

The Emerging Times

The Official Mid-Atlantic Mosquito Control Association Newsletter

Spring 2021

President's Message

Spring is officially here and many programs in the Mid-Atlantic region are gearing up for the start of their mosquito season. Hopefully you've crossed off everything on your winter projects list, but if not, you're in good company. Much of the Mid-Atlantic region experienced a cooler winter than last year, but what impact that has on the coming season is anyone's guess. Here in Beaufort, SC, we're already seeing a small emergence of *Aedes sollicitans* in our historical nuisance hotspots.

Controlling mosquitoes has never been immune from the effect of outside pressures like weather, public opinion, or funding, but COVID-19 brought unique challenges to our industry that most weren't prepared for. Although the threat is still present, we're all hoping that things will get back to normal soon.

We've learned a lot over the past year, but we've also been left with many questions. In my opinion, our community thrives on social interactions. While friends, significant others, and strangers are good sounding boards, they're no substitute for the experiences at a mosquito control annual meeting. This past season, I viewed more state and regional association meetings than would ever be possible in person. This pandemic allowed many associations, MAMCA included, to open up their organizations to a much larger audience. People who may never have had the opportunity to travel to a meeting were able to get a glimpse into the benefits of membership. This information will definitely play a vital role in planning future meetings.

With that said, MAMCA had a very successful, albeit atypical annual meeting, as most other associations did. Given that the meeting was free and open to the public, we had a much larger attendance than ever before. I believe the first day had over 200 attendees. This would not have been possible without the generosity of the [Northeast Regional Center for Excellence in Vector-Borne Diseases \(NEVBD\)](#). They hosted the meeting at no cost to MAMCA. We hope that everyone who attended enjoyed the program. Since membership was not required for attendance, we've asked that previous and future MAMCA members visit our [Membership website](#) to pay their dues.

Although COVID-19 is still present, we're optimistic about the 2022 MAMCA Annual Conference being held in-person. The meeting is hosted at the Atlantic Sands Hotel in Rehoboth Beach, DE, February 8-10, 2022. Planning is underway and more information will be available later this year.

I want to thank our outgoing MAMCA State and Industry Directors for their hard work and dedication to the Association. I also want to thank our incoming State and Industry Directors for their willingness to volunteer their valuable time.

If you are interested in getting involved in MAMCA as a Board member or on one of our committees, please reach out to any of us for information. Serving on an association's Board of Directors is a rewarding experience and we're always looking for volunteers to keep our Association moving forward and to help mosquito control programs across the region.

Robert Cartner, MAMCA President

2022 ANNUAL MAMCA MEETING

Atlantic Sands Hotel & Conference Center
Rehoboth Beach, Delaware



The 47th Annual MAMCA Meeting is scheduled for Feb. 8-10, 2022 at the Atlantic Sands Hotel and Conference Center in Rehoboth Beach, DE. The conference will include professionals from MAMCA's nine supporting member states from across the Mid-Atlantic region. Learn about the latest products, equipment, techniques and applications, network with other like-minded professionals, and support up and coming minds with our Student Competition. Due to the success of our 2021 virtual meeting and feedback regarding this format, we will be looking into the feasibility of either live-streaming the 2022 conference or recording it for viewing at a later time. This will be in addition to traditional in-person attendance.

When finalized, more information about the meeting including hotel information, agenda, registration and/or virtual attendance options can be found at www.mamca.org/conference/.

Upcoming Meeting and Important Events

<u>Meeting</u>	<u>Location</u>	<u>Dates</u>
Dodd Adult Identification Course <i>Florida Mosquito Control Association</i>	Manatee Co., FL	May 4, 2021
AMCA Annual Washington Days <i>American Mosquito Control Association</i>	Virtual	May 10 - May 14, 2021
NEVBD Vector Biology Boot Camp <i>Northeast Regional Center for Excellence in Vector-Borne Diseases</i>	Virtual	May 10 - May 17, 2021
AMCA Vector-Borne Disease Course <i>American Mosquito Control Association</i>	Moscow, ID	Jun. 20 - Jun. 25, 2021
----- Mosquito Control Awareness Week – June 20-26, 2021 -----		
SCMCA Annual Meeting <i>South Carolina Mosquito Control Association</i>	North Myrtle Beach, SC	Oct. 27 - Oct. 29, 2021
Entomology 2021 <i>Entomological Society of America</i>	Denver, CO	Oct. 31 - Nov. 3, 2021
VMCA Annual Meeting <i>Virginia Mosquito Control Association</i>	Newport News, VA	Jan. 25 - Jan. 27, 2022
MAMCA Annual Meeting <i>Mid-Atlantic Mosquito Control Association</i>	Rehoboth Beach, DE	Feb. 8 - Feb. 10, 2022

Organizational Links

- American Mosquito Control Association: <http://www.mosquito.org/>
 Delaware DNREC: <https://dnrec.alpha.delaware.gov/fish-wildlife/mosquito-control/>
 Entomological Society of America: <https://www.entsoc.org/>
 Florida Mosquito Control Association: <http://www.floridamosquito.org/>
 Georgia Mosquito Control Association: <http://www.gamosquito.org/>
 Maryland Dept. of Agriculture Mosquito Control: https://mda.maryland.gov/plants-pests/Pages/mosquito_control.aspx
 Mid-Atlantic Mosquito Control Association: <http://www.mamca.org/>
 North Carolina Mosquito and Vector Control Association: <http://www.ncmvca.org/>
 Northeast Regional Center for Excellence in Vector-Borne Diseases: <http://www.neregionalvectorcenter.com/>
 Northeast Mosquito Control Association: <http://www.nmca.org>
 Pennsylvania Vector Control Association: <http://www.pavectorcontrol.org/>
 South Carolina Mosquito Control Association: <http://www.scmca.net/>
 Society for Vector Ecology: <http://www.sove.org/>
 Tennessee Mosquito and Vector Control Association: <http://www.tennmosquito.com/>
 Virginia Mosquito Control Association: <http://www.mosquito-va.org/>
 West Virginia Office of Epidemiology and Prevention Services: <https://oeps.wv.gov/Pages/default.aspx>



VECTOR BIOLOGY BOOT CAMP

2021 Virtual Lecture Series
May 10 - 21, 2021

This is a free training program for participants. Certificates of completion will be provided to attendees who participate in the full lecture series.



Arthropod Surveillance

Biology & Behavior
Collection & Processing
Diagnostics
Taxonomy



Data & Communication

Data Management
Spatial Analysis & Mapping
Public Communication



Control

Tick & Mosquito Control
Pesticide Resistance

Apply by April 12 to join!

Applications available at <http://bit.ly/2021-VectorBootCamp>

2021 Annual MAMCA Meeting Recap

Due to the COVID pandemic, the regularly scheduled 46th Annual Meeting of the Mid-Atlantic Mosquito Control Association that was to be held in Rehoboth Beach, DE in mid-February of 2021 was cancelled. However, the MAMCA board felt strongly about doing something for the membership so it was decided to try a virtual conference. This of course was easier said than done. Thanks to the technical ability, willingness and nimbleness of the Northeast Regional Center for Excellence in Vector-Borne Diseases (NEVBD), MAMCA was able to provide two, half-day conference sessions along with the Association's annual business meeting on Feb. 17 & 18, 2021.

Everything went amazingly smooth thanks to NEVBD's experience, guidance and leadership, the willingness of speakers to participate in pre-recorded or "live" fashion and the high number of folks attending. Officially, there were 219 attendees with many attendees coming from the nine member states of MAMCA but also folks from CA, CO, AR, IL, VT, MN, NJ, NY, FL, TX & UT. This is a larger and more diverse attendance than we normally would get for an "in-person" conference which is no surprise in consideration of two major factors: 1) this conference was free and 2) everyone could attend virtually with relative ease. Indeed the post conference survey results show that many attendees enjoyed the fact that they could attend a MAMCA conference, for possibly the first time, due to it being available virtually. Many respondents also recommended that all future conferences be available in either a live stream or post-conference recorded format that would allow them to "attend" without having to do so in-person. The MAMCA board will now be looking into if and how we might be able to offer this hybrid approach going forward.

As it stands now, next year's meeting is still scheduled to be held Feb. 8-10, 2022 at the Atlantic Sands Hotel and Conference Center in Rehoboth Beach, DE. MAMCA would also like to remind everyone reading this to please renew or become a member. After all, it's only \$10. You can now easily do so by submitting a membership form and payment via credit card directly from MAMCA's website at www.mamca.org.

2021 – 2022 MAMCA Officers

Robert Cartner (SC) President
 Tom Moran (DE) Vice President
 Ture Carlson (GA) Vice President-Elect
 Andy Kyle (PA) Secretary-Treasurer
 Tim DuBois (VA) Past President

New State Directors for the MAMCA Board

Jeff Hottenstein (VA)
 Dr. Chris Evans (SC)
 Eric Dotseth (WV)
 Ryan Harrison (NC)
 Jeffrey O'Neill (Industry)

Certificates of Appreciation will be prepared & mailed to: Elizabeth Hodson (VA), Special Young Davison (SC), Eric Dotseth (WV), and Brian Smith (Industry) for their service as Directors on the MAMCA Board.

Joseph A. Andrews was granted Lifetime Membership by a unanimous vote of the membership.

SPECIES SPOTLIGHT

Common Mosquitoes of the Mid-Atlantic Region



Name: *Aedes canadensis* (formerly *Ochlerotatus canadensis*)

Seasonality: Abundant in spring, less abundant after rainfall in fall

Larval Habitat: Flooded woodland pools, typically with heavy leaf litter and shade

Feeding Habits: Opportunistic & Aggressive in/near wooded areas

Vector Competency: LAC, EEE, HJV, JCV, Dog Heartworm

Fun Fact: Has an affinity for feeding on box turtles.

AMCA Update

Happy Spring! I write to share some opportunities for education and networking with other members of the American Mosquito Control Association (www.mosquito.org).

The 23rd Annual Washington Conference (aka “Washington Days”) will be virtual this year! Please consider attending the conference (May 10th-14th) and you can attend advocacy training and engage with expert panels at the start of the conference. Legislative meetings will occur virtually and take place throughout the week. To learn more about why grassroots advocacy is important, consider attending an AMCA conference all on Wednesday, March 31st at 3pm (EDT) and learn more about the Washington Conference, how to register and make legislative appointments, and hear more about why your voice matters and why we need to make our voices known in Washington. To learn more about the conference and the conference call/town hall meeting, please visit: <https://www.mosquito.org/page/23rdWashConf>

Coming to you (virtually) on May 14th is an AMCA Webinar (Nontarget effects of mosquito control insecticides on pollinators) by Dr. Bryan Giordano (UF/Florida Medical Entomology Laboratory). This webinar is free to AMCA members. To register, visit: <https://www.mosquito.org/events/EventDetails.aspx?id=1498835>

Thank you to all the MAMCA members who have renewed their AMCA memberships and/or attended the 87th Annual Meeting. The annual meeting is a highlight event for most vector control professionals, industry representatives, researchers, educators, and students. This year’s virtual format certainly helped address our professional needs for education and the networking events gave us opportunities to connect *in silico*. I look forward to seeing you at next year’s meeting in Jacksonville, Florida (2/28-3/4).

Please know that the AMCA is working hard to get the SMASH Act funded this year. More than 400 AMCA members have reached out to their members of Congress to advocate for important piece of legislation. If you would like to know more about how to reach out to your members of Congress, please consider attending the Washington Day conference (or above pre-meeting town hall), contact me (bdbyrd@wcu.edu), AMCA’s Technical Advisor (Dave Brown: dabrownsoj@gmail.com) or contact a member of AMCA’s Legislative & Regulatory Committee.

Thanks for all you do as critical members of the public health team!

Dr. Brian Byrd, AMCA Mid-Atlantic Regional Director

Delaware

The mosquito season is upon us here at Delaware Mosquito Control, our woodland pool aerial larvicide campaign is set to begin by late March. Field staff are hard at work finishing inspections of woodland pool habitats by foot and by drone. This is our second year now mapping several woodland pool habitats by drone. The drones have proved useful once again characterizing the extent of these habitats, as well as, increasing inspection efficiency.

Throughout April, our scientists on staff will finish calibrating aerial spray equipment and begin planning for a few efficacy field trials this summer; ground and aerial trials are planned. Also, Delaware Mosquito control has teamed up with the University of Delaware to conduct a barrier treatment study; more details on this study will be made available for the summer newsletter.

Submitted By Shaun McIntire

Georgia

In 2020, Georgia reported 8 cases of WNV and 4 WNV presumptive viremic donors (PVD), with no known deaths. Presumptive viremic donors (PVDs) are people who had no symptoms at the time of blood donation or other testing but tested positive for the presence of select arboviruses. Although we track and report PVDs to the CDC for epidemiological purposes, we do not count these as cases in our state.

To date, 8 WNV disease cases were reported from 6 counties in 6 public health districts. Among these cases, 7 (87.5%) were neuroinvasive, 5 (62.5%) patients had illness onset during July-September and 6 (75%) cases were male. The average patient age of all WNV disease cases was 60.6 (range: 39-84) and the average patient age of all neuroinvasive cases was 61.5 (range: 39-84). The majority of cases were reported in August and September, with a peak in August.

There was also one case of LAC reported in Georgia in 2020. This case is suspected to have been infected in North Carolina.

No horses tested positive for WNV in 2020. The number of re-reported cases of WNV in horses decreased rapidly after 2002, likely due to increased immunity, increased vaccination, and/or decreased testing, but had lately begun to increase again, although somewhat sporadically.

Four horses tested positive for EEE in 2020. Eastern equine encephalitis is endemic in the Coastal and Coastal Plains areas of Georgia. During an average year, four or five EEE+ horses are reported from these areas. The true number of horse cases is probably higher, and lack of reporting is due primarily to under-testing, although subclinical infections can occur with EEE. There were also 3 EEE+ emu reported in Georgia in 2020.

In 2020, no dead birds were reported as submitted for testing.

Georgia (cont.)

In 2020, the first WNV+ mosquitoes were detected in Lowndes County in early June. The last WNV+ pool was collected in Chatham in November. Peaks in numbers of WNV+ pools occurred in August and September. Three WNV+ pools were collected from a CDC light trap. The rest (56) of the WNV+ mosquitoes were caught in gravid traps. A total of 6025 pools of mosquitoes (135515 individuals) were sent for testing in 2020, with results reported to the GDPH. Two species were found to be WNV+, *Culex nigripalpus* (4 pools) and *Cx quinquefasciatus* (48 pools). There were also 7 pools of unspecified *Culex* spp found WNV+.

After the loss of WNV funding, mosquitoes collected during surveillance by the GDPH were no longer sent for testing. These mosquitoes are identified, and the data are shared with the county mosquito control agency to assist with control efforts. ZIKV funding, followed by Hurricane Crisis CoAg funding allowed GDPH to create 5 Vector Surveillance Coordinator positions and hire a second entomologist in order to increase our ability to do surveillance and to respond to mosquito complaints and arboviral disease issues. Between 2017-2019, some level of surveillance was done in every county in Georgia. Due to loss of funding resulting in the loss of the Vector Surveillance Coordinators in August 2020, and to the COVID-19 response, surveillance was only done in 142 counties. In 2020, mosquitoes were sent for testing from 9 counties.

Submitted by Rosmarie Kelly

Maryland

Maryland is getting ready for the upcoming 2021 season. We recently advertised our seasonal contractual job openings for spray technicians and field inspectors. Given the number of people that have submitted applications, we are optimistic in comparison to the staffing levels of 2020. We have very few year round, permanent staff: well over 70% of mosquito control staff are seasonal contractual employees, so they are a vital part of a successful program.

We will soon begin woodland inspections in preparation of our spring larvicide applications which include manual dispersal of tablet/briquettes, backpack dispersal of granular BTI and BTS formulations, as well as aerial BTI applications to vernal pools. Spring larvicide typically starts in April and the ULV program typically starts mid-May.

On the Eastern Shore, we are currently working on annual repairs to our amphibious excavator, particularly replacing the aluminum track pads on the pontoons. The shroud that protects the drive shaft has begun rusting away and we will soon be repairing that as well. Steel equipment working on saltwater marshes keep repairs a routine thing. The machine is planned to be in full operation this year with many projects lined up: to include ditch maintenance, repairing the City of Crisfield Earthen Dike System, and we will also be putting the excavator on a barge to ship over to Smith Island. These maintenance projects help prevent flooding and thus, mosquito breeding habitats.

Maryland (cont.)

ULV sprayer calibration will soon begin. We typically calibrate twice a year and always do so in the spring prior to the start of the ULV program. The ground is still saturated from heavy rainfall events all winter long. The roadside ditches are full, and the vernal pools are holding water. Spring mosquito species like canadensis may have dense populations this year. The Maryland Department of Agriculture has noticed a decade long, three-year trend in a spike of WNV human cases. Based on this trend, 2021 may be the next three-year spike, and, if statistics stay in comparison to previous years, we will see around 44 human cases. Time will tell but we are preparing for a busy season.

Submitted by Kyle Brinson

North Carolina

The 2020 mosquito season in North Carolina was an interesting one for many reasons. Precipitation levels around the state were above normal, breaking records in many areas. Our average temperature was also higher last season. Combine this with the excessive rainfall and we had some epic flood plain hatches. Another situation that took precedence over the mosquito season was that most staff around the state were pulling double duty with COVID-19 response. Many of our mosquito control programs were unable to hire summer employees due to hiring freezes that had been implemented. Mosquito control activities occurred across the state in 2020 and below are a few Regional Highlights.

Mountains: The mountainous areas of the state are often underrepresented as there are few mosquito control programs. In 2020, Transylvania County experienced slightly above average rainfall amounts, which led to some significant flood plain hatches of *Psorophora* spp. and *Aedes sticticus*. Even though they experienced heavy flood plain hatches, trap totals still remained below average for the season. During their surveillance season, Transylvania County was able to submit mosquito pools for arbovirus testing and all results were negative. Transylvania County Health Department investigated a La Crosse encephalitis case in September of 2020. Surveillance was conducted at the site and there are plans to continue surveillance at this location during the 2021 mosquito season.

Piedmont: The piedmont region of the state experienced exceptionally high precipitation. The northern areas of the piedmont saw an extra 28 inches above normal rainfall average. The southern regions experienced this weather pattern as well. The high precipitation led to significant flood plain hatches in many areas of the piedmont. Even with the high amounts of precipitation, both the Mecklenburg County program and the Forsyth County program experienced fewer citizen complaints and fewer mosquitoes collected than in 2019. With all the fresh water, the *Cx. pipiens* populations seemed extremely low compared to previous years. Despite the low number of potential vectors, mosquito pools were submitted to the CDC and no positive pools were found. Forsyth County did capture *Cx. nigripalpus* again, as this species expands its range. There are several Health Departments in the piedmont region that have started to train personnel to conduct mosquito surveillance and are also budgeting for positions in Mosquito Control. This is welcome news as there are only a few programs in this region of the state.

North Carolina (cont.)

Coastal: The coastal region of the state also experienced abnormally high precipitation during the 2020 season. Combined with Hurricane Isaias and several high tide events, this led to some exceptionally large *Ae. taeniorhynchus* hatches. In Brunswick County, the MC program sprayed over 8,888 acres within 3 weeks to combat these events. The high flood water in the swamps also helped keep the *Cs. melanura* numbers low by introducing predators into the mosquito habitat throughout the season. The southern coastal region continues to trap *Cx. coronator* and *Cx. nigripalpus* as these species continue to expand their range. Brunswick County NC is the first MC program to procure all licensing required to utilize a drone. Staff at Brunswick are currently in calibration mode and are looking forward to utilizing this for larviciding in the 2021 season. New Hanover County is right on their tail and is in the process of procuring the licensing to utilize a drone as well. In some news that affects the entire coastline, the US Army Corps of Engineers has lost funding to continue contracts for surveillance and treatment of Atlantic Inter Coastal Water Way spoil islands. This situation will affect many coastal residents and NC mosquito control programs.

This next section is the NC Arboviral Report, provided to me by Michael Doyle, North Carolina State Entomologist:

The total number of NC Arboviral cases in 2020 are not yet finalized due to delays in event investigation. Reportedly, this is because county Communicable Disease staff have been pulled into COVID-19 duties, thus have not yet been able to complete the time-consuming task of interviewing all patients and reviewing lab reports. We hope to complete these steps and close all 2020 cases in the next few weeks.

Our current preliminary data suggest that North Carolina 2020 endemic arboviruses appeared to be at normal levels, and 2020 travel-associated cases were at or below normal levels. Specifically for endemic arboviruses, La Crosse encephalitis cases continued to rank on of the highest in the US, with 18 confirmed or probable cases, with several still under investigation. West Nile virus cases remained low in 2020, with 1 probable case identified thus far. Eastern equine encephalitis cases were at zero in 2020, which also occurred in 3 of the last 6 years. For travel-associated cases, known Chikungunya cases dropped from 8 in 2019 to 3 in 2020. Several are still under investigation, so that number may rise. Dengue cases dropped significantly from 27 in 2019 to 6 known cases in 2020. There are several 2020 dengue events still under investigation, but even if all were confirmed, the total would still be half of verified 2019 cases. Known imported malaria cases in 2020, at 32 confirmed thus far, is approximately half of the historical average for North Carolina.

– Michael Doyle, NC State Entomologist.

Thank you all for the opportunity to present this information. I appreciate the input from Jeff Suggs, Neill Cagle, James Bjorneboe, Matthew Dupont, Joe Garcia, and Michael Doyle to help construct this report. I hope everyone has a great 2021 and a safe mosquito season. Happy Trapping!

Submitted by Ryan Harrison

Pennsylvania

Pennsylvania's mosquito season is fast approaching with county vector control programs gearing up for the start of the season on April 1st. The State Department of Environmental Protection (PA DEP) provided grant funding to support mosquito surveillance and control for 39 counties throughout the Commonwealth. Through the winter counties have been conducting education and outreach programs for the public. Counties can expect larger than normal spring mosquito populations due to the increased amount of standing water from the winter snow melt. They will begin surveillance and control in the coming weeks.

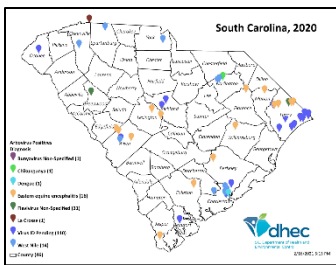
Tick surveillance in Pennsylvania has begun to finish the adult *Ixodes scapularis* surveillance that was started in October. To date 64 of the 67 counties have been completed. Individual ticks were tested for *Borrelia burgdorferi*, *Anaplasma phagocytophilum*, *Babesia microti*, and Deer Tick Virus. The infection rates are 58%, 13%, 3%, and .4% respectively. County vector control programs will again be conducting tick surveillance throughout the summer looking for all species of ticks, but the focus will be on the nymphal blacklegged ticks. All nymphs will be tested for the same pathogens as the adults excluding Deer Tick Virus.

Pennsylvania's Black Fly Suppression Program is set to begin on April 1st. This program will monitor and treat for *Simulium jenningsi* in 45 of Pennsylvania's rivers and streams until the fall. Targeted treatments using *Bacillus thuringiensis* to kill the larvae will be conducted both aurally and by hand to keep the adult populations below pest level.

The statewide Mosquito Academy hosted by PA DEP will be held virtually this year during the week of May 17th. During this training new county employees will be educated in all aspects of mosquito surveillance, control, and IPM. All funded counties will also be conducting pesticide resistance testing throughout the Commonwealth for the duration of the summer.

Submitted by Christian Boyer

South Carolina



In South Carolina in 2020, 6,724 mosquito traps were set for 1,569 nights. Trap types included BG Sentinel traps (876 trap nights); CDC light traps (102 trap nights); and gravid mosquito traps (3,510 trap nights). The number of mosquitoes tested were 46,715 (1,983 samples) in 18 of 46 counties. The following viruses were detected in mosquitoes: Bunyavirus Non-Specified in 1 county (1 sample), Flavivirus Non-Specified in 5 counties (31 samples), and West Nile virus in 3 counties (6 samples). Unidentified viruses were detected in 533 mosquitoes (20

samples) in 5 counties. Results are still pending for 10,229 mosquitoes (110 samples). Due to COVID-19 response, CDC can not estimate when the unknown viruses will be identified or when pending tests will be completed.

Twenty-four (24) dead birds were tested from 14 counties; 1 bird in 1 county tested positive for West Nile virus. Sixty (60) veterinary animals were tested from 26 counties; 1 horse in 1 county tested positive for West Nile virus, and 17 horses from 10 counties tested positive for eastern equine encephalitis virus.

News in the Region

South Carolina (cont.)

The following viruses were detected in people: West Nile virus (4 from 4 counties); La Crosse virus (1 from 1 county); Chikungunya virus (1 imported case from 1 county); Dengue virus (1 imported case from 1 county).

SC DHEC began a pilot project in late September, 2020, to conduct tick surveillance. During this pilot project, 304 larval and 7 nymphal *Amblyomma americanum* ticks and 46 adult *Ixodes scapularis* ticks were collected. Test results are pending for the 46 *Ix. scapularis* ticks. In 2021, 13 tick-surveillance participants, including 3 entomology lab staff and 12 regional staff, will collect ticks in 20 counties at 22 state parks. SC DHEC is collaborating with the University of South Carolina (USC), who will utilize 2 staff and 4 interns, to collect ticks at several more sites throughout the state. Additionally, USC will test collected non-*Ixodes* ticks for pathogens, including *Rickettsia*.

Submitted by Chris Evans

Tennessee

Shelby County (Memphis, TN)

<https://www.fox13memphis.com/news/watch-officials-warn-nasty-mosquito-season-shelby-county/9317bc8b-2366-411d-9740-e9d48fc2e5cb/>

Davidson County (Nashville, TN)

During the early spring, The Pest Management Program will begin our proactive larvacide protocol on identified standing water sites throughout the county. Ivonne Rodriguez, Director of Pest Management Services, also shared that the program will participate in 2 Metro Parks outreach programs discussing mosquitoes and ticks as disease vectors in and around the places we live and play.

Knox County (Knoxville, TN)

Knox County will continue to larvacide their 150 standing water sites and set gravid traps at their various sites, which have decreased, across the county. Darlene Gwaltney, Ground Water Supervisor, states that “We already know that the 2021 mosquito season is going to be challenging, but we are confident that the citizens of Knox County will still receive the services they are accustomed to.”

Submitted by Adrianna Sharkey



CALL FOR NEWSLETTER ARTICLES

The need for sharing information and collaborating with different states and jurisdictions is at an all-time high. This newsletter and others like it need articles to help readers have access to ideas and contacts to further their programs. Articles can be from any facet of mosquito, tick or other pest control operations. Please send any articles, pictures, or news to Tim DuBois at dubois@portsmouthva.gov to submit for the next newsletter!

Virginia

Virginia experienced one of its warmest and wettest years to date in 2020. The start of 2021 has continued this trend with an average of around 10 inches of rainfall just in February, and very few snow events state-wide. Many programs are currently seeing an abundance of standing water and some have found larvae in late stages. There are a few programs in the state that are still dealing with COVID-19 responsibilities, but the majority will be back full time on mosquito control, and are ramping up for what is expected to be a busy season.

Virginia Mosquito Control Association held their 74th Annual Conference on January 26-27, and was attended by over 160 people. This was VMCA's first virtual conference encompassing two four-hour sessions on topics including surveillance efforts, adulticiding studies, outreach efforts, and many more. The VMCA virtual conference had a wide range of speakers across the state of Virginia, the mid-Atlantic region, and a few as far away as California. Our 75th Annual VMCA meeting is set for late January in Newport News, VA. As for other training, most counties and cities are still abiding by COVID-19 restrictions, so VMCA's adult ID Course training will be going virtual. Updates for this training and others will be available on our website @ www.mosquito-va.org.

Submitted by Tim DuBois

West Virginia

In West Virginia, there were five human cases of La Crosse encephalitis in 2020. There were no reported cases of West Nile virus human infection or non-endemic mosquito-borne disease cases (ex. dengue, malaria, chikungunya, Zika virus disease) in the state the past year.

For 2020, there were 1027 human cases of Lyme disease, the highest record of human Lyme disease cases ever reported from the state. Five spotted fever group rickettsiosis cases, two cases of ehrlichiosis, and two anaplasmosis cases were also reported in 2020.

The West Virginia Department of Health and Human Resources (WV DHHR) coordinated active tick surveillance efforts for the blacklegged tick (*Ixodes scapularis*), a competent tick vector for Lyme disease, in response to the recent dramatic increases in human and animal Lyme disease cases seen in the past few years. Standardized active tick surveillance methods based upon Centers for Disease Control and Prevention (CDC) protocols were used to determine both the density of *I. scapularis* nymphs/adult females and the density of infected *I. scapularis* nymphs/adult females. Ticks were collected using the tick drag method over a minimum of 800 m² area. Active tick surveillance was conducted in 68 localities in 22 counties from April through December. *Ixodes scapularis* nymphs actively collected in 2020 were submitted to CDC for Lyme disease (*Borrelia burgdorferi*, *Borrelia mayoni*), hard tick relapsing fever (*Borrelia miyamotoi*), human anaplasmosis (*Anaplasma phagocytophilum*), and human babesiosis (*Babesia microti*) testing. .

West Virginia (cont.)

Under the direction of Timothy Driscoll, the West Virginia University Vector-borne Infectious Disease Laboratory (WVU VIDL) is testing *I. scapularis* adult females collected passively through the West Virginia Veterinary Tick Submission Project for *B. burgdorferi* and *Rickettsia buchneri*. The rickettsia endosymbiont, *Rickettsia buchneri*, could be making *I. scapularis* a more efficient Lyme disease vector. West Virginia DHHR and WVU VIDL are also determining the rickettsia agents responsible for spotted fever group rickettsiosis in the Mid-Atlantic region. In addition to determining the role of habitat and human disturbance on tick density in the northern panhandle, Theresa Prochaska, a student from West Liberty University, is examining the *I. scapularis* microbiome.

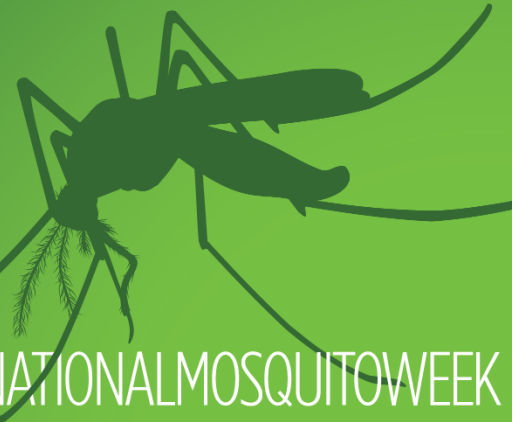
The blacklegged tick, *Ixodes scapularis*, was active in every locality in West Virginia, except a single locality in Huntington. Most of the collecting localities with the highest *I. scapularis* nymph densities were in the high-incidence Lyme disease counties in eastern and northern West Virginia. Many of the localities with high *I. scapularis* nymph densities were near human habitation. *Ixodes scapularis* has expanded its distribution into three new counties (Clay, Mingo, Wayne) in central and southwestern West Virginia. The Asian longhorned tick (*Haemaphysalis longicornis*), a competent tick vector for bovine theileriosis (*Theileria orientalis* Ikeda genotype), was recorded from nine new West Virginia counties (Grant, Greenbrier, Harrison, Kanawha, Marshall, Mineral, Ohio, Pendleton, Raleigh) in 2020.

Submitted by Eric Dotseth

NATIONAL MOSQUITO CONTROL AWARENESS WEEK

Each year, the week of June 21 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.

JUNE 20-26, 2021 #NATIONALMOSQUITOWEEK



Industry Suppliers Update

Adapco

Trey English, Joe Iburg and Ted Bean continue to cover the MAMCA states and look forward to another year of assisting MAMCA customers. During the past year we have added Dr. Casey Crockett and Emily Dugas as Technical Development Specialists. Casey and Emily are very knowledgeable of research related to control of larval and adult mosquitoes and how to avoid resistance issues. I have found them both to be very valuable in our efforts to recommend the best approach for your specific programs. The newest product in Adapco's portfolio is Metalarv-XRP from Valent Biosciences for treating catch basins.

AMVAC

Visit us online! We are periodically updating <https://mosquitocontrolfacts.com/>. This is an AEP resource you can also access through <https://www.amvac.com/vector>. Please feel free to browse everything from basic information for the public to scientific publications.

2021 Drum Return Program This program allows all Dibrom® Concentrate and Trumpet® EC users to return their empty 30g drums free of charge. In October of 2020, we updated the drum return process: <https://www.amvac.com/products/dibrom-concentrate#download-marketing>. Naled is in the 4th step of a 6 step Registration Review process expected to be over in 2022. derekw@amvac.com. 941-737-9883

Bayer Environmental Science

Bayer is dedicated to caring for the spaces where we all live our lives, because we know that healthy environments help lead to thriving communities. As Mosquito Control Professionals, you provide a vital service in your communities, and Bayer has both proven and innovative solutions you need to do your job right, including Suspend® PolyZone, DeltaGard®, Aqua Reslin®, Imperium™ and Permanone®.

Recently, Bayer [announced its intent](#) to divest the global Environmental Science Professional business. As of March 1, Gilles Galliou will take over as head of Environmental Science, leading the business through the planned divestment and into the next chapter. Bayer's intent to sell Environmental Science will have no impact on current business operations, and customers, partners, and suppliers can expect to receive the same high level of service now and in the future set-up. For more information, reference the official press release (linked above) or contact Dr. Kurt Vandock at kurt.vandock@bayer.com

Central Life Sciences

Please remember to submit your 2020 ALL CLEAR REBATE product invoices to jneberz@central.com and choose which product formulation or cash is to be received. Our new formulations of Altosid as P-35 and XRG Ultra are now available from your vector distributor. Field trials of Altosid Liquid Larvicide via ULV as an urban larvicide program for man made containers are continuing. Jeff at joneill@central.com

Industry Suppliers Update

Clarke Mosquito Control Products

We would like to Welcome Kim Geissel to the Clarke Team; she is our new Control Consultant for New England through Pennsylvania. Kim has worked in the Industry for 25 + years. Her career began with the introduction of Scourge, making her first sales call with Wally. Closing Wally's career, he made his final sales call introducing Kim. Their long-term friendship and working relationship will be a benefit to the transition. Although Wally Terrill officially retired at the end of January – He will continue to work with us on special projects to support the needs of our customers.

Effective November 1, 2020, Clarke is the exclusive distributor for the Biogents line of public health surveillance products in the United States, its territories, and the Cayman Islands. This includes the following Biogents products used for public health mosquito control: BG-Pro All-in-One, the BG-Lure dispenser and the BG-Counter. jhottenstein@clark.com

Frontier Precision, Inc.

We are releasing new versions of the FieldSeeker GIS of Mosquito Control software adding lots of great new features for flexibility, analytics and data exploration. FieldSeeker Core enhancements include: embedded dashboards, location tracking, wetlands management reports, trap results, time/activity tracking, advanced search, daily work report, and more! FieldSeeker Windows ULV enhancements include: work assignments, proposed treatment areas, automated mobile data extract, restricted area integration with ArcGIS Online, and required weather data entry. There's also a VectorSurv Gateway and FieldSeeker Core Integration option, eliminating double entry of data.

Please don't miss our TechXpo, March 30 – April 1. We have a unique virtual conference experience planned for customers. For just \$49, you get 70+ fascinating technical sessions, including topics: identifying potential mosquito breeding sites with drones, using drones and FieldSeeker GIS for visual inspections and measuring effective, creating the right map or dashboard for your team, and a customer presentation from Peter Brake at Collier MCD about using UAS platforms for mosquito control. Esri, Juniper Systems, Trimble, DJI, MicaSense, and other manufacturers will be presenting and exhibiting. See more at, <https://www.frontiertechxpo.com/> or email Linda Glover, linda@frontierprecision.com *GIS Services / Software / Water Resources Team Manager*

Summit Chemical

Thank you for your business. Zachary Cohen at zcohen@summitchemical.com

Target

It's been a busy twelve months for Target Specialty Products Vector Division. Target Specialty Products is now the current, exclusive distributor for all Bayer adulticides. The continued success of Bayer's aerial adulticide, Imperium has once again set a gold standard in the industry. We are also the new exclusive distributor for Leading Edge's drones and DropVision. We are pleased to see this technology and its benefits being used so masterfully throughout our industry. In addition to these new partnerships, new products are also available as well. Altosid's P35 and XRG-Ultra continue to show Central Life's ingenuity in the field. We look forward to seeing you all in the field in the upcoming months and please feel free to reach out. steve.molnar@target-specialty.com

Industry Suppliers Update

Valent Biosciences

The Valent EARLY ORDER PROGRAM will be over at the end of March on the 31st. Please contact your Valent Distributor for how to participate in this program. It is very unfortunate that Jim Andrews will not be able to compete this year with his famous and delicious Bar-B-Q ribs sauce due to Covid-19 situation.

james.andrews@valentbiosciences.com

VDCI

VDCI is proud to announce the rollout of our drone application business for the vector control and lake management markets. We have acquired three Precision Vision 35 (PV35) unmanned aircraft systems from Leading Edge Technologies. The system has a custom-built airframe and landing gears to support both liquid and granular application systems. The granular system can hold up to 28 lbs of product and provide a swath width of 70-90ft depending on the product. The liquid system has a 12.8 ft spray boom with 6 tee jet nozzles and can treat 0.15 to 3 gallons per acre.

This service will complement our aerial mosquito control division and allow us to provide service to mosquito control districts who have specific application needs that can't be met with fixed wing aircraft. For more information about our drone service offerings, please contact Jason Alred at jalred@vdcinet.net.

Veseris

We appreciate your continued support of our vector products. jason.conrad@veseris.com

Submitted by Jeff O'Neill

Vector-Borne Disease Surveillance

- 3 Week Course
- 5-7 hours per week
- 100% online instruction
- \$399 total cost



This course will help you understand the tools, methodology, and best practices for the surveillance of arthropod vectors, including ticks and mosquitoes

Next course begins 7 April 2021!

Members of regional vector control associations may be eligible for \$50 off course registration



"This course is a must have for those looking to break into a vector control career or wanting to understand state of the art approaches in vector-borne disease surveillance."

REGISTER THROUGH [ECORNELL.COM/CUSTOM/VECTOR-BORNE-DISEASES-SURVEILLANCE](https://ecornell.com/custom/vector-borne-diseases-surveillance)

MAMCA Sustaining Members

A special thanks to our 2021 Sustaining Members without whose generous support these meetings would not be possible.



Bayer Environmental Science



Mid-Atlantic Mosquito Control Association

Officers and Board Members

Robert Cartner (**President**)
Beaufort County Mosquito Control
84 Shanklin Rd.
Beaufort, SC 29906
Phone (843) 255-5800
rcartner@bcgov.net

Thomas Moran (**Vice-President**)
Program Manager
Delaware Mosquito Control Section
2430 Old County Rd.
Newark, DE 19702
Phone (302) 836-2555
thomas.moran@delaware.gov

Ture Carlson (**Vice-President Elect**)
Chatham County Mosquito Control
65 Billy B Hair Dr.
Savannah, GA 31408
Phone (912) 790-2540
tacarlson@chathamcounty.gov

Andy Kyle (**Secretary-Treasurer**)
2471 Mayfield Street
York, PA 17406
Phone (717) 793-7705
aklk1@comcast.net

Timothy DuBois (**Past-President**)
City of Portsmouth
2001 Frederick Blvd.
Portsmouth, VA 23704
Phone (757) 393-8666
FAX (757) 393-8282
duboist@portsmouthva.gov



Shaun McIntire (**Delaware**)
DNREC, Mosquito Control Section
2430 Old County Road
Newark, DE 19702
Shaun.McIntire@delaware.gov

“Tiffany” Thuy-Vi Thi Nguyen (**Georgia**)
Georgia Department of Public Health
2 Peachtree St. NW
Suite 13-404
Atlanta, GA 30303
Phone (404) 657-0278
thuy-vithi.nguyen@dph.ga.gov

Kyle Brinson (**Maryland**)
Maryland Dept. of Agriculture
27722 Nanticoke Road- Unit #2
Salisbury, MD 21801
Phone (Salisbury) (410) 543-6626
Phone (Somerset) (410) 651-3807
FAX (410) 543-6660
kyle.brinson@maryland.gov

Ryan Harrison (**North Carolina**)
Forsyth County Dept. of Public Health
799 North Highland Ave.
Winston Salem, NC 27101
Phone (336) 703-3170
harrisrl@forsyth.cc

Christian Boyer (**Pennsylvania**)
PA DEP, Vector Management
PO Box 1467
Harrisburg, PA 17105
Phone (717) 346-8221
FAX (717) 346-8591
chrboyer@pa.gov

Dr. Chris Evans (**South Carolina**)
SC DHEC
8500 Farrow Rd.
Columbia, SC 29203
Phone (803) 896-3802
evanscl@dhec.sc.gov

Adrianna Sharkey (**Tennessee**)
Shelby County Health Dept.
814 Jefferson Ave.
Memphis, TN 38105
Phone (901) 222-9000
adrianna.sharkey@shelbycountyttn.gov

Jeff Hottenstein (**Virginia**)
Regional Sales Director
Clarke Mosquito Control
Phone (703) 498-9362
jhottenstein@clarke.com

Eric Dotseth (**West Virginia**)
West Virginia Department of Health and
Human Resources
Office of Laboratory Services
167 11th Avenue
South Charleston, WV 25303
Phone (304) 356-4020
eric.j.dotseth@wv.gov

Jeffrey O’Neill (**Industry**)
Central Life Sciences
22 Christina Court
Bear, DE 19701
Phone (302) 312-3950
joneill@central.com

Sue Ferguson (**Historian**)
Phone (803) 381-2750
fergussc@bellsouth.net

Timothy DuBois (**Newsletter Editor**)
City of Portsmouth
2001 Frederick Blvd.
Portsmouth, VA 23704
Phone (757) 393-8666
duboist@portsmouthva.gov