks are found throughout both states.

The newly recognized species was discovered when six of approximately 9,000 samples drawn from residents of Minnesota, Wisconsin, and North Dakota with suspected Lyme disease between 2012 and 2014 were found to contain bacteria that were genetically distinct from B. burgdorferi. Scientists analyzed the DNA sequences of these bacteria and found that they belonged to a previously unrecognized Borrelia species. Blood from two of the patients was also tested by culture at CDC, whereby the organism is grown in the laboratory.

To date, the evidence suggests that the distribution of B. mayonii is limited to the upper midwestern United States. The new species was not identified in any of the approximately 25,000 blood samples from residents of 43 other states with suspected tickborne disease taken during the same period, including states in the Northeast and Mid-Atlantic region where Lyme disease is common.

Current tests, treatments should work for new Lyme strain. Results from the cases described in this report suggest that patients infected with B. mayonii will test positive for Lyme disease with currently available Food and Drug Administration-cleared Lyme disease tests. Specific identification of the organism can be made by using polymerase chain reaction assays (PCR), which detects the DNA of the Lyme disease bacteria. In some instances, B. mayonii bacteria may also be seen on a blood smear.

The patients described in this report were treated successfully with antibiotics commonly used to treat Lyme disease caused by B. burgdorferi. CDC recommends that health care providers who treat people infected with B. mayonii follow the antibiotic regimen described by the Infectious Diseases Society of America.

CDC is working closely with state health departments in Minnesota, North Dakota, and Wisconsin to better understand B. mayonii and to plan future investigations, including better descriptions about the clinical aspects of the illness and the geographic extent of the infected ticks.

To further support advances in the detection and discovery of tickborne diseases, CDC in 2015 funded a partnership with the Minnesota Department of Health, Mayo Clinic, Tennessee Department of Health, and Vanderbilt University to collect over a 3-year period up to 30,000 clinical specimens from patients with suspected tickborne illness. CDC will use advanced molecular detection methods, including metagenomics screening and whole genome sequencing, to test the specimens for other bacteria that cause tickborne illness.

"CDC is investing in advanced technology to bring study of tickborne infections into a new era," said Ben Beard, Ph.D., chief of CDC’s Bacterial Diseases Branch. “Coupling technology with teamwork between federal, state, and private entities will help improve early and accurate diagnosis of tickborne diseases.”

To reduce the risk of tick bites and tickborne diseases, CDC recommends that people:

- Avoid wooded and brushy areas with high grass and leaf litter.
- Use insect repellent when outdoors. Use products that contain permethrin on clothing. Bathe or shower as soon as possible after coming indoors to wash off and more easily find ticks. Conduct a full-body tick check after spending time outdoors. And examine gear and pets, as ticks can come into the home on these and later attach to people.

To view the article online: http://www.thelancet.com/journal/s/laninf/article/PIIS1473-3099(15)00464-8/fulltext

For more information, please visit www.cdc.gov/ticks.

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(Continued from Page 5) Some have these programs were to commercial pest control companies sharing specifics about providing mosquito and tick control services to their customers. I was also able to provide Poison Prevention & IPM Programs to first grade classes. This program is offered in many counties through the Master Gardener Program. If you have any schools that are interested please pass them onto you local Master Gardener Program.

(Continued from Page 5) examination. The infection does not seem to impact the health of the deer. Sampling of closely-related species indicates that the pathogen is limited to white-tails. The mosquito species implicated in transmission at the National Zoo is Anopheles punctipennis, a native species common to Pennsylvania.

See the complete article at: http://www.smithsonianmag.com/smithsonian-institution/one-in-four-deer-infected-malaria-180958046/?utm_source=smithsoniandaily&no-ist
Each year the week of June 26 is declared National Mosquito Control Awareness Week by the American Mosquito Control Association. AMCA’s “Mosquito Week” educates the general public about the significance of mosquitoes in their daily lives and the important service provided by mosquito control workers throughout the United States and worldwide.


Here are a few ideas on how you can get the word out:

- Contact your local radio station and offer to be a guest expert.
- Contact your local elementary school and offer to talk about mosquitoes.
- Contact your local girl scout or boy scout troop and offer to teach about mosquitoes.
- Set up an informational display in your community.
- Hold an open house at your district.
- Set up a tire drive.
- Distribute repellent packets in your community.

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Calendar of Events

March 1 - May 31, 2016: Great American Cleanup of Pennsylvania

May 9 - 11, 2016: AMCA Washington Days Conference

June 20 - 26, 2016: Pollinator Week

July 9, 2016: York County Insect Fair

August 5 - 7, 2016: Mothapalooza, West Portsmouth, Ohio

August 16 - 18, 2016: Penn State Ag Progress Days

September 25 - 30, 2016: XXV International Congress of Entomology

October 19 - 21, 2016: PVCA Conference, State College

November 11 - 12, 2016: Pennsylvania State Beekeepers Association Annual Meeting, Lewisburg, PA.
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The Pennsylvania Vector is an informational newsletter, written and produced for the purpose of providing the members of the PVCA with updates on activities conducted by this group and to highlight innovations made in the field of vector control. Articles herein have been reviewed for content and to the best of my knowledge contain the most current information available. The Pennsylvania Vector will be mailed to organization members, with past editions available in PDF format on the PVCA website at www.pavectorcontrol.org.

Items posted in “The Pennsylvania Vector” are submitted by the general membership and staff. Posting herein allows for the widest dissemination to all members of the organization. Should a listed event be cancelled or re-scheduled (after publication), revisions will not be printed or mailed to the membership as part of the News Letter process. These revisions should be submitted as soon as possible by email or fax to the PVCA website.

Organizations are encouraged to submit News Letter articles and can do so by contacting this office. Cut-off dates: Feb 15th, Jun 15th, and Oct 15th. Publications will be issued March, July, and November.

Are you on Facebook?
The Pennsylvania Vector Control Association’s page now has 109 likes.

**PRESIDENT’S Corner**
Leah Lamonte

Job well done to Judy Cherepko for her years of service in the position. The board looks forward to the spring planning meeting being held in State College on April 8th. During that meeting, we plan the fall conference and discuss things relevant to our organization. If you have any items that you would like us to discuss or suggested speakers for the conference, please email me at llamonte@achd.net.

Thank you for the opportunity to serve as PVCA’s new president!

Leah Lamonte

**EDITOR’S Corner**
Tom Smith

It may technically be spring, but it seems that winter is trying to stick around. I’m sure that once May gets here temperatures will be on track.

My recommendation is to enjoy the slow start and take time to make sure your spray equipment is ready to go! The heat will most likely kick in by June. Add a couple of summer rain events and thunderstorms, and we will all have plenty to do.

Tom Smith