The Emerging Times

The Official Mid-Atlantic Mosquito Control Association Newsletter

Spring 2023

President's Message

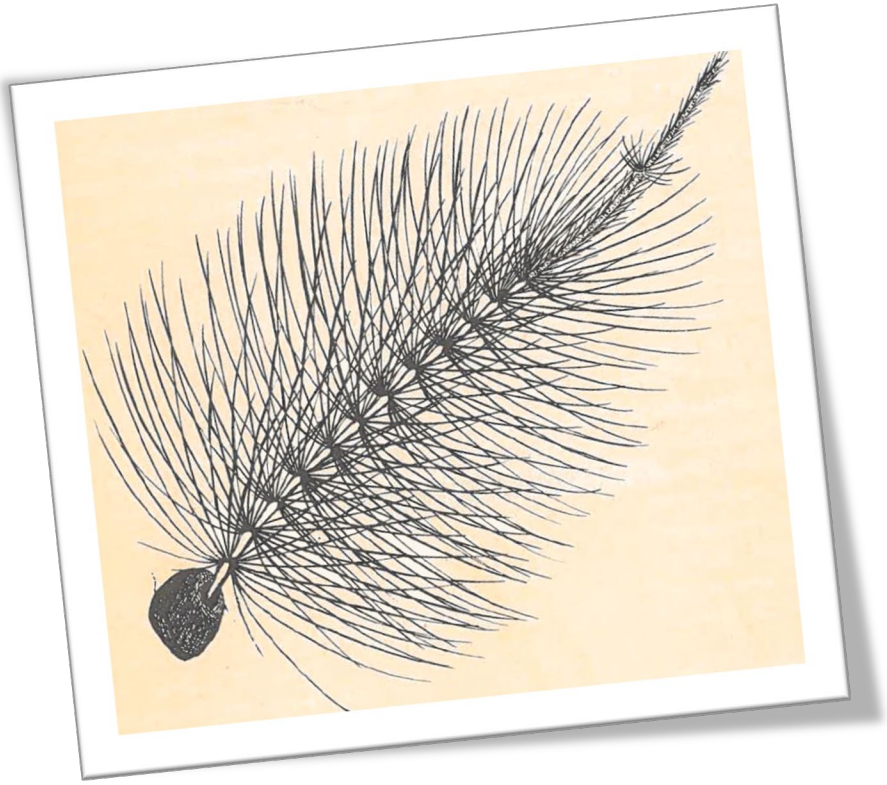
I would like to start by saying how honored I am to be serving as this association's President. I would also like to thank Tom Moran and Robert Cartner for keeping us organized and moving forward through the pandemic. Sometimes difficult decisions are made in order to protect the financial well-being of MAMCA and I feel the board was decisive and did a great job.

After several attempts to in meet in Delaware but having to pivot to virtual meetings, it was good to be back in person for the meeting in Savannah. It was great to see colleagues and network in person again, however, if you were unable to attend a quick meeting recap can be found further in the newsletter. I think there will always be a debate about having virtual, in person, or hybrid conferences. There are pros and cons to all the types of meetings, but for me getting to shake hands again with someone I use to work with or finally meeting someone face to face after years of emails, phone calls, or zoom meetings, was amazing. I hope those who could attend learned something, ate well, made connections, and had fun! Any conversation about the Savannah meeting would not be complete without me thanking the Chatham County Mosquito Control staff for their efforts and accepting their "other duties as assigned".

Our Vice President Brian Prendergast is planning a great meeting in Maryland next January. Please consider presenting or at least attending. Visit the conference website https://www.mamca.org/annual-conference for updates.

Well, it appears Punxsutawney Phil's prediction of more winter did not apply to Coastal Georgia because shortly after he saw his shadow spring arrived. Inland floodwater species took advantage of a large rainfall coupled with well above average temperatures for several weeks in the middle of February. With that complaint out there, I wish everyone the best with the upcoming season and hopefully your budget will get you everything you need!

Ture Carlson,, MAMCA President



Drawing from the 1960 Illustrated Key to Common Mosquitoes of Southeastern United States by C.J. Stojanovich

2024 ANNUAL MAMCA MEETING

DoubleTree by Hilton Hotel
Annapolis, Maryland

The 49th Annual Mid-Atlantic Mosquito Control Association (MAMCA) Annual Conference is scheduled for January 23-25, 2024, taking place in beautiful Annapolis, Maryland. If you are looking to present this coming conference, please reach out to President-Elect Brian Prendergast at brian.prendergast@maryland.gov.

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

Upcoming Meeting and Important Events

Meeting	Location	Dates
SOVE 2023 *Society of Vector Ecology*	Charleston, SC	Sep. 18 - Sep. 21, 2023
GMCA Annual Conference *Georgia Mosquito Control Association*	Jekyll Island, GA	Oct. 18 - Oct. 20, 2023
Entomology 2023 *Entomological Society of America*	National Harbor, MD	Nov. 5 - Nov. 8, 2023
FMCA Annual Conference *Florida Mosquito Control Association*	Port Charlotte, FL	Nov. 13 - Nov. 16, 2023
NCMVCA Annual Conference *North Carolina Mosquito & Vector Control Association*	Carolina Beach, NC	Nov. 15 - Nov. 17, 2023
MAMCA Annual Meeting *Mid-Atlantic Mosquito Control Association*	Annapolis, MD	Jan. 23 - Jan. 25, 2024
VMCA Annual Meeting *Virginia Mosquito Control Association*	Virginia Beach, VA	Feb. 20 - Feb. 22, 2024
AMCA 2024 Annual Conference *American Mosquito Control Association*	Dallas, TX	Mar. 3 - Mar. 8, 2024

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.yourfmca.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

Recap of the 48th MAMCA & 44th GMCA Joint Meeting

The Mid-Atlantic Mosquito Control Association and the Georgia Mosquito Control Association held a joint meeting from January 9-11, 2023, in Savannah, GA. On top of these two great associations combining their annual meetings, the Florida Mosquito Control Association also joined in the experience by bringing their annual Fly-In to Savannah to finish out the week. The logistics behind combining all three of these association's meetings together at one time and in a non-conventional location were challenging to say the least.

The meeting was held at Chatham County Mosquito Control's facility with presentations occurring in the helicopter hangar. There were many issues to overcome when it came to attendees being able to see and hear presentations in a space as large as an aircraft hangar. Presenters did a great job despite having a huge 20' x 30' white tarp as a screen and helicopters at times landing just outside of where they were presenting. Besides the great talks, having gorgeous weather and delicious food trucks on-site for lunch really capped off the week.

Attendance was one of the highest ever for MAMCA with 125 attendees and 15 Sustaining Members registering. A Big Thanks goes out to the Sustaining Members for being available to share their expertise, discuss products, and support the associations.

In a return to previous MAMCA agendas was the addition of a panel discussion, which was moderated by MAMCA President Tom Moran. The representatives on the panel were from Pennsylvania, Maryland, South Carolina, Georgia, and Florida who discussed the vast difference in methods and procedures in mosquito control in the member states.

Tom Moran (DE) was presented a plaque for his service and term as MAMCA President. Arielle Arsenault-Benoit, University of Maryland, was presented with the Dr. Bruce A. Harrison Outstanding Student Award. Rosmarie Kelly, PhD, was the recipient of the Rowland E. Dorer Award for her exceptional contributions to mosquito control in the Mid-Atlantic region. Congratulations to all the award recipients for their service and contributions.

MAMCA is looking forward to the 49th Annual Meeting scheduled for January 2024 in Annapolis, Maryland. More information about that meeting will be coming out shortly on the MAMCA website, www.mamca.org. In addition, the 50th Annual Meeting in 2025 is in its planning stages. It will be held in Virginia with MAMCA and VMCA likely joining forces for a joint meeting. Given that it will be the 50th anniversary of MAMCA and occurring in one of the founding member states, everyone should look forward to a memorable meeting!

2023 - 2024 MAMCA Officers

Ture Carlson (GA) President
Brian Prendergast (MD) President-Elect
Jeff Hottenstein (VA) Vice President-Elect
Andy Kyle (PA) Secretary-Treasurer
Tom Moran (DE) Past President

New State Directors for the MAMCA Board

Jeanne Zastrow (MD)
"Tiffany" Thuy-Vi Thi Nguyen (GA)
Christian Boyer (PA)

News in the Region

Delaware

Our Delaware Mosquito Control Section is off to another successful start to the 2023 season as our woodland pool campaign wrapped up in early April this spring treating 5,849.0 acres of early emergent woodland pool habitat. This program utilizes two liquid larvicide equipped helicopters applying Vectobac 12AS (BTi) through the canopy while the amount of foliage is still at its lowest. This allows the product to properly penetrate the canopy and reach the intended woodland pools on the forest floor. Coupled with below average rainfall the situation is looking positive for these control efforts this time of year.

In training and outreach news our Delaware staff attended its first in person training event post covid lock downs on March 28th. This event was hosted by Clarke and the spokesperson was MAMCAs very own Jeff Hottenstein and covered a wide variety of topics about the latest and greatest in the mosquito control field.

Lastly on April 5th some our scientist staff participated in a local outreach event called Make-A-Splash. This event brings in over 700 students and is geared towards educating the next generation on the diversity of estuary life and the importance of Delaware's water resources. This was a great opportunity for our section to bring some awareness about the basics of the mosquito life cycle and biology and how to "Fight the Bite" by cleaning up their own backyards to help reduce the amount of breeding habitat for container breeding species. The students were also able to get up close and look at live larvae at different instar stages, adults, and even eastern mosquitofish as just one example of our native biological control methods.

The section is currently preparing for the saltmarshes to start producing the first summer broods and as always, we strive to provide the absolute best service for the great state of Delaware!

Submitted By Shaun McIntire

News in the Region

Georgia

It has been an uneven start to mosquito season in Georgia this year, with activity in February when it warmed up to an almost complete stop when winter came back. With the current rain and warmer weather cycles however, the mosquitoes are out in force in south Georgia, and getting ready to be in middle and north Georgia. WNV overwinters in *Culex quinquefasciatus,* which overwinters as an adult in behavioral diapause, so can blood feed on warm days even in winter. While we usually see WNV cases in the summer, they can happen any time, like this February. We are hoping this isn't a foretelling of things to come in 2023. Right now we are getting the "FIGHT THE BITE" message out and reminding people to wear repellent when outdoors and empty out or treat with larvicide any standing water in their yards.

Ticks are also active now, so we are getting those reminders out as well, letting people know they should be sure to wear repellent when outdoors and check for ticks afterwards. We have been getting ticks sent for ID virtually with our Survey123 tick survey:
https://survey123.arcgis.com/share/aeab04d143a846d7aa2f83abd103a71f.

Of course, not everyone understands clear and closeup when it comes to sending the photos of the tick, but we always have the option of asking for the tick to be sent in for identification. Plus, we can still send out the protect yourself from tick-borne disease message even if the tick is unidentifiable.

Submitted By Rosmarie Kelly

Maryland

Conditions have been dry all across Maryland, so spring site inspections have not been finding much breeding activity yet which is somewhat unusual for this time of year. The airplane has been prepped for the new season, and normally would be deployed now for aerial larvicide applications to approximately 6,000 acres of woodland on the Eastern Shore; however, it has not been needed yet due to the dry conditions.

The Maryland Department of the Environment together with the Maryland Department of Natural Resources are requiring new permits this year for pesticide applications - 36 in total for all forms of ground and aerial applications as well as for disease control sprays. We are beginning to get them back and should hopefully have all permits needed by season start. The adulticiding and disease control permits are a new requirement just recently implemented. Before all we needed this kind of permitting for was larvicide applications.

Aerial applications of blackfly control led by Scott Larzelere were done on the upper Potomac River near Harpers Ferry the week of April 3-7th.

Submitted by Jeanne Zastrow

News in the Region

Pennsylvania

Throughout the winter vector control professionals in PA attended several national and regional meetings relating to mosquitoes, ticks, and blackflies. In addition to attending meetings, many staff were busy developing trainings and presentations to be used by Department and County staff when conducting educational and outreach events to local communities.

The State Department of Environmental Protection provided grant funding to support local mosquito surveillance and control, as well as, tick surveillance in 50 counties throughout the Commonwealth for the 2023 season. Pennsylvania's mosquito surveillance and control season is off to a "hot" start. Surveillance began in the beginning of April and gravid *Culex restuans* numbers are already at elevated levels as compared to the last few years. This can be attributed to the unseasonably warm weather in all parts of Pennsylvania.

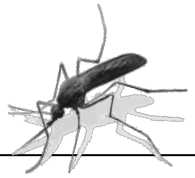
PA DEP will again be hosting a statewide Mosquito Academy. This year it will be held in York County beginning on May 31st. During this training new county employees will be educated in all aspects of mosquito surveillance, control, and IPM strategies. All funded counties will again be conducting pesticide resistance testing throughout the Commonwealth for the duration of the summer.

Adult Blacklegged tick surveillance in PA was completed in mid April. Over 4,000 ticks were collecting beginning in October. A minimum of 50 ticks were collected from each county and all ticks were individually tested for *Borrelia burgdorferi, Anaplasma phagocytophilum, Babesia microti*, and Deer Tick Virus. The infection rates are 58%, 13%, 5%, and 1.2% respectively.

County vector control programs began tick surveillance on April 10th. Several counties have reported finding nymphal Blacklegged ticks, Lone Star ticks, Asian Longhorned ticks, and American Dog ticks. This surveillance will continue through August. All nymphal Blacklegged ticks will be tested for *Borrelia burgdorferi, Anaplasma phagocytophilum, Babesia microti* while Dog ticks and Lone Star ticks will be tested for Deer Tick Virus.

PA's Black Fly Suppression Program began both aerial and hand treatments of rivers and streams during the first week of April. This is 3 weeks earlier than in 2022. This can be attributed to elevated water temperatures causing an earlier emergence of the target species, *Simulium jenningsi*. 48 of Pennsylvania's rivers and streams will be treated until the fall using targeted applications of *Bacillus thuringiensis israelensis* (Bti).

PVCA will be held in State College from October 23rd-25th.



Submitted by Christian Boyer

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 duboist@portsmouthva.gov to submit for the next newsletter!

News in the Region

North Carolina

Well, 2023 started out with a big bang for us in NC with some areas of the state receiving record rainfall in January. We had very little winter like precipitation, and only two real cold snaps to speak of, so I reckon that qualifies for a "mild winter" for the central part of the state. We are still experiencing relatively mild weather and still enjoying chilly nights. This combination has kept the mosquito populations down in the piedmont areas of the state. Here in Forsyth County we are just now starting to see 80-degree days so I expect things will change here in the next few weeks and our *albopictus* will be out in full force. I give it three weeks till things are really hoping.

Brunswick County, on our eastern seaboard, has experienced a dryer spring. They are mostly seeing service requests concerning midges, and gnats. Service calls for mosquitoes have been steady for them, however, most of these complaints end in a public information opportunity (Tip and Toss). They have also started the yearly cycle of treatments for salt marsh species in the Intracoastal Waterway and Eagle Island. Brunswick County also held their annual ULV Workshop on April 26th and 27th. They had over 40 attendees show up for educational credits and to have their machines calibrated. I know all of us around the state greatly appreciate Brunswick putting on their yearly ULV workshop. Thanks for the hard work ya'll!

The North Carolina Mosquito and Vector Control Association has announced the date of our annual conference this fall. This event will take place November 15 through November 17, at the Courtyard Marriot in Carolina Beach. We have many great speakers lined up, so do not hesitate to register, this will be a great conference. A couple days at a great venue with great people, right on the beach. For more information, please visit our web page at www.ncmvca.org

Be safe out there!

Submitted by Ryan Harrison

News in the Region

South Carolina

Funding Opportunity for South Carolina Mosquito Control Agencies

The Vector-Borne Diseases Lab at the South Carolina Department of Health and Environmental Control was contacted early in 2023 about a potential funding opportunity that will be made available in 2024 federal fiscal year (August 2023 through July 2024). This one-time funding will be used to assist mosquito control agencies in post-hurricane response to mosquito population surges. The Vector-Borne Diseases Lab is responsible for applying for this funding by stating a work plan and budget, with a plan for dissemination of funds. The grant application will be submitted to CDC by April 21, 2022.

To better secure grant funds for South Carolina mosquito control agencies, we have created a survey (linked below) only for South Carolina to assess the need of our local county and city mosquito control agencies and how best to support them in future hurricane events. South Carolina mosquito control personnel were asked to complete the survey so the funding can be allocated in a fair manner when it is awarded. The link to the Mosquito Control Needs Assessment Survey is: https://forms.office.com/g/VfJ69snvGE.

South Carolina Mosquito-Borne Disease Update

Eighty-five mosquito-borne disease events were detected in South Carolina in 2022. West Nile virus was detected in 9 birds, 19 people (including 1 human death), and 48 mosquito samples in July through October in ten counties. Just alone in the City of Columbia located in Richland County, SC, West Nile virus was detected in 6 birds, 40 mosquito samples, and 8 people. Inability to control the West Nile virus outbreak was attributed to breeding in cryptic or hidden containers in an area densely populated with people, housing, and vegetation, and also due to insecticide resistance to pyrethrins. An A1 Mister was purchased by the SC DHEC Medical Entomology lab to assist with area-wide larviciding. Also, a "West Nile Virus Activity in Your Area" Alert Postcard was sent to 23,197 addresses in the affected areas of Richland and Lexington County.

Eastern equine encephalitis (EEE) virus was detected in two birds in October through November in two counties. One human case was dually infected with West Nile virus and a California Serogroup virus. One travel-related human case of dengue virus and one of chikungunya virus were detected in two counties. Various mosquito-borne viruses were detected including Tensaw and Bunyavirus Non-Specified in *Anopheles crucians* complex, Flanders virus in *Culex pipiens* complex, and Keystone virus in *Aedes atlanticus/tormentor*.

As of April 13, 2023, 9 horses, 3 birds, and 1,789 mosquitoes (92) pools have been submitted for virus testing. So far, a EEE virus-positive horse was detected earlier than normal in mid-January in Berkeley County. We had two late-year EEE-positive birds in a house finch and a rough-legged hawk in 2022, with onset dates in October and November. We are concerned about increased EEE virus activity in 2023 because of early warm temperatures and the virus being amplified early in the transmission season, as evidenced by the EEE virus-positive birds and horses seen within the last five months.

In the 2003 EEE virus outbreak, 154 horses were positive for EEE virus, and our earliest horse case occurred at the end of May. In 2004, a January case of EEE virus occurred in a horse in late January, but no more EEE virus-positive horse cases were detected until Sep-Dec 2004. Although the January 2023 case was not the first EEE virus-positive horse seen in January, it certainly does cause some concern. *Culiseta melanura* mosquitoes are the primary vector of EEE virus in South Carolina, but two other important players in South Carolina are *Anopheles crucians* complex and *Culex erraticus*. Both species overwinter as adults and could emerge on warm days to blood feed. We speculate that one of these two mosquito species most likely infected the horse in mid-January 2023.

News in the Region

South Carolina (cont.)

The horse case in Berkeley County occurred near a Carolina Bay (Hellhole Bay) in Sumter National Forest, which does not allow mosquito control due to protected endangered species in the area. However, we have asked Berkeley County Mosquito Control to trap mosquitoes in the area when temperatures become more consistently warm to see which mosquito species are carrying the virus in that area.

Submitted by Chris Evans

Virginia

Virginia held its annual conference in the beautiful Virginia Beach Hilton Oceanfront on February 14-16, 2023. It was well attended with over 100 registrants and 9 sustaining members. This year was the VMCA's first in-person conference with no option for streaming, and to everyone's surprise and highest expectations, it was extremely well attended, even having a total of 9 former VMCA presidents in attendance.

In other training news, the VMCA held its annual Adult ID Course at Suffolk Public Works this May 8th. The course is offered annually and designed for summer interns as well as mosquito control personnel interested in learning how to identify.

This spring has been fairly quiet to date, but most localities are gearing up for a busy summer as the winter months brough little freezing temperatures and enough rain to be worried about.

Pictures: On the left is the Past Presidents in attendance at the 2023 Annual Conference (from left: Joshua Smith, Charles Abadam, Timothy DuBois, Andy Lima, Randy Buchanan, Lisa Wagenbrenner, Lane Carr, and Mitch Burcham, missing in action at the time but in attendance was Jay Kiser); On the right is the 2023 Adult ID Course.

Submitted by Tim DuBois

News in the Region

West Virginia

For mosquito-borne diseases, there have been two human cases of La Crosse encephalitis and four travel-associated malaria cases in 2022 (as of April 14). In 2021, one La Crosse encephalitis human case and no human cases of West Nile virus infection were detected in West Virginia.

The West Virginia Department of Health and Human Resources conducted mosquito surveillance from July through September. Due to state laboratory resources being heavily dedicated to COVID-19 response, the Centers for Disease Control and Prevention tested West Virginia mosquitoes for West Nile virus, La Crosse virus, and eastern equine encephalitis virus this year. In West Virginia, West Nile virus was first detected in a sample of *Culex* mosquitoes active in Raleigh County on 8/23 in the southwestern part of the state. Four *Culex* mosquito samples collected in Wood County on 8/26 in northwestern West Virginia were also infected with West Nile virus. None of the mosquito samples were infected with La Crosse virus or eastern equine encephalitis virus.

For tickborne diseases, there have been 1950 human cases of Lyme disease, 12 spotted fever group rickettsioses cases, 12 ehrlichiosis cases, six anaplasmosis cases, one ehrlichiosis/anaplasmosis case, and 1 Q fever in 2022 (as of April 14). In 2021, there were 1724 human cases of Lyme disease, 15 accounts of human ehrlichiosis, 12 spotted fever rickettsiosis cases, one human anaplasmosis case, two cases of tularemia, one ehrlichiosis/anaplasmosis case, and one Q fever case.

In addition to Monongalia County Health Department tick surveillance activities in northeastern West Virginia, more sites in southwestern West Virginia were monitored for ticks in 2021. Active tick surveillance activities focused on collecting the blacklegged tick (*Ixodes scapularis*), tick vector for Lyme disease (*Borrelia burgdorferi*), using the tick drag method. Although active tick sampling was conducted throughout the year, most monitoring occurred during *Ixodes scapularis* nymph and adult emergence. *Ixodes scapularis* nymphs were submitted to the Centers for Disease Control and Prevention for human pathogen testing for Lyme disease (*Borrelia burgdorferi*, *Borrelia mayonii*), hard tick relapsing fever (*Borrelia miyamotoi*), human anaplasmosis (*Anaplasma phagocytophilum*), and human babesiosis (*Babesia microti*). *Ixodes scapularis* nymphs from northern localities had higher infection rates of *Borrelia burgdorferi* than tick nymphs living further south. The incidence of human Lyme disease was also higher in northern West Virginia than southern West Virginia. Few *Ixodes scapularis* nymphs were available for human pathogen testing in southwestern West Virginia, a region with few human Lyme disease cases in 2021. *Anaplasma phagocytophilum* (strain not differentiated) was detected in *Ixodes scapularis* nymphs collected from Barbour, Marion, Monongalia, and Raleigh counties in eastern West Virginia. *Ixodes scapularis* nymphs were not infected with *Borrelia mayonii, Borrelia miyamotoi*, or *Babesia microti.*

The West Virginia Tick Surveillance Program continued its tick surveillance activities in 2022. Active tick surveillance monitored *Ixodes scapularis*, *Amblyomma americanum*, and the Asian longhorned tick (*Haemaphysalis longicornis*) for tick density, infection rate density, seasonal phenology, and habitat parameters in central West Virginia in 2022. Central West Virginia is an emerging front for Lyme disease and active tick surveillance has been limited in this region. The *Ixodes scapularis* nymph density in central West Virginia was less than the high tick nymph densities in northern and southeastern West Virginia but greater than the low tick nymph densities in southwestern West Virginia. Although the lone star tick has been found throughout the state, high densities of *Amblyomma americanum* are still limited to southwestern West Virginia. Counties with high spotted fever group rickettsiosis and ehrlichiosis human case counts also have the highest densities of *Amblyomma americanum* nymphs.

Submitted by Eric Dotseth

MAMCA Sustaining Members

A special thanks to our 2023 Sustaining Members without whose generous support these meetings would not be possible.

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