

# The Pennsylvania Vector

Spreading News to the Vector Control Community

Volume 16, Issue 1

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## How To Teach Mosquitoes To Leave You Alone

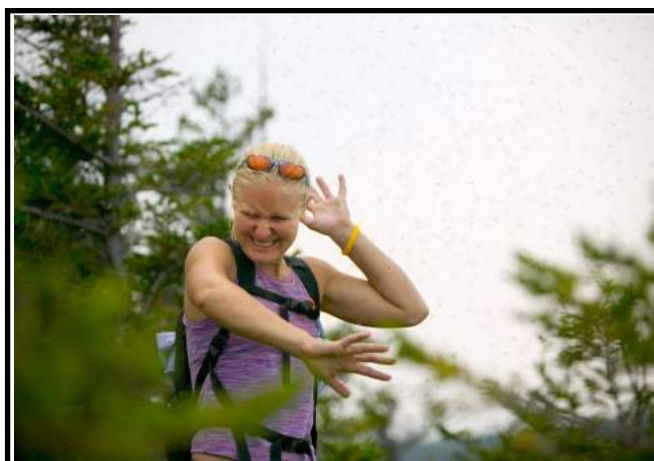
MICHAELEEN DOUCLEFF

Human skin is a cornucopia of fragrances. The bacteria living on our skin emit more than 200 odor chemicals. "Many of these molecules smell quite pleasant," says biologist Jeff Riffell at the University of Washington. "They smell grassy or a little bit like mushrooms. Some human scents are the same ones found in flowers." Other chemicals — well — they aren't so nice. "They're pretty funky," Riffell says, like an overripe Brie cheese or a musty basement.

But mosquitoes don't care if we are stinky. They love human odors! Mosquitoes actually learn human scents and then seek them out, Riffell says.

In fact, it's your unique mixture of odors that determines how many mosquito bites you get, Riffell says — although scientists don't know exactly which combination is most alluring. Some people's perfume is just irresistible to skeeters.

"Some people are super-attractors for mosquitoes," Riffell says, "while other people aren't attractive at all, and the mosquitoes will avoid them."



Now Riffell says he has come up with a way to teach mosquitoes to hate your odor so they leave you alone.

"Swat them!" he exclaims. Just wave your hands and arms all around the buggers. You don't even need to touch them!

Riffell and his team report that mosquitoes hate air vibrations. They make the critters feel uncomfortable.

When the vibrations are combined with a person's unique odor, the mosquitoes start to associate this uncomfortable feeling with odor. And the critter then starts to avoid the odor, Riffell and his colleagues report Thursday in *Current Biology*.

"Mosquitoes can learn whether or not you are trying to swat them, and then they will pretty much avoid you thereafter for about 24 hours," Riffell says. "If another person is in the room, they will go and try to bite them." But a day later, they'll forget what they learned.

So, in a way, swatting puts up a shield around you, making you invisible, kind of like the Romulan cloaking device in *Star Trek*. (Continued on bottom half page 2)

# DEP and PennDOT Earn National Recognition from Keep America Beautiful

(for Statewide Campaign to Cleanup Pennsylvania)

## DEP Newsroom

**CONTACT:** Deborah Klenotic  
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Harrisburg, PA – The Pennsylvania Department of Transportation (PennDOT) and Department of Environmental Protection (DEP) have been honored with Keep America Beautiful (KAB) 2018 State Agency Partner Awards for their partnership on the Great American Cleanup of Pennsylvania in 2017. The statewide campaign organized over 132,000 volunteers who participated in over 7,200 local cleanup events in every county of the commonwealth.

“DEP has supported and participated in the annual Great American Cleanup of Pennsylvania program since it began in 2004,” said DEP Secretary Patrick McDonnell. “It reflects two of our core values—improving the environment and fostering strong community partnerships—and it succeeds.”

“We are very proud of the long-running success of our Adopt-A-Highway program,” said PennDOT Secretary Leslie Richards. “The

efforts of our district coordinators coupled with the enthusiasm of our volunteers results in tons of trash and debris being removed from our roadways year after year.”

The Great American Cleanup of Pennsylvania is coordinated by KAB affiliate Keep Pennsylvania Beautiful with state agency support from DEP and PennDOT. Last year the campaign brought thousands of Pennsylvanians together in the spring to collect millions of pounds of trash and plant trees, shrubs, and flowers.

In 2017, through PennDOT’s Adopt-A-Highway program, agency district coordinators partnered with over 4,800 volunteer groups adopting 10,733 miles, collectively saving the commonwealth in excess of \$5 million, allowing scarce commonwealth resources to be re-directed to areas needing critical attention.

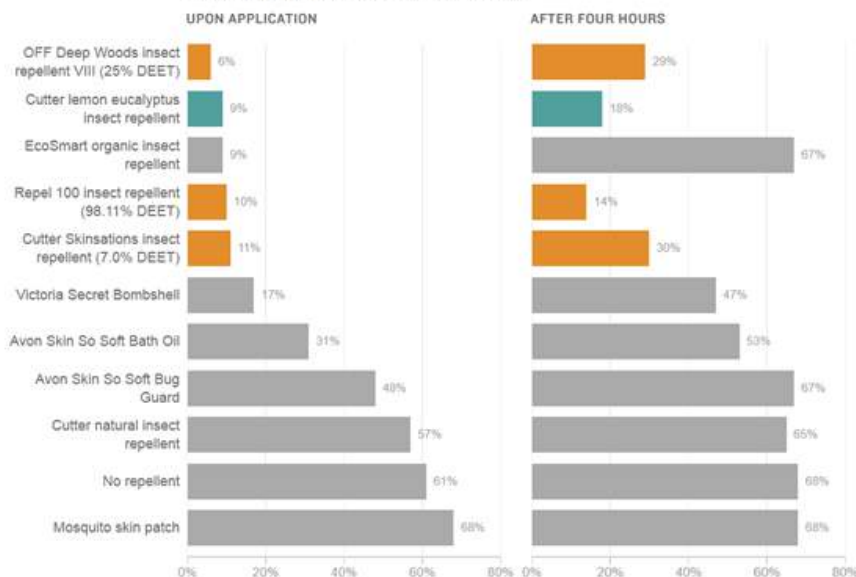
DEP funding covered the cost of supplies for the participating volunteers, who collected more than 5 million pounds of trash from an estimated 11,168 miles of roads, railroad tracks, trails, waterways, and shorelines and planted 16,437 trees, bulbs, and plants

in Pennsylvania. DEP and PennDOT partner on statewide public outreach to raise public awareness of cleanup events. In addition, Secretary McDonnell participated in a cleanup event in Steelton Borough, and other DEP staff participated in events in their local areas.

“The Department of Environmental Protection and the Department of Transportation have been invaluable partners to Keep Pennsylvania Beautiful since its inception, providing resources that have enabled hundreds of thousands of volunteers to participate in tens of thousands of community improvement events,” said Shannon Reiter, president of Keep Pennsylvania Beautiful.

The Pennsylvania Waste Industries Association, the Pennsylvania Food Merchants Association, and numerous companies also support the communities’ cleanup projects. Both agencies remind Pennsylvanians to do their part and not litter. Learn more about litter in the commonwealth. (<http://www.penndot.gov/about-us/RoadsideBeautification/LitterFacts/Pages/default.aspx>)

SHARE OF MOSQUITOES ATTRACTED...



## How To Teach Mosquitoes

(Continued from page 1)

Several researchers told me the results are so convincing that they're going to start slapping at mosquitoes more.

"I certainly am," says biologist Marten Edwards at Muhlenberg College. "And I'm going to feel OK if I miss because I know that I've taught the mosquito something important" — that if the critter comes near Edwards, she could get ... BAM! ... smashed.

The study tested two mosquito species. The chart above shows attraction rates for the *Aedes aegypti* species. Source: *Journal of Insect Science* Credit: Katie Park/NPR

## Fertilizer Runoff is a Boon to Mosquito Growth

Submitted by Matt Helwig | Vector Management



A new study shows that fertilizer present in water where mosquitoes such as *Anopheles gambiae* breed can boost growth of bacteria, algae, and fungi, which mosquito larvae

### ENTOMOLOGY TODAY

As mosquitoes seek standing water to lay their eggs, many are attracted to water rife with plant matter, which serves as a food source for larvae as they develop. Examples of such locations range from backyard flowerpots to flooded rice paddies. But what happens when humans apply a fertilizer that runs off into the mosquitoes' breeding sites?

A new study published in December in the *Journal of Medical Entomology* shows the mosquitoes of at least two species develop both faster and in greater numbers when plant matter and fertilizer are combined in the water where the mosquito larvae grow.

Frédéric Darriet, a researcher at France's Institute of Research for Development (MIVEGEC), tested the larval growth rate and adult emergence of *Aedes aegypti* and *Anopheles gambiae* mosquitoes in laboratory breeding settings containing varying levels of nitrogen, phosphorous, and potassium fertilizer and plant mat-

ter. Across the tests, 1.7 to 3 times as many mosquito larvae developed to adulthood in settings with both plant matter and fertilizer compared to those in water with plant matter alone, and the mosquitoes' development rate was two to four times as fast on the combo, as well.

"Fertilizer is not directly assimilated by the mosquito larvae," says Frédéric Darriet. "However, the three minerals [nitrogen, phosphorous, and potassium] enhance the development of bacteria, algae, and fungi, increasing the food biomass of the breeding sites. Larvae of mosquitoes exploit this additional biomass to proliferate."

The mosquitoes seem to sense this advantage, too. In previous research, Frédéric Darriet found female mosquitoes were more attracted to breeding sites with chemical fertilizers in them. The problem, though, is not just one of simple proliferation of potentially disease-carrying mosquitoes. Because pesticides are often used alongside fertilizers in agricultural settings—again, think of those rice paddies—the conditions are ripe for accelerated insecticidal resistance developing in mosquitoes as well.

"The selection pressure induced is huge, and the resistance mechanisms present in the mosquitoes are selected all the more rapidly and efficiently as the mineral fertilizations and the insecticide treatments are frequent within a time span," says Frédéric Darriet. "All my research on the subject shows us how the not-so-well-thought-out use of pesticides and fertilizers in agriculture not only impacts the mosquito environment but even generates new ecological systems beneficial to the proliferation of mosquitoes."

These hotspots for mosquitoes fall

into something of a no-man's land between agriculture and mosquito management, both in practice and research. "Insofar as the interface of agriculture and public health doesn't come under the farmer's competences nor the ones of the vector-control services, there still is a huge research area even nowadays that has only partly been explored," Frédéric Darriet says. "The synergy of such a partnership between the scientists, the rice-growers, and the vector-control services would initiate pluridisciplinary research programs whose goal would be to protect the crops while reducing the mosquito populations much as possible."

*Read More* "[Synergistic Effect of Fertilizer and Plant Material Combinations on the Development of \*Aedes aegypti\* \(Diptera: Culicidae\) and \*Anopheles gambiae\* \(Diptera: Culicidae\) Mosquitoes](https://academic.oup.com/jme/advance-article/doi/10.1093/jme/tjx231/4753693)"

(<https://academic.oup.com/jme/advance-article/doi/10.1093/jme/tjx231/4753693>)

*Journal of Medical Entomology*

### Read More

"[Synergistic Effect of Fertilizer and Plant Material Combinations on the Development of \*Aedes aegypti\* \(Diptera: Culicidae\) and \*Anopheles gambi-\*](https://academic.oup.com/jme/advance-article/doi/10.1093/jme/tjx231/4753693)



# What's Happening in Region I

Submitted by Ray Delaney



## SE Region

### Bucks County

Even though we are still in the grips of Winter, the Bucks County Department of Health West Nile Team is getting excited about the start of the West Nile season. Bucks County furnished us with a new storage shed for our supplies, so we are busy stocking and organizing our supplies in their new home.

One of our former West Nile staff, *Ray Buckley*, has changed positions within the Health Department and will no longer be involved full time in the program as he was before. However, we still expect to be able to utilize Ray's talents in the program this year. His replacement, *Meredith Fischer-Gober*, is excited to move into this position and busy learning the ropes of the program. Bucks County also has a new West Nile coordinator, *Art Carlson*, who is also enthusiastic about the upcoming season and is working hard to become fully operational in the program. *Phil Smith*, the former coordinator of the program, recently became the Bureau Director of the Environmental Division of the Bucks County Department of Health. However, he will still be involved in the oversight of the program. In addition, *Brianna Heydlauf* and *Kelly Kerr*, two veterans of the West Nile team, are back and raring to go!

It is the goal of the Bucks County West Nile Team in 2018 to work closely with the PA DEP, our brethren in the field throughout the state and all of our wonderful suppliers, in the monitoring and suppression of mosquitoes this coming year. We will also strive to look for new ways to best address mosquito problems throughout the county.

### Chester County

In late January, Chester County Health Department ("CCHD") staff convened to discuss various strategies and takeaways gleaned from the 2017 mosquito season, and ways in which the county program could improve for the 2018 season. At this time of the year, our attention has been focused on communication and collaboration efforts with municipalities in the County where we see the highest levels of activity, as well as the greatest opportunity for positive public health impact. With those variables in mind, we developed a pool of municipalities to reach out to based on some or all of the following criteria:

- ⇒ human population density
- ⇒ mosquito population density
- ⇒ West Nile Virus (WNV)-positive sample/pool prevalence
- ⇒ Fixed site locations

With a list of municipalities developed, the CCHD organized a meeting for March 15<sup>th</sup>, 2018 to engage these stakeholders in the following informational and collaborative endeavors:

- ⇒ What is West Nile Virus?
- ⇒ How much of a problem are mosquitoes and mosquito-borne illnesses in Chester County?
- ⇒ What is the Chester County Health Department doing about mosquito-borne illnesses, and what can municipalities expect from the CCHD?
- ⇒ What can municipalities do to minimize mosquito nuisance and risk of virus transmission?
- ⇒ How can the County and municipalities work together to provide the greatest impact and benefit to its citizens?

We, as a County, ultimately seek to engage our local governments and citizens through transparency, streamlining of communications, and maximizing efficiency together to accomplish a goal that everyone can support: reduction of mosquitoes and mosquito-borne illnesses in Chester County.

### Philadelphia

Greetings from the City of Brotherly Love, the home of the NFL

### **2018 World Champion Philadelphia Eagles**

and welcome to the winter months of mosquito and vector control. Yes, it's the off-season and it's cold and snowy, but here in Philadelphia, Vector Control has had an action packed itinerary. Late fall/early winter we performed a few tick drags throughout Philadelphia's park system. Any tick samples we collected were submitted for testing, looking for diseases such Lyme and Babesiosis. A few of our staff members have attended and gave talks at state and regional conferences discussing experiences, trials, and tribulations of our ZIKA response. Furthermore, we carried out an Intercept study at a number of Philadelphia libraries evaluating the saturation of our ZIKA outreach campaign. Around the office, inventory of tools, machines, surveillance equipment, and pesticides. Machines in need of winterizing or equipment in need of repair has been given TLC. Our unit has attended a variety of recertification training classes on topics such as rodents, mosquitoes, ticks, bed bugs, CPR, and emergency response. In addition, staff members are completing AMCA's CDC certification modules on best integrated mosquito managements techniques.

### **Taking a look at our program by the numbers for 2017;**

- ⇒ 1,058 gravid traps
- ⇒ 1,068 BG Sentinel traps
- ⇒ 260 WNV positives resulted
- ⇒ 282 mosquito complaints
- ⇒ 49,000+ inlets larviciding
- ⇒ 1 human WNV case
- ⇒ 59 ZIKA cases, all travel related\*

\* NO local transmission

In the world of rats our inspectors:

- ⇒ 3,312 complaints completed
- ⇒ 6,842 inspections fulfilled
- ⇒ 80 stoppage services performed

**! E-A-G-L-E-S !**

# Pesticide Certification Examinations and Study Material

Submitted by Ray Delaney

Written by:

Ed Crow

Pesticide Education Program

Penn State Extension

The Pennsylvania State University

Special Services Bldg.

University Park, PA 16802

The Pennsylvania Department of Agriculture (PDA) has been transitioning to a closed book examination process for the past few years. Through a contract with PDA, Penn State Extension's Pesticide Education Program is responsible for the development of new study material to be used by individuals preparing to take the pesticide certification exams. **The new study material is now being developed as a single source reference manual instead of the traditional study packets that contained several publications.** To help individuals prepare for the exams, these new manuals will contain learning objectives and key words for each chapter. These concepts will help individuals identify the important information they need to know. In addition to the manuals, the Pesticide Education Program is also developing a bank of exam questions that PDA will use for creating the actual exam.

As part of the manual and exam developmental process, both PDA and the Pesticide Education Program want to ensure that industry is involved. A small review committee is established consisting of mem-

bers that represent licensed commercial businesses and public agencies. Our program and PDA values this input to identify and review the manual content along with reviewing exam questions to ensure they are valid. Once the manual has been printed and the corresponding exam questions validated, PDA will have a short transition period from the open book process to closed book for each specific category examination.

Currently the Pesticide Education Program is in the process of working with a Review Committee to develop **new study material for Category 15: Public Health Vertebrate Pest Control.** We anticipate that the manual and exam will be ready in late 2018. In addition, the Pesticide Education Program will begin the process for developing a **new study manual and exam for Category 16: Public Health Invertebrate Pest Control** in late 2018.

Please note that the Core exam which covers basic pesticide information and is required to be taken by anyone seeking certification as a commercial or public applicator is a closed book examination.

If you have any questions regarding the exams and the new closed book policy, contact the Pennsylvania Department of Agriculture by calling 717-772-5217.

Should you have any *questions* regarding the *category study materials* or *pesticide related educational materials*, contact the Pesticide Education

program by calling 814-863-0263.

Study materials can now be purchased online at: [extension.psu.edu/certification-exam-study-materials](http://extension.psu.edu/certification-exam-study-materials)

( or by calling 1-877-345-0691.

PDA is also in the process of implementing a new computer based examination process for pesticide certification, which will be for closed book exams only. PDA has been working with an outside vendor who is developing this system. Individuals wishing to take the computer-based exams will go to a designated site approved by PDA; most likely, various colleges located throughout the state with set security measures for computer based exams.

An additional user fee, which will go to the vendor, will be charged on top of the existing exam fee paid to PDA.

With this new system, PDA wants to make the exam process more accessible and convenient for applicators seeking pesticide certification.

Please note that the computer based exam process will not replace the traditional written exams, as those will still be available.

More information will be coming from PDA on this new exam process.



**pennsylvania**  
DEPARTMENT OF AGRICULTURE

# What's Happening in Region 2

Submitted by Louise Bugbee



All quiet on the eastern Front-invasion contained-for now.

Winter has an equalizing effect on us

here in the Northeast. We want it to snow so we can ski and skate and slide down hills but it seems the really good snow is elusive lately. Now as I write, it is 55 degrees and we are expecting rain. So, yay, we are not burning oil but, yuk, winter rain is damp and disheartening even at 55 degrees. Canals freeze and then suddenly thaw or get covered with a layer of slush that goes lumps in the night and hinders skating. Ski areas must make snow that, in my estimation anyway, is inferior to the real thing. The one dependable aspect of winter is that we get a respite from the insects that plague us in the summer. Time to reassess and reorganize. Time to plan and strategize. Time to expand or minimize. Time to rest and energize. Because the insects will be back.

Mosquito-borne Disease Programs in funded Northeast counties are gearing up for another season of challenges.

- ⇒ Ticks are still number one.
- ⇒ Bed bugs seem to be stabilizing.
- ⇒ The rodents never fail. Rabies stays a background threat.
- ⇒ The insect getting all the press in these parts is the...

## Spotted Lanternfly

Monumental labors by the PA Department of Ag, Penn State Extension

and USDA have been successful so far in keeping this pest contained in the southeastern counties but as travel season picks up everyone should be on the lookout for the spread of this newest menace.

Currently the quarantined counties include those listed. Expect more to follow.

Berks	Lehigh
Bucks	Monroe
Carbon	Montgomery
Chester	Northampton,
Delaware	Philadelphia
Lancaster	Schuylkill
Lebanon	(see map Page 7)

This requires a concerted effort by the state, counties, local municipalities, individual citizens and private businesses that specialize in landscaping and horticultural products, hard goods and shipping of anything out of the quarantine zone.

Spotted Lanternflies are not particular about where they lay egg masses and will happily deposit them on stone, vehicles, outdoor furniture and rusty metal.

The carnival season is coming. Large portable structures will be in position for a week at time and will then move on taking SLF along to the next community fest.

Christmas trees, firewood, plant materials, yard waste, nursery stock and containers are suspect. Adults can hitchhike in camping equipment, boats and trailers and farm machines.

Nymphs and adults weaken plants by piercing and sucking sap from stems

and leaves. They are seen as a "significant threat" to Pennsylvania's industries:

- ⇒ \$20.5 million-plus grape
- ⇒ nearly \$134 million apple
- ⇒ more than \$24 million stone fruit
- ⇒ a hardwood industry accounts for \$12 billion in sales, according to the state Dept. of Agriculture.

During feeding they excrete large amounts of "honeydew" which compounds problems by attracting other insects that can bring diseases to already stressed plants.

Fungal growth such as Sooty Mold and Alcoholic Slime Flux are just two of the descriptively named ailments.

So, once again, **vector control folks** can provide a lot of eyes in the field to help control the spread of this invasive pest.

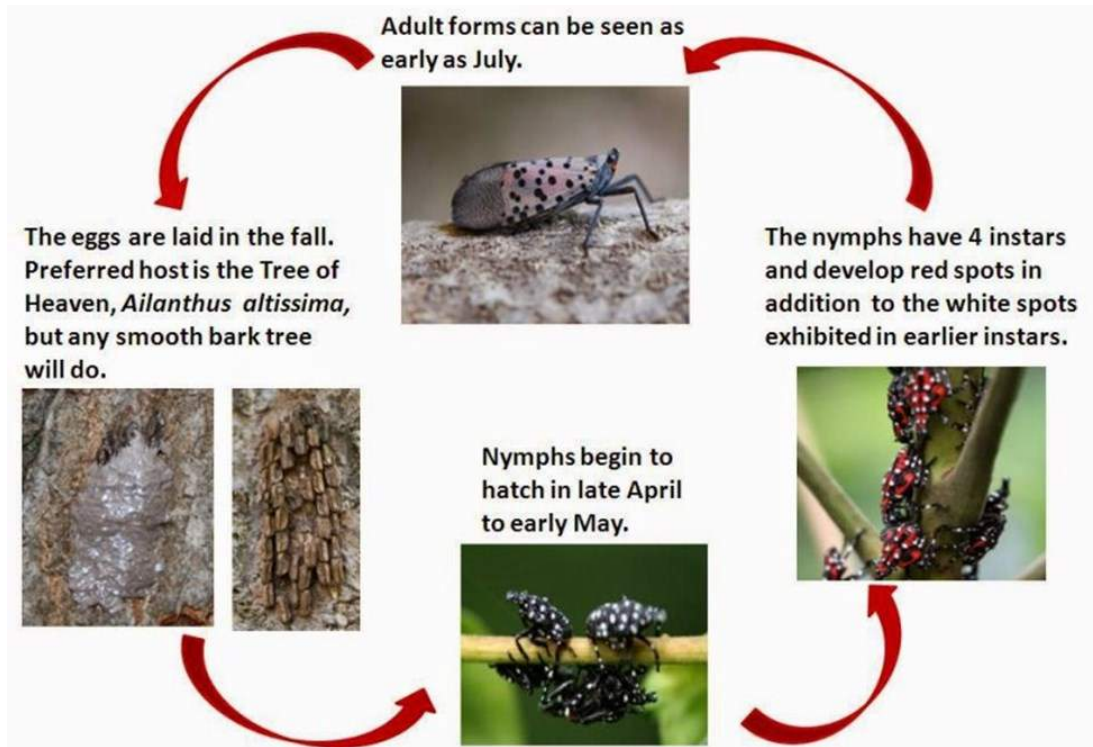
Stay up to date at [www.agriculture.pa.gov/spottedlanternfly](http://www.agriculture.pa.gov/spottedlanternfly).

**There is a lot at stake.**

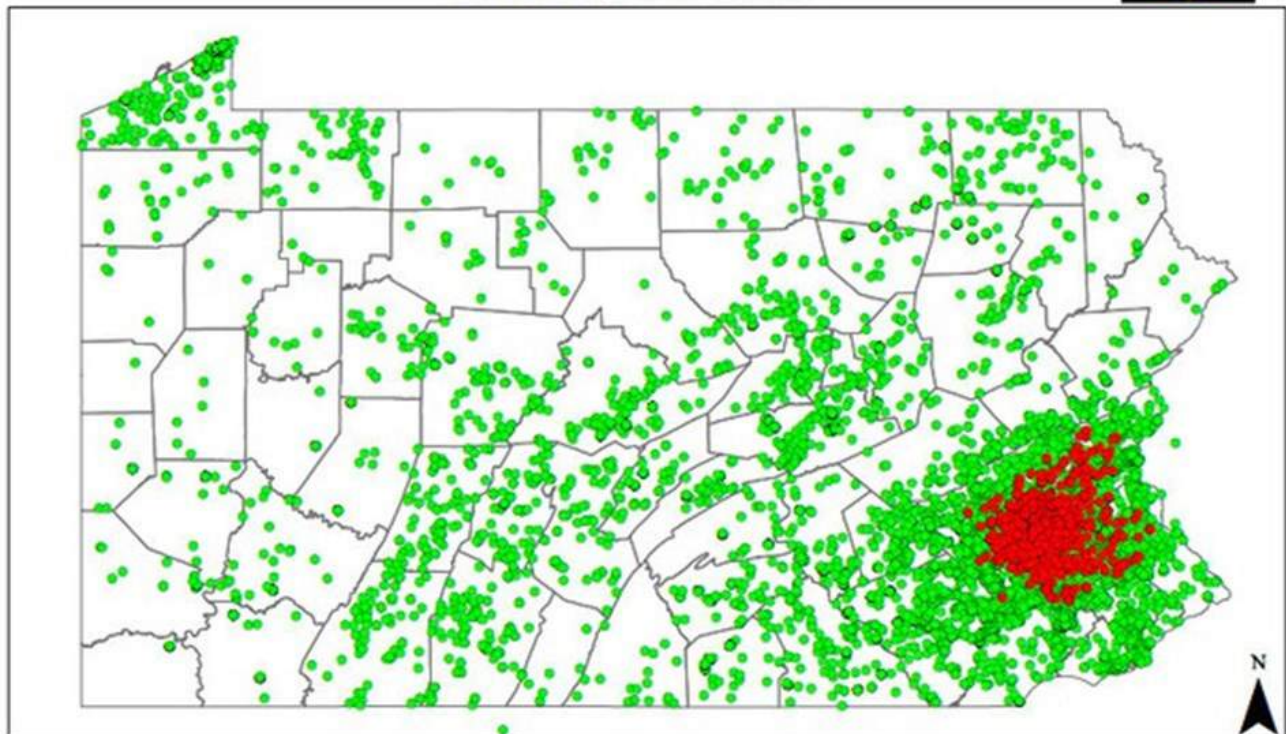


A praying mantis consumes a spotted lanternfly in this photo provided by Rep. Quigley and shared with Digital First Media Photo Courtesy of State Rep. Tom Quigley

# Spotted Lanternfly



2014 -- 2017 *Lycorma* Detection Survey  
Results through 17 October 2017



**Spotted Lanternfly Presence**

- Positive
- Negative



# What's Happening in Region 3

Submitted by Doug Orr



The 2018 Black Fly Suppression Program season is quickly approaching.

Sampling in Region 3 will likely start in late March or early April,

depending on weather and stream flows.

Control work will begin once strong populations of *Simulium jenningsi* are located in the streams and rivers throughout the region.

This season eight Region 3 counties (Adams, Cumberland, Dauphin, Huntingdon, Juniata, Mifflin, Perry and York Counties) will be participating in the Program.

### York County:

Tom Smith has been doing a variety of educational programs. Over the winter, he has provided one Dare 2B Tick Aware program and Mosquito & Tick programs for garden clubs. An additional Mosquito & Tick program was provide as a session at Penn State Extension's Winter Turf & Ornamental School in Grantville.

In March, Tom will be providing more Dare 2B Tick Aware programs and have mosquito related educational displays set up at the PA Garden Show of York and other local events. Planning is under way for Spring Cleanups and hiring a new bilingual mosquito control technician.

### Cumberland County:

Staff members attend County planning department "Outreach" meetings throughout the year.

At these meetings with municipal officials and their administrative staff, the County shares information regarding how program operations benefit residents. Also discussed are methods of working with code and regulatory staff on eliminating vector harborage.

Late last year with County funding, a new truck was purchased for the MDC program.



A new Public Health Technician will begin in March in Cumberland as Stephanie Summers has taken the MDC position in Adams County.

# What's Happening in Region 4

Submitted by Christian Boyer



Things have been cold and snow covered in Region 4 for most of the winter. We can look forward to spring, but there is plenty of

water laying around in those woodland pools and floodplains. All that is needed is some warmth and increased daylight and they will be teaming with thousands of our "friends." Be cognizant of those areas and get to them before they fly and generate those early season complaints.

Centre, Lycoming, and Northumberland counties will be receiving grant funding to run their Mosquito-borne Disease Programs in 2018.

Northumberland County will again be servicing four surrounding counties with mosquito surveillance and control, including **Columbia, Montour, Snyder and Union.**

Educational programs are being offered to the public and preparations are being made for a tire cleanup event to reduce the amount of artificial habitat available for mosquitoes.

With spring fast approaching, it is time to start preparing for the upcoming mosquito season. This is a good time to repair traps, order supplies, and post for the seasonal positions. It is also a good idea to visit some of the areas that might have caused problems in 2017. By viewing those areas before leaf out, some of the production sources might be apparent and can be handled accordingly. Meetings with municipal officials can be scheduled to

enlist their help in the fight against mosquitoes as well.

Good luck to all in the upcoming mosquito season. Remain vigilant in the fight against mosquitoes to protect the citizens of your counties!





# What's Happening in Region 5

Submitted by Mary Vibostok



## SW Region

As the 2018 mosquito season is right around the corner, the SW Region will have few changes from last year.

The most significant change is the **Beaver County** program will now be under the **Beaver County Conservation District**. Phoebe Prince will continue to do the outstanding job she has always done-just with a new organization.

**Allegheny County** is revising its website to include all branches of government. To conform to the new

format, the Health Department's Vector Control program is revising its pest extension service to the public. Guides on dealing with mosquitoes and rats have been improved, but bed bug control continues to be the most popular information requested.

Once again, **Allegheny County Health** will also be preparing **vector related training topics** to present to about 75 of 130 municipalities that participate in our Municipal Pest Control program. Participation allows municipalities to respond to complaints, get literature and supplies to provide direct pest control services, and log update training credits to renew their pesticide and code enforcement certifications. The partnership between County & Municipal govern-

ment is very useful in spreading public health information to the public.

In **Cambria County**, a proposed tire cleanup will occur this spring in conjunction with the city of Johnstown Public Works department. The goal is to remove as many discarded tires from the area to eliminate mosquito habitat.

The city of **Johnstown** continues to battle with an overabundance of abandoned and vacant homes and the use of these sites as illegal trash dumps.

# What's Happening in Region 6

Submitted by Ted Bean



## NW Region

Report – Winter 2018

It appears that we are headed for another very wet Spring as snow and rain has hit Northwestern PA on a regularity. Programs will once again concentrate on larval and adult surveillance and control. **Erie County** reports that 15 weekly trap sites will be monitored with mosquitoes tested. Plans are in place for aerial larviciding in the Eldred (**McKean County**) area should larval surveillance deem necessary.

### 2017 Erie County

#### 164 ticks were submitted for id

- ⇒ 152 deer ticks    ⇒ 10 dog ticks
- ⇒ 2 Lonestar ticks

#### 48 cases of Lyme disease

Karen Tobin reports that the Erie County Department of Health will continue their tick identification program in 2018.

The Taskforce will continue with an awareness campaign.

Erie County is also evaluating the Dare 2B Tick Awareness campaign materials.



The following is from the Dare 2B website:

The goal is to improve the use of prevention strategies, reduce tick bites, and improve early diagnosis. This program uses the most current research available and standardizes prevention messages across the state. The pro-

gram will include seminars, printed materials, webinars, and public service announcements. Stay tuned for future programs coming for schools and health care practitioners.

Certified PA Lyme Resource Network Faculty can provide the standard 1 hour seminar, a 30 minute short program, and customized/ longer and more advanced seminars.

Learn how to prevent tick bites and Lyme/tick-borne diseases. Our seminars cover:

- ⇒ Ticks and Tick-borne diseases
- ⇒ Preventing tick bites
- ⇒ Acting if bitten by a tick
- ⇒ Recognizing early symptoms
- ⇒ Seeking help if you get sick



## Calendar of Events



- ⇒ February 26 - March 2, 2018  
AMCA 84th Annual Meeting, Kansas City, MO
- ⇒ May 14-16, 2018  
AMCA will be holding its 20th Annual Washington Conference

PVCA members, have you considered attending the American Mosquito Control Association's Annual Washington Conference? As long as you are a current member of AMCA you may attend. A limited number of stipends sponsored by Central Life Sciences are available to first time attendees. PVCA will also provide a stipend for a member to attend. Please contact Leah Lamonte or Tom Smith.



- ⇒ Tuesday, April 3, 2018  
PVCA board Spring planning meeting State College
- ⇒ October 24-26, 2018  
PVCA Annual Conference State College, PA



MID-ATLANTIC  
MOSQUITO CONTROL  
ASSOCIATION

- ⇒ March 26-28, 2019  
2019 MAMCA Conference, Harrisburg, PA



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**FOURSTAR**



**DROP IN THE ORIGINAL IGR  
OR THE LONG-LASTING MICROBIAL BRIQUET  
FOR EFFECTIVE MOSQUITO CONTROL**

Central Life Sciences, the creators of (S)-methoprene, the original IGR for mosquito control, offers the most complete lineup of larvicide briquets. Altosid® briquets and FourStar® microbial briquets are available in a variety of shapes, sizes and residual control periods for every application need. Trusted for over 35 years, Central Life Sciences is your source for larvicidal briquets that'll have you starting the season off right.

*Prevents the emergence of adult mosquitoes*

*Variety of formulations for easy application*

*Residual control from 30 to 180 days*

*Withstands wetting and drying without reducing efficacy*

*Labeled for use in fish habitats*

*Ideal for catch basins, storm drains, roadside ditches, ponds, marshes, woodland pools and abandoned swimming pools*

— Learn More at [CentralMosquitoControl.com](http://CentralMosquitoControl.com)  
or contact your regional Central Life Sciences Sales Manager

 **CENTRAL** Life Sciences®

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everything you need



everywhere you need it

## Versatile Control Goes Where Mosquitoes Go

Meet the Central Life Sciences lineup of go-everywhere mosquito control products. From the original insect growth regulator for mosquito control to low-toxicity adulticides, there's a product to address mosquito management challenges at every stage of the life cycle. But that's not all. With over 40 years of experience, Central Life Sciences backs you up with customer support, research and free resources such as S.L.A.P., which promotes public awareness of the importance of mosquito control.

Learn more at [CentralMosquitoControl.com](http://CentralMosquitoControl.com)

 **Altosid**  **FOURSTAR**  **Zenivex**  **Perm-X**™  **Pyronyl**™

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**The competition's reaction to our newer, better vector control products.**

To be totally honest, mosquitoes suck. Here at Univar, bringing about their untimely demise is our mission, and finding new and better ways to control them means developing new and better products. That's why we have MasterLine<sup>®</sup> Kontrol<sup>™</sup> – the most innovative, effective adulticides on the market. No matter what your

mosquito problem is, Kontrol products are the solution. Kontrol is already recognized as a cleaner, more effective product. Take control of your mosquito problem with MasterLine Kontrol. Call your local Univar representative today, or log onto [www.vectorbytes.com](http://www.vectorbytes.com).



Call us toll free at 1-800-888-4897

 [www.vectorbytes.com](http://www.vectorbytes.com)



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From advance performance adulticides to larvicides that can be used in and around organic production sites, plus a full-range of application equipment. Clarke has a solution.

What's right for you? Call or visit us on the web.

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[www.clarke.com](http://www.clarke.com)

**THE PENNSYLVANIA VECTOR CONTROL ASSOCIATION**

The Pennsylvania Vector  
Control  
310 Allen Rd. STE 701  
Carlisle, PA 17013

Phone: 717-240-6349  
Fax: 717-240-7754  
E-mail: jbitner@ccpa.net



[www.pavectorcontrol.org](http://www.pavectorcontrol.org)

The Pennsylvania Vector is an informational news letter, 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 only be distributed by email to organization members, with past editions available in PDF format on the PVCA web site at [www.pavectorcontrol.org](http://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 rescheduled (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 web site.

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.

**PRESIDENT’S Corner**

**Tom Smith**



I’m sure everyone has been busy during the Winter just as I have been.

I recently attended the **Mid-Atlantic Mosquito Control Association Conference** in North Carolina. A variety of mosquito and tick programs were presented. Virginia Tech provided interesting research debunking the effectiveness of all the homemade repellent recipes you can find online.

Look for more details about the 2019 MAMCA Conference, which will be held in Harrisburg, PA March 26-28, 2019.

The **PVCA board** will be holding its annual spring planning meeting in State College on Tuesday, April 3, 2018.

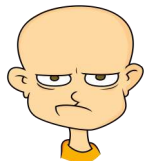
During this meeting, we will be planning the fall conference.

**The fall conference will be held** at the new  
⇒ Wyndham Garden Hotel State College  
● October 24-26, 2018

If you have any items you would like the board to discuss or speakers for the conference please email me at [TLS35@psu.edu](mailto:TLS35@psu.edu).

**Editor’s Corner**

**John Bitner**



<p>11 Rain </p> <p>Actual: 45°   37° 0.53 in</p> <p>Average: 39°   24° 0.04 in</p>	<p>12 Partly Cloudy </p> <p>Actual: 46°   35° 0.00 in</p> <p>Average: 40°   24° 0.04 in</p>	<p>13 Partly Cloudy </p> <p>Actual: 39°   28° 0.00 in</p> <p>Average: 40°   25° 0.04 in</p>	<p>14 Rain </p> <p>Actual: 45°   34° 0.10 in</p> <p>Average: 40°   25° 0.04 in</p>	<p>15 Rain </p> <p>Actual: 64°   42° 0.74 in</p> <p>Average: 40°   25° 0.04 in</p>	<p>16 Rain </p> <p>Actual: 59°   36° 0.23 in</p> <p>Average: 41°   25° 0.04 in</p>
<p>18 Partly Cloudy </p> <p>Actual: 46°   28° 0.00 in</p> <p>Average: 41°   25° 0.04 in</p>	<p>19 Rain </p> <p>Actual: 46°   36° 0.10 in</p> <p>Average: 41°   25° 0.04 in</p>	<p>20 Fog </p> <p>Actual: 75°   44° 0.00 in</p> <p>Average: 41°   25° 0.04 in</p>	<p>21 Rain </p> <p>Actual: 82°   46° 0.01 in</p> <p>Average: 41°   25° 0.04 in</p>	<p>22 Rain </p> <p>Actual: 52°   39° 0.29 in</p> <p>Average: 42°   25° 0.04 in</p>	<p>23 Rain </p> <p>Forecast: 42°   42° 0.01 in</p> <p>Average: 42°   26° 0.05 in</p>

1st newsletter as the new editor! So now that I have seen what effort goes in to putting it together– I quit!

Seriously though, thanks to the contributors. We are a touch late as I was waiting on a few items from different sources. Please send information for the newsletter to me

*Crazy February temperature changes !*

as you come across it, rather than waiting for the deadlines (except for regional reports-also put PVCA Newsletter in subject line).  
Be safe everyone.