

THE SKEETER

VOL. 82, No. 2

**2022
Summer
Newsletter**



**OFFICIAL NEWSLETTER OF
THE VIRGINIA MOSQUITO
CONTROL ASSOCIATION**

President's Address

Wow! The past few years have been demanding and although COVID has not relented, it does seem like many of us have adapted to what is progressively becoming the new normal. VMCA has also continued to adapt to the impacts of COVID and continues to offer a variety of virtual and in-person activities that are available to members. Therefore, as we all embark on the core of our mosquito seasons, we must remember that we can still come together despite our distance, educational background, job title, and/or years of experience. All that is required is an interest and an investment of time. VMCA offers committees, events, and activities which present opportunities for socialization, education, and participation, no matter where you fall on the Myers Briggs. Some noteworthy examples include the [Annual Tour de Skeeter](#)

for those physically inclined, the VMCA Book Club for those of a more studious nature, the Adventure Club for those seeking new experiences, the [Adult Mosquito Identification Course](#) for those wanting to fine tune their abilities, and a host of interactive committees ranging from historical to technical for those who wish to volunteer. That said, for those members who do not wish to participate in any of these, your importance cannot be overstated and **please know that your membership is greatly valued.**

Having been a member of this organization for some time now I can confidently say that the best part of the VMCA is its people. Members continue to amaze me with their diversity of ideas and a willingness to share experiences and knowledge, even during times of failure. There is no better way to experience this than through joining and actively participating in a committee. While the [2022 committees](#) have been formed and are currently operational, now is the perfect time to learn about how each contributes to VMCA's overall organizational experience. If after learning more, you feel that you are good fit, reach out to the appropriate committee chair to inquire about joining and becoming an active participant for the remainder of the year and beyond.

Additionally, it should be noted that the [VMCA Executive Board](#) is going through some personnel changes; recently, Ms. Addison (Addie) Weddle has graciously accepted the nomination and been voted in as First Vice President. Ms. Weddle will be serving out the remainder of the 2022 term in an interim capacity, but the hope is that she will wish to remain an active executive board member for years to come. That said, it has been brought to the board's attention that further personnel changes may be necessary in the not-so-distant future; therefore, **if you have ever considered becoming an active executive board member now is the perfect time to attend meetings, ask questions, and learn about each of these important positions.**

As spring moves into summer and our dedication to the mosquito profession becomes even more apparent, I would like to express my gratitude to everyone who dedicates their time and efforts to the VMCA. I continue to be impressed by each of you and am grateful to be part of such a remarkable and determined group.



Wes Robertson
2022 VMCA President

Announcements

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UPCOMING EVENTS

National Night Out

August 2, 2022; outreach multiple locations
e.g. [Chesapeake](#), [Suffolk](#)

VMCA Executive Board Meeting

August 26, 2022, Virtual; [register here](#)

4th Annual Tour de Skeeter

October 15, 2022, Virginia Capital Trail
(Registration deadline - September 16)

NCMVCA Conference

November 9-10, 2022, Greenville, NC

ESA/ESC/ESBC Joint Annual Meeting

November 13-16, 2022, Vancouver BC

SCC Poster Submission Deadline

December 2, 2022; [details here](#)

VMCA Annual Conference

February 14-16, 2023, Hilton VA Beach Oceanfront

DID YOU KNOW?

You can sign up and renew your membership online! Visit our website to fill out the form and complete payment [here](#).

WHAT'S ON THE COVER

A female *Toxorhynchites rutilus septentrionalis* (left) is nestled alongside an *Orthopodomyia signifera* (right) that has 2 mites attached to her thorax; photography by Janice Pulver, Biologist for York County Mosquito Control

VMCA ORGANIZATIONAL MAILING ADDRESS

Virginia Mosquito Control Association
Jay Kiser, Secretary/Treasurer
800 Carolina Road, Suffolk VA 23434
Tel: 757-514-7608
Email: VirginiaMosquito@gmail.com

WHAT'S THAT...?!



Answer on [page 21](#)



VMCA's
 Student Competition Committee Presents Our
**4th Annual
 Tour de Skeeter**

Annual bicycling fundraiser event that benefits the student poster competition. Get outside (bike or run/walk/skate), socialize, spread mosquito control awareness, and support the students!

Registration
\$35
 Kids attend/eat
 for FREE!*

Full Registration Includes

- ✓ VMCA tote bag with t-shirt and more
- ✓ Light fare at the tavern
- ✓ 1 entry - chance to win \$200 Amazon gift card
- ✓ Trail map upon request

*Youth-size shirts available for \$20 as "child registration"

Date/Time/Location

 15 October 2022, 12-4 PM
 Virginia Capital Trail

Meet Point

 Indian Fields Tavern
 9220 John Tyler Memorial
 Hwy, Charles City, VA 23030

More details and register online at mosquito-va.org/2022-tour-de-skeeter
 Interested in being a sponsor, got questions? Email us: viriniamosquito@gmail.com

Submitted by Karen Akaratovic, SCC

BOOK OF GUIDELINES



Reminder to please update your sections of this document by **September 1st** (send to jkiser@suffolkva.us). I will update the document with any changes and bring it to the board for a vote.

The up-to-date Book of Guidelines can be found on the [VMCA website](#)

Submitted by Bylaws Committee Chair Jay Kiser

ADVENTURE CLUB

On May 21, 2022, the VMCA Adventure Club met up for a canoeing excursion at **Merchant's Mill Pond** in North Carolina. We had excellent weather and the park was full of beautiful scenery. Merchant's Mill Pond is a NC State Park with over 3,500 acres of cypress swamps and hardwood forests. We spent the morning wandering the waterways in our rented canoes. Even though we had hours to explore, we only saw a small amount of what the park has to offer. **The pond is home to lots of wildlife species, including American alligators.** Sadly, we did not see any gators, but we did see lots of turtles, birds, and a snake. Luckily for us, the environmental factors were on our side and our trip was mosquito free. It was a great adventure, and I would definitely go back to see more of the park. Thank you for the recommendation, Penny.

Over the next couple months, we are planning a few more adventures. In August, we may try a sunset kayak outing in Virginia Beach. In September, we are planning to hike Peaks of Otter. On October 15, we will be riding our bikes on the Capital Trail in conjunction with the Tour de Skeeter. If you are interested in joining us, please email me at jkiser@suffolkva.us to get the details.

Submitted by Jay Kiser



L and R: group shots of the adventure group at Merchant's Mill Pond. As you can see, bringing family and friends is always welcome and encouraged. Middle photo: entering the swamp after leaving the dock; pictures by Ann Herring (L), Kristin Skees (Middle), and Travis Bowman (R)

"Teams"work Makes the Dream Work! Using Microsoft Teams to improve Mosquito Control Operations

Let's face it- lots of things have changed in the workplace because of the COVID-19 pandemic. While I think the jury is still out on the concept of "remote work," this period has really advanced our capabilities to collaborate virtually with those both within and outside our organizations- a huge benefit for industries that rely on sharing information.

One of the ways that we've tried to embrace these new capabilities is through the creation of our very own [Microsoft Teams](#) site. With most mosquito control operations occurring remotely or in the field, we've found that you really do win as a Teams, you lose as a Teams...and that it's always best to have several Teams players... and that there is no "I" in Teams... Ok, I'm done. Microsoft Teams is pretty nifty though!

First and foremost, MS Teams does wonders for improving communication and collaboration within our group. Between setting and picking up traps,

applying pesticides, and helping with whatever else pops up, technicians may go a whole day with very little integration with their peers. Not with Teams! The "thread-like" conversations on the Teams app allows for simple text, video chat, simple file attachment, and just about everything else under the sun. Our General Communications channel has been used to post photos from the field, ask questions via video chat if something looks weird, schedule meetings, you name it.

We also use Microsoft Teams as a one stop shop for important files, links, etc. The application links directly to our [Sharepoint](#) site, a place where you can find everything we need to complete daily tasks. A Quick Links tab provides a place for links to important websites like our databases, ArcGIS Online, and VDACS recertification information.

We've added a News section where a weekly update is posted for all to stay informed on weekly

happenings, upcoming events, etc. It also includes a "literature minute" where a scientific article or insect news event is briefly summarized, keeping employees engaged with the latest happenings in all-things vector/entomology. At the very least the summary can serve as a conversation starter, simultaneously giving us insect nerds a regular opportunity to dive into the insect literature.

Teams also allows for an incredible amount of customization throughout the site. We're still exploring new ways to make the site even more valuable to us, and it's very easy to modify or add features. If any of the things that I've described sounds like it would help improve communication for your locality, I highly recommend checking it out.

**Submitted by
Ryan Levering**

lev004@henrico.us

804-278-7505

Henrico County
Standing Water Initiative

CALL FOR EXECUTIVE BOARD NOMINATIONS

VMCA's Nominating Committee seeks nominations for the 2023 VMCA Executive Board!

Are you or a VMCA member you know interested in being on the VMCA board? If so, please contact the Nominating Committee Chair, Tim DuBois (duboist@portsmouthva.gov), with the name and contact information of your nomination. **We are seeking nominations for the first vice president position on the 2023 Executive Board.** The member voted into the first vice president position typically moves up the ranks of the executive board each successive year; a five year commitment.

VMCA needs the help of dedicated and enthusiastic individuals to keep our organization running great!

Deadline for submissions will be November 1st, but the earlier we hear from you the better.

Submitted by
Nominating Committee Chair
Tim DuBois



Handmade Mosquito Swag

HandMade "Mosquito Swag" – Great for Any Co-Worker Gift Bag



This year, for National Mosquito Control Awareness Week, I wanted to do something special for my fellow biology team members at Chesapeake Mosquito Control Commission. However, unique "mosquito swag" is hard to find when searching Amazon and most of us already have just about every VMCA merchandise item there is. So, I put my Cricut crafting machine to use! I grabbed some plain, every day-use water bottles to begin with. Then, I was able to find a variety of mosquito images to use. The final product turned out great and the project was rather inexpensive and simple.

What novelty mosquito items would you make?

Submitted by Katherine Reutt

ADULT MOSQUITO ID CLASS SUMMARY

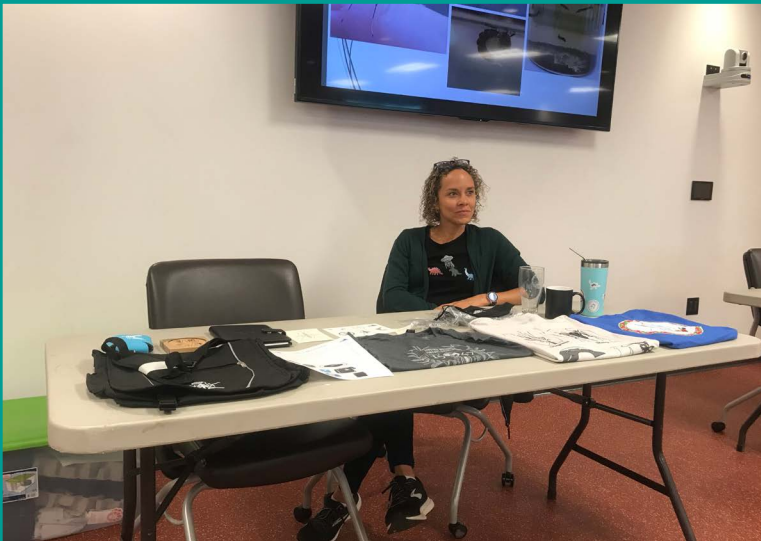


The VMCA was able to reestablish the in-person aspect of its annual Adult Mosquito Identification Course. The Adult ID Course took place on Monday, May 9th, 2022 at Suffolk Mosquito Control. **This was the first time the course took place in-person since 2019.** There were 14 individuals present as students at the identification course, coming from various mosquito control jurisdictions, as well as a few attendees that came from other universities within the state including Longwood University and Virginia Tech. The jurisdictions with students present included Chesapeake Mosquito Control Commission, Newport News Mosquito Control, Portsmouth Public Works, Suffolk Mosquito Control, Virginia Beach Mosquito Control, and York County Mosquito Control.

The course was organized by the VMCA Education Committee, with Jennifer Barritt as committee chair; Karen Akaratovic, Ann Herring, Katherine Reutt, and Lisa Wagenbrenner as active members of the committee. The course instructors consisted of local biologists, and the topics discussed were as follows: Carla Caulkins (Chesapeake) – General Mosquito Biology, Traps, Diseases; Jay Kiser (Suffolk) – Microscopes and Dichotomous Keys & *Aedes*; Katherine Reutt (Chesapeake) – *Anopheles*; Karen Akaratovic (Suffolk) – *Culex*; Janice Pulver (York County) – “Minor” Genera (*Cs.*, *Cq.*, *Or.*, *Ur.*); Penelope Smelser (Norfolk) – *Psorophora*. All presenters, and the other instructors, including Jennifer Barritt (Virginia Beach), TJ Carner (Newport News) and Kaitlyn Price (Virginia Beach), assisted students during the sample identification portion of the course. **All of the time spent and shared mosquito knowledge from everyone involved was greatly appreciated.**



ADULT MOSQUITO ID CLASS CONTINUED



Nine of the 14 students were able to complete the course survey, **all of which were in agreeance that the course was beneficial.** There were suggestions that implied the students would have liked to see more in depth details on mosquito terminology, anatomy, and overall discussion about each topic. The length of the course is set to accommodate everyone's busy schedule during mosquito season, and unfortunately, there is only but so much information that can be packed into one singular day. The introductory course does its job by laying a great foundation for mosquito identification.

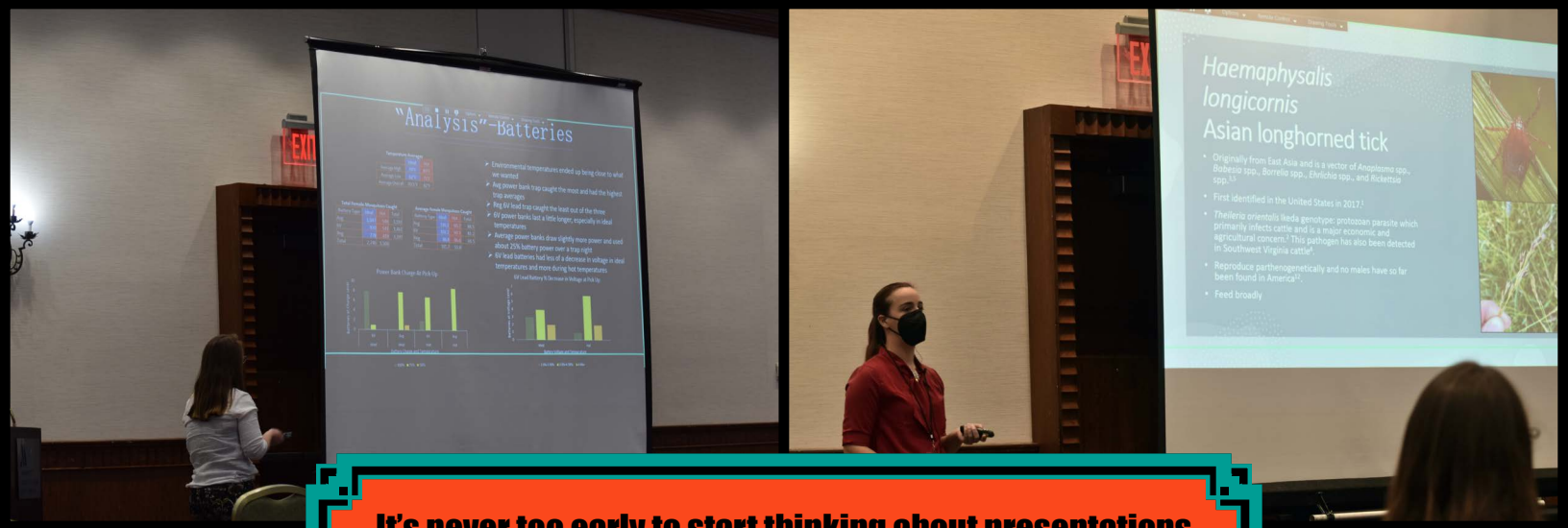
We would like to thank everyone involved in making this year's Adult ID Course such a success, especially so, as we slowly return to in-person training sessions. Jay Kiser, VMCA Secretary/Treasurer, along with the Suffolk Mosquito Control department, graciously provided their facility and spare time in order to ensure the course was conducted in an excellent environment. We are also very appreciative of the VMCA Executive Board for funding meals for this event, and to Ann Herring for organizing the delivery and distribution of those meals. A special thanks to Merchandise Committee Chair Penelope Smelser, for bringing the VMCA's merchandise to the course so that students would have a chance to snag some mosquito swag. All photographs were taken in a collaborative effort between the VMCA's Photography and Education committees.

Presentations from past virtual versions of the course can still be found on the [VMCA website](#).

You can also find more information on the course itself, involved planning, materials needed, etc. on the VMCA website!

**Submitted by Education Committee Chair
Katherine Reutt**

CALL FOR PRESENTATIONS



It's never too early to start thinking about presentations at the VMCA Annual Conference!

The 2022 conference survey indicated some members want more presentations on trapping techniques and vectors other than mosquitoes or ticks; some want to limit duplicate speakers.

VMCA members, YOU are the solution!

Do you deal with rodents, fleas, or other pests such as wasps, bed bugs, or snakes? What's your IPM strategy?
Present about it!

Don't want duplicate speakers?
Make sure at least ONE person from YOUR jurisdiction signs up to give a talk each year.

We all do things differently and it's great to learn new perspectives.

Please send presentation thoughts and ideas to:
Vice President Carla Caulkins
ccaulkins@cityofchesapeake.net

Look out for details on forms & deadlines coming soon!



WHO HAS TIME FOR PESTICIDE RESISTANCE?



Suffolk Mosquito Control began testing *Aedes albopictus* and *Culex pipiens* for pesticide resistance using the CDC bottle bioassay method in summer and fall of 2018. Initially, we tested for a wide range of chemicals, including those that had never (to our knowledge) been applied before by mosquito control in our city. After seeing strong resistance to many chemicals in our *Cx. pipiens* populations, we settled on testing the chemicals we were currently using or planning to use. From 2019-2020, we had a few failed tests due to death in some control bottles, and issues here and there not being able to collect enough adult *Ae. albopictus*. For the latter issue, we switched our collection method from adults in BG traps to eggs in ovicups and that has been a good solution. For the former issue, we learned in fall/winter 2020 that Chesapeake was having the same problem and had identified their old acetone as the likely culprit. We decided it was worth it to purchase new acetone for our 2021 testing.

However, we were still seeing high death in multiple control bottles and adults that were dying in the dorms before we could test them. This was very frustrating to us; as anyone that has undertaken this process can attest, it is very time-consuming to collect egg rafts and significant effort is put forth to rear the larvae, separate out the pupae, maintain the adult dorms, prepare stock solutions, coat bottles, conduct the testing, perform species and sex identification post-testing, and record and analyze the results – all while you're expected to keep up with routine surveillance and arboviral testing.

Therefore, in 2021 and 2022, we have utilized the free pesticide resistance monitoring services offered by the Northeast Regional Center for Excellence in Vector-Borne Diseases (NEVBD) through Cornell University. We collected *Cx. pipiens* egg rafts from our gravid tubs as we normally would, and shipped them in whirl-pak bags on ice to Cornell. Their program offers testing of *Ae. albopictus* and *Cx. pipiens* for an extensive list of adulticides and larvicides. In 2021, they were able to conduct 16 tests for us with different combinations of active ingredients and inhibitors. We received the results within about a month of submission, the raw data they provided was well-organized, and they even sent a summary with recommendations.

We highly recommend utilizing this program while it is still being offered as it is free of charge, reliable, and frees up one of our most precious commodities – time!

You can find all the submission details, including free supply kits and request for shipping costs to be covered if needed, [here](#).

Also, see important NEVBD updates on [page 13](#).

Submitted by Karen Akaratovic

CALL FOR AWARD NOMINATIONS

Each year at the annual meeting, VMCA recognizes individuals or a group of individuals who have contributed to making the VMCA the best it can be. The Awards Committee and VMCA Executive Board accept nominations of members and peers who deserve recognition. Please send your nominations and supporting documentation via email to Awards Committee Chair Jennifer Barritt (JBarritt@vbgov.com) by December 15th, 2022.

Award Descriptions

R.E. Dorer Award: The highest honor award that may be given to a very elite individual that has contributed much to VMCA. Nominations should be submitted in writing to the awards committee and will be brought to the executive board for unanimous approval.

Honorary Membership: An award that may be given to someone that has contributed to VMCA and may be near retirement. Nomination for this honor must be justified in writing and submitted to the executive board for review. The executive board shall be required to vote unanimously to confirm the honorary membership nominee.

Dr. Jorge Arias Student Competition Award: Award given to the winner of each year's student competition.

Dr. Bruce Harrison Mosquito Research Award: Award bestowed on an individual or group of individuals who have contributed greatly to the improvement of mosquito knowledge in or affecting the state of Virginia through the peer-reviewed publication of mosquito research and shown a dedication to the sharing of this knowledge through teaching and training; Written rationale for the nominations must be submitted to the executive board for unanimous approval.

Distinguished Service Award: Awarded for exceptional service with VMCA organizational work

Outstanding Service Award: Awarded for exceptional service in field work

Certificate of Appreciation: Award given to a non-member that did some special service for VMCA

For a list of past award recipients,
check out the [Awards Page](#) on the VMCA website.



Quick Tip!

Is that a harmless Northern Watersnake or a venomous Northern Cottonmouth? Virginia is home to 34 snake species; only 3 of which are venomous: Northern Cottonmouth (*Agkistrodon piscivorous*), Eastern Copperhead (*Agkistrodon contortrix*), and the Timber Rattlesnake (*Crotalus horridus*). Upon first glance in the field, you may be unsure or unwilling to look close enough to ID what you encounter. The best course of action is avoidance and your #1 PPE out in the field are your eyes – look where you're spraying, placing traps, etc. More info on Virginia snake species can be found [here](#)

NEVBD LOSES CDC FUNDING

It is with great disappointment that we share the news that NEVBD was not awarded renewed funding from the CDC for our Center of Excellence. It appears that the new center will be based out of UMaine/UMass Amherst/URI, and will represent the six New England states of ME, NH, VT, MA, RI and CT. **The mid-Atlantic states of NY, PA, NJ, DE, MD, DC, VA and WV do not appear to be represented by a Center of Excellence under the new funding structure**, based on our current understanding. We anticipate the funding announcements will be made in the coming week, which may further clarify the anticipated programming coverage of the new centers.

We are of course extremely disappointed with this outcome, as our operations as a CoE will discontinue in December 2022. **We want to assure all of our partners that we will diligently work over the remaining months of 2022 to continue providing you all with services** through our pesticide resistance monitoring program, arbovirus situational awareness calls, and technical assistance capacities.

Please continue to engage in these services – particularly the pesticide resistance monitoring program – as normal for the remainder of the year.

We have been reaching out to our stakeholders and partners to share this news, and have been advising anyone who has concerns on this outcome to contact the CDC Division of Vector-Borne Disease director and Center of Excellence program officer, listed below. We also encourage you to contact your elected Congressional representatives to share the same concerns, to the extent that you are able and is appropriate. **Sharing your feedback on the discontinuation of the program is valuable while we explore available options to advocate for CoE coverage for the mid-Atlantic region.** We feel it is imperative that the mid-Atlantic region of the US – which has one of the highest vector-borne disease burdens in the country and close to 1/3 of the US population – have coverage under this federal program.

Dr. Lyle Petersen, DVBD Director lxp2@cdc.gov

Dr. Jeff Borchert, CoE grants program officer gqx1@cdc.gov

It has been an absolute privilege to work with you all over the past several years. Please reach out to us with any concerns and questions you have at this time. We are also happy to provide guidance for contacting Congressional offices for anyone who would like to share their feedback and are unsure of how to do so.

Sincerely,

Laura and Emily

Laura C. Harrington, PhD

Program Director

lch27@cornell.edu

Emily M. Mader, MPH MPP | she/her

Program Manager

emm367@cornell.edu

Northeast Regional Center for Excellence in Vector-Borne Diseases

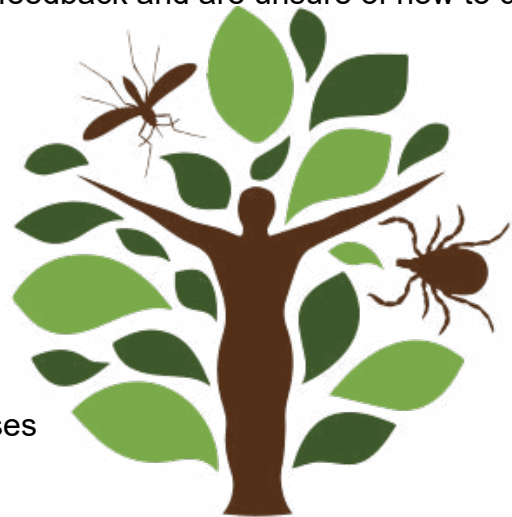
Department of Entomology

neregionalvectorcenter.com

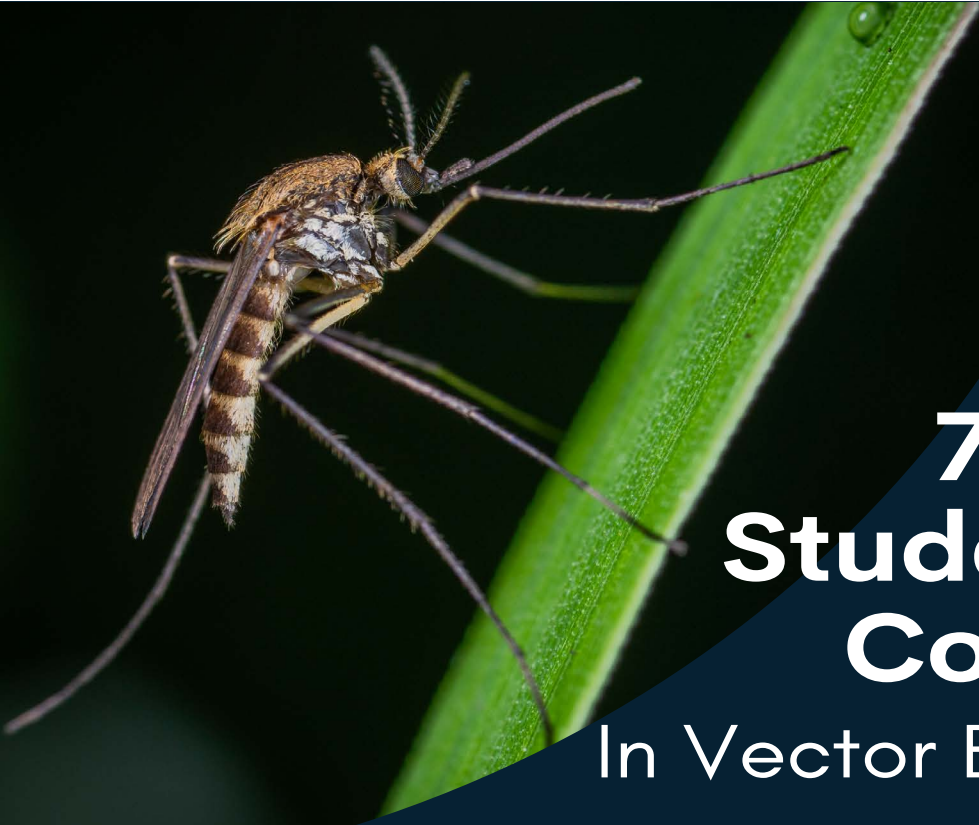
College of Agriculture and Life Sciences

Cornell University

cals.cornell.edu



**NORTHEAST REGIONAL CENTER FOR
EXCELLENCE IN VECTOR-BORNE DISEASES**



7th Annual Student Poster Competition

In Vector Borne Sciences

*NOW INVITING STUDENTS FROM:
Virginia, North Carolina, Tennessee, Kentucky, Maryland,
West Virginia and DC*

THE DETAILS



MUST BE ORIGINAL RESEARCH

In areas of vector borne sciences, IE: diseases, surveillance methods, pesticides, arthropod vectors, etc.



POSTER PRIZES

*1st Place: \$500
2nd Place: \$300
3rd Place: \$200*



VMCA CONFERENCE

Opportunity to present research at 2023 Annual Conference

More Info:



**DEADLINE TO SUBMIT:
December 2, 2022**

<https://mosquito-va.org/scc-poster-competition>

Submitted by Kaitlyn Price, SCC

CITY IN THE SPOTLIGHT: NORFOLK



At the end of Tarrant St, surrounded by marshland, is a two-story brick building that houses the City of Norfolk's Vector Control Program. Occupying the first floor, Vector Control consists of offices, a lab, conference room, locker rooms, shop area, chemical room, and vehicle garage. Our nearest neighbors are Parks and Urban Forestry, Stormwater, and Streets and Bridges.

The City of Norfolk's Vector Control Program is a division of the Environmental Health Department of the Norfolk Department of Public Health. We are a unique mix of state and city resources, but most of our funding is provided by the City of Norfolk. We currently have seven full time employees, and **we are looking to hire an additional full-time employee as well as a part time position.** If you or anyone you know is interested, please visit the [City of Norfolk's website](#) to apply. We have three staff members dedicated to prevention and control, one biologist, an administrator, and a supervisor. Vector Control also oversees the Bulk Container Program which currently has one inspector.

Vector Control follows the proven tenets of mosquito control: source reduction, prevention, control, and education. The number of staff at Vector Control may have shrunk over the years but we are still able to address citizen concerns and provide a science-based comprehensive approach to mosquito control.

Residents of the City of Norfolk can call our office to relay a mosquito concern but most people opt to use the city's one stop shop for customer service requests: [MyNorfolk](#). As popularity of the website and app have grown, plus the ease at which it allows residents to submit requests, so have the number of service requests received by Vector Control grown over the years. **We average between 250 and 300 requests per year for mosquitoes actively biting and potential mosquito breeding concerns.** All our service requests are typically addressed and closed within 48 hours of receipt. Staff tackle these concerns by first visiting the address of the complainant to inspect for mosquito breeding and then they will radiate out to check nearby properties for artificial containers, ditches, storm drains, tires, and all things that breed mosquitoes. As with most districts, **99.9% of our service requests are due to *Aedes albopictus*.** We do not ULV spray areas by request, nor do we do barrier treatments or handheld fogging. Our response is rooted in source reduction and larviciding.

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NORFOLK IN THE SPOTLIGHT CONTINUED



Vector control has evolved over the years and shifted focus from backyard inspections and *Ae. albopictus* control to targeting *Culex pipiens* breeding sites, our primary WNV vector. When not answering service requests, our staff are systematically treating all the catch basins in the city while also staying mindful of ditches, curb water, ground depressions, and anything else that can breed mosquitoes.

With limited staff, it's important to use our resources wisely. Surveillance is a critical piece of the puzzle to focus our efforts into the areas of highest need. As with our control, the surveillance program has gone through many changes

and iterations over the years. **Today, gravid trapping for *Cx. pipiens* is the cornerstone of our surveillance.** Annual trap catches range from 30,000 to 80,000 depending on the number of traps set. The majority of those catches consist of *Cx. pipiens* but other dominant species are *Ae. albopictus*, *Aedes vexans*, *Culex salinarius*, and *Culiseta melanura*. Collectively, we at Vector Control represent over 100 years of expertise and experience in mosquito control. Vector staff are uniquely familiar with every nook and cranny in this city where mosquitoes like to hide.

I am proud of my coworkers and their dedication to the health of the residents of Norfolk; much credit to Greg Atkinson, Harry Bennett, Philip Benton, Luz Grant, Kenny Jackson, & Mona Smith.

Submitted by Penelope Smelser

Alternatives to BioQuip

If you saw the article in our spring issue about BioQuip closing, I'm sure you were as heartbroken as we were.

While many of the novelty items sold by BioQuip will be difficult to find, there are a few suppliers (aside from the obvious e-commerce giant, Amazon.com) for some of your entomological needs that may suffice for now:

- ◇ **Carolina Biological Supply Company** is based in North Carolina and has a variety of science education supplies as well as laboratory and field equipment.
- ◇ **Forestry Suppliers, Inc.** is based in Mississippi and has tons of outdoor equipment, including things like Bug Shirts, head nets, and dippers.
- ◇ **John W. Hock Company** based in Florida, small business, and wholly woman-owned offers many traps and tools for insect collection.

Check them out online by clicking on the logos below.

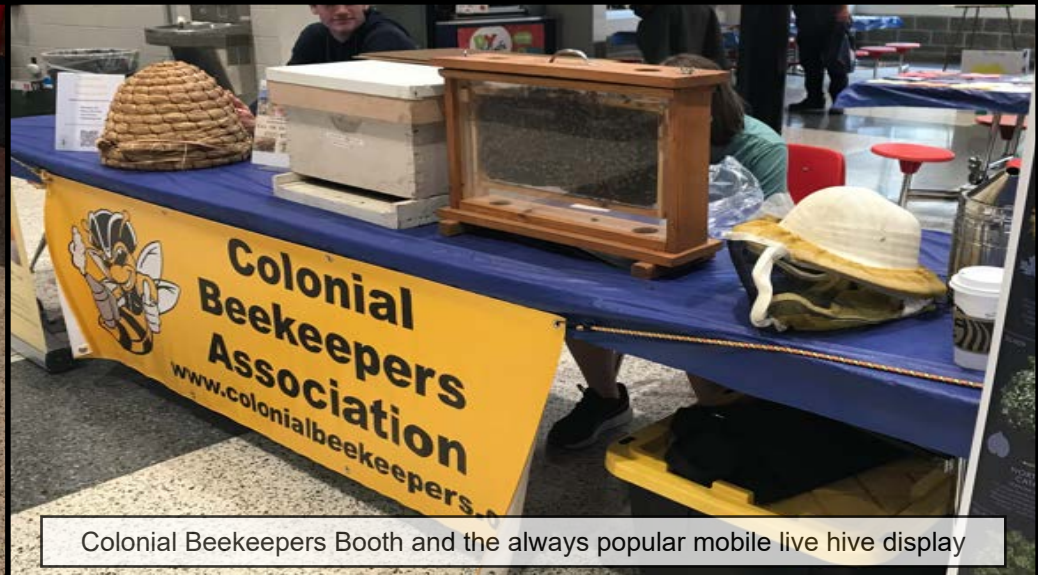
If you know of any other alternatives, please send them to the Editor, [Karen Akaratovic](#).



BUG FEST 2022



Talks agenda



Colonial Beekeepers Booth and the always popular mobile live hive display

After taking two years off from outreach activities, York County Mosquito Control revamped and expanded its annual BugFest event. After the last event in 2019, we knew we had outgrown the space and wanted to make room for more people, booths, and vendors. We moved to a local middle school that was easily twice the size and had an auditorium. We added more crafts and hands-on activities geared towards younger citizens. A food truck was present during the event and we had talks every fifteen minutes in the

auditorium by various vendors. We collaborated with the York County Library, Parks and Recreation, Public Works Outreach Coordinator, and York County/City of Poquoson Virginia Cooperative Extension. Non-York County vendors also in attendance were Old Dominion University Tick Team, Colonial Beekeepers, Master Naturalist, Master Gardeners, Butterfly Society, and Virginia Cooperative Extension 4-H Club.

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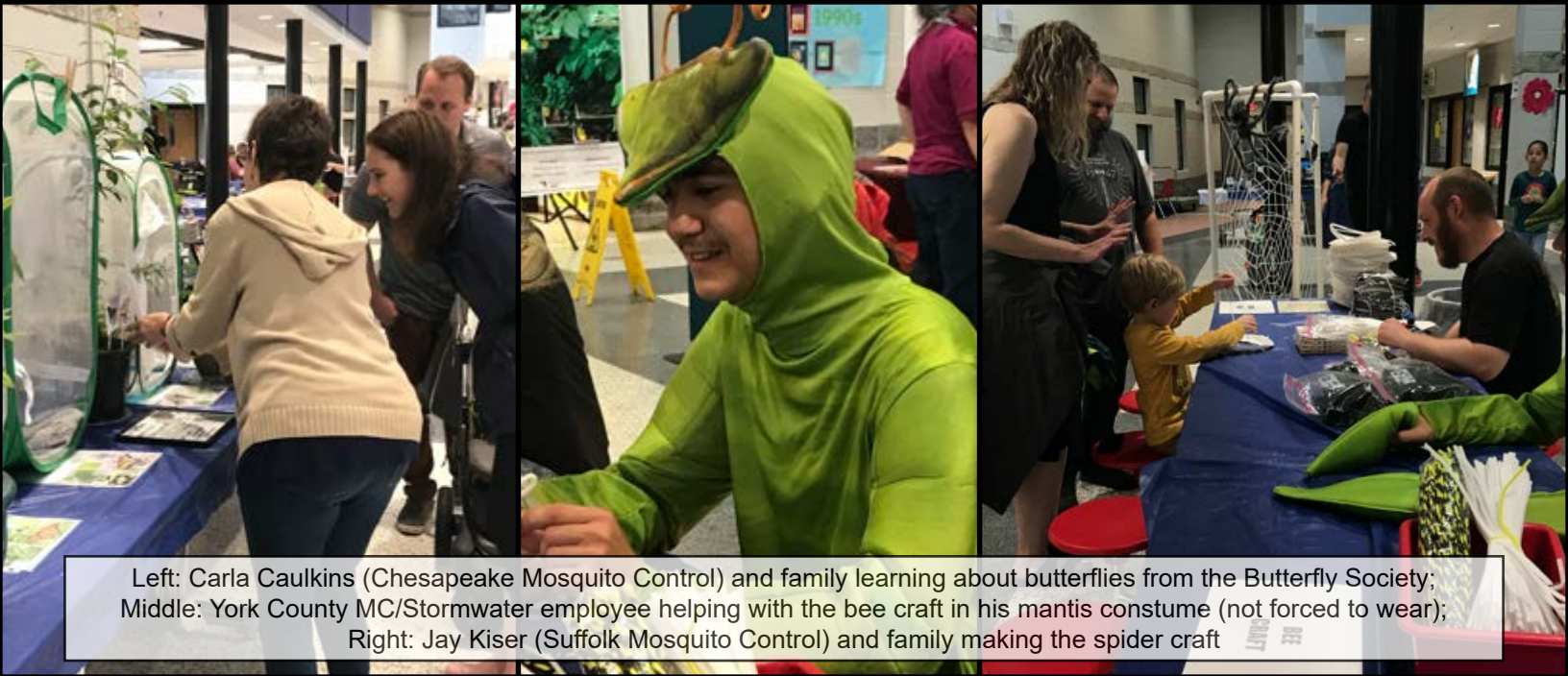


York County Mosquito Control handmade bald-faced hornet display with cool moth species



Touch-a-bug booth with Betsy Hodson showing kids a Madagascar hissing cockroach

BUG FEST CONTINUED



Left: Carla Caulkins (Chesapeake Mosquito Control) and family learning about butterflies from the Butterfly Society;
 Middle: York County MC/Stormwater employee helping with the bee craft in his mantis costume (not forced to wear);
 Right: Jay Kiser (Suffolk Mosquito Control) and family making the spider craft

It is important for us to hold this event to create relationships with these other organizations so they also understand what we do better. Due to that, we do not have the bad stigma that comes with mosquito control and they spread the word about us during their other outreach events.

Despite starting the day off with a rainy morning, we had the best turnout to date.

It is estimated 500-600 families attended and 82 out of the 83 exit surveys had excellent feedback. We are already thinking about improvements for next year and greatly appreciate seeing our colleagues from other cities visit our big outreach event.

Submitted by Janice Pulver

MERCHANDISE COMMITTEE REPORT

Merchandise sales are not just an annual conference event, items can be bought any time of the year. Items can be shipped, delivered, or picked up; we are happy to work out the best arrangement. Please contact [Penny Smelser](#) if you are interested in making a purchase. The [VMCA website](#) shows all our current inventory. The designs found on our merchandise are frequently created by our own members and we are always looking for new and exciting designs. **If you have artwork you would like to share with the VMCA, please submit it and you may find your design on the next VMCA t-shirt.** If you would like to take part in choosing the products for the next conference, please join the merchandise committee or simply send in your suggestions; we want to sell the things you want to buy!

Submitted by Merchandise Committee Chair Penelope Smelser

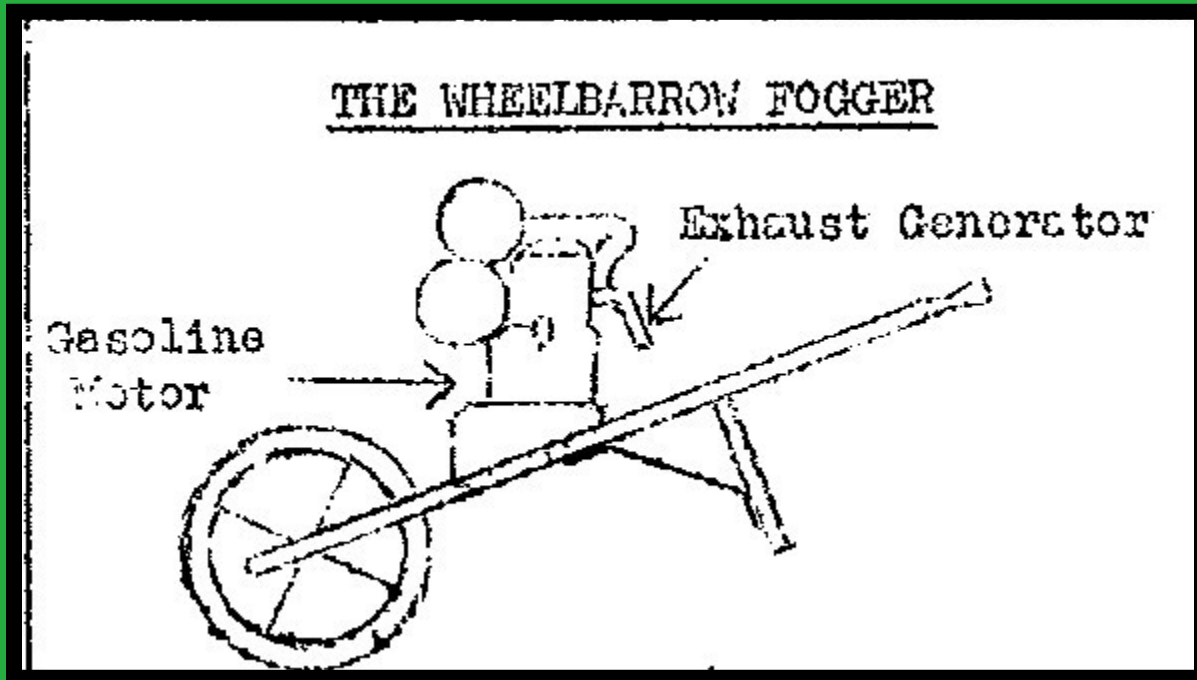


HISTORICAL COMMITTEE FLASHBACK

"The Wheelbarrow Fogger"

March 1948

"Last summer some experiments were made with a small gasoline combustion engine equipped with an exhaust generator and mounted on a wheelbarrow chassis.



This provided a small portable rig which could be used around gardens and backyards where it is impracticable to drive a motor vehicle. The first results proved so successful that the Virginia Beach Commission and the Norfolk City Commission are planning to build these units for use this summer. We will all be awaiting the results obtained from a summer operation, and it may be that the conclusions derived will make this simple equipment a "must" for all mosquito control districts in Virginia in the future."

Submitted by Carla Caulkins, Historical Committee

**Quick
Tip!**

Using hot water to kill larvae can make morphological ID much easier; however, water that is too hot can be counterproductive and damage specimens, resulting in discoloration and ruptured membranes. Use a thermometer and shoot for the sweet spot of 140°F. If preserving specimens, submerge for no more than 30 seconds, then carefully transfer to 80% ethanol solution. Learn to ID and preserve larvae by attending the upcoming Larval ID Class (hopefully in 2023).



Photography by Kaitlyn Price

HAMPTON ROADS SENTINEL CHICKEN ROUNDUP



Virginia Beach Biology Department take blood samples

The 2022 Hampton Roads Sentinel Chicken Roundup took place on May 16th at Fresh Start Farm in Gloucester, VA, a different location than years past. The weather held out and was perfect for rounding up approximately 50 Golden Comet chickens for Chesapeake and Virginia Beach Mosquito Controls. **Mosquito control utilizes sentinel chickens at various locations around the city as an indicator of the presence of West Nile virus and eastern equine encephalitis virus.** Upon pickup from the farm, a baseline blood sample is taken to confirm no presence of the viruses in the chickens, and then they are transported to their summer vacation homes. They are housed outside which exposes them to mosquitoes in order to determine the presence of the viruses in the area. If infected, they have the capability to produce antibodies, meaning they are not harmed by these viruses. Blood samples are taken weekly and sent to the Virginia Division of Consolidated Laboratory Services in Richmond, VA. Should a chicken test positive, they are replaced with a new chicken, and the infected one will go to a non-profit chicken sanctuary. At the end of the mosquito season, all of the chickens will be donated to a non-profit chicken sanctuary to live out their days.

Submitted by Kaitlyn Price



L and R: Chesapeake Biology Department take blood samples
Middle: chickens wander the grounds before being rounded up by the two cities

WHAT'S THAT ANSWER - THE BUG BOX

As mosquito abatement professionals, we know that integrated mosquito management is most efficient when residents within our regions electively join in the fight. This means that part of our job should include new and innovative ways to create a personal sense of responsibility among those we serve. **There is no better way to accomplish this than through engaging outreach and education opportunities and capabilities.**

For years, Henrico County Standing Water Initiative has been searching for interesting and economically compliant ways to increase resident investment and participation in our attempts to control obnoxious and disease vectoring mosquitoes alike. **In our experience, nothing generates conversations and questions more than hands-on learning opportunities.** What is great about these learning sessions is that they can be as complex or as simple as time and the audience allows. One of our favorite methods of outreach is the facilitation of a "touch table" which is frequently composed of insect specimens, trap equipment, microscopes, viewing chambers, and interactive games for varying age levels. The issue with this type of approach is that mosquito specimens are fragile, and while pinning, pointing, and submersion are effective they do not allow for easy magnification or quick and non-destructive handling by those who attend our booths.

Recently we have found a simple and inexpensive solution to this issue:

The Bug Box



Bug Boxes are small clear plastic cubes that feature magnification circles on top for safe viewing of live or deceased insects. These little boxes come in a variety of sizes and while they may be nonreceptive to live adult mosquitoes, they are perfect for live larvae and pupae. They also easily accommodate dead specimens from three of the four metamorphic stages. While egg details would require greater magnification, these cubes could potentially provide a suitable introduction to clusters, rafts, and other egg types as well. The two magnification levels Henrico has experimented with are boxes that measure 1.5" x 1.5" x 1.5" at 3x magnification and 1" x 1" x 7/8" at 4x magnification. Currently these miniature display cubes can readily be found at [Forestry Suppliers](#) in single, dozen, and two dozen counts.

Again, as we continuously seek new means of increasing student and resident participation in our outreach events, **these little boxes provide us with the capability to allow observers of all ages to safely and securely handle our specimens** with little fear of damaging our collection or more expensive equipment. So, in the future, if searching for a quick and easy way to increase specimen distribution and observation at events, these cubes should be considered as they have proved to be extremely resilient and useful.

Submitted by Wes Robertson

NEW COMMITTEE: CURATIONS & PRESERVATION



Insect collections in the National Museum of National History.
I know we will never have collections like this, but one can dream.

The VMCA Board feels it is time for the association to have its own collection of mosquito specimens.

Over the next few years, the new Curations and Preservation Committee would like to make this happen.

There are several different types of collections that the committee would like to gather and maintain:

1. ID course collections (statewide or regional)

- Adults – maintaining up to 25-50 fresh (under 2 years old) specimens of as many VA species as possible
- 4th instar larvae – maintaining up to 25-50 fresh (under 5-10 years old) specimens of as many VA species as possible.

2. Collection of mosquito photos (by species)

- Photos of specimens will be taken and displayed on the VMCA website.
 - Key morphological characteristics will be photographed.

3. Collections/displays for outreach events

- Creating permanent displays; encasing specimens in resin, making permanent slides, or other ideas.
 - Displays can be loaned out to VA jurisdictions or teach them how to create their own.

4. Collecting/maintaining scientific collections

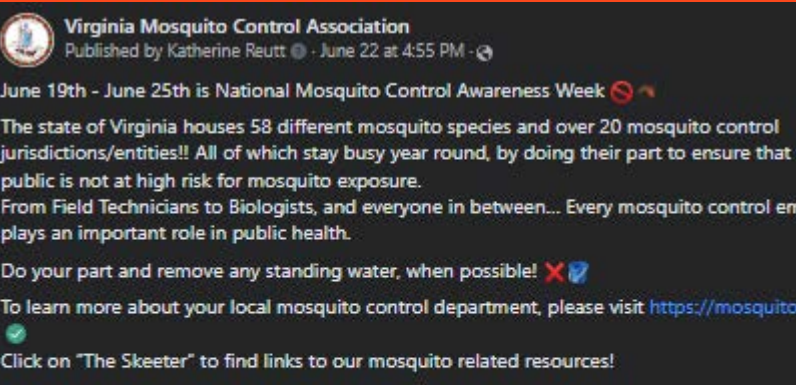
- Specimens will be pinned, labeled, and stored in a technical manner.
 - Collections could be done in collaboration with other groups.

If anyone is interested in joining this committee, please email Jay Kiser, jkiser@suffolkva.us.

It seems like a lot of work, but with a good committee we can divide and conquer.

Submitted by Curations & Preservation Committee Chair Jay Kiser

CHECK US OUT ON SOCIAL MEDIA



Stay updated on vector control-related events, current mosquito topics, and plenty of educational/informational tools!

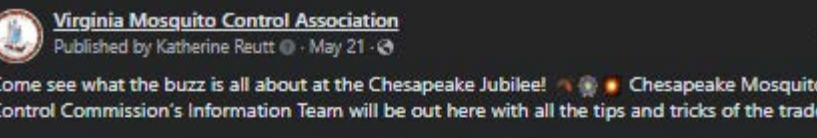
LET'S GET SOCIAL

Like our Facebook page,
Virginia Mosquito Control Association
& follow us on Instagram, @viriniamosquitocontrol



CONNECT WITH US!

This is what your favorite mosquito says about you



Shout-out to our social media team leaders, **Katherine Reutt & Kaitlyn Price!** Go check out all their hard work!



FOLLOW. LIKE. SHARE. REPEAT

UNFAMILIAR FACES IN FAMILIAR PLACES

Finding *Aedes atropalpus* in Boat Covers



Aedes atropalpus was found for the first time in Portsmouth during the summer of 2020 in a bucket filled with rocks and water on Public Works property. A larval sample was taken, and the bucket was promptly dumped. Immediately after this discovery was made, the same bucket and rocks were placed behind the mosquito control storage building in hopes of encouraging *Ae. atropalpus* breeding, but was unsuccessful.

Aedes atropalpus is commonly known as the rock pool mosquito because they typically breed in water-filled cavities of exposed rock. The distribution of this mosquito is mainly the eastern half of the United States and southeastern Canada but the species is generally restricted to areas bordering bodies of water with rock pools. Though container-breeding is atypical for *Ae. atropalpus*, it is the norm in New Jersey where they are seldom found breeding in rock pools.

There is evidence that suggests the species has adapted to container-breeding in New Jersey and it is possible this has occurred elsewhere. Mosquitoes have been known to breed in areas outside of their typical breeding habitat if factors that prevent them from doing so are present. Some studies suggest that a recent influx of the invasive species *Aedes japonicus* has forced *Ae. atropalpus* to adapt to container-breeding in New Jersey due to competition for breeding habitats.

On May 31, 2022 Portsmouth Mosquito Control technicians were doing routine larval checks on the Public Works property when they noticed that a boat cover next to the mosquito control storage building was breeding larvae. The sample was taken back to the lab and placed in a rearing chamber, and the boat cover was treated. After a few days, the larvae emerged into adult mosquitoes. At first glance, this mosquito could be confused with *Aedes canadensis*, which is the only other *Aedes* mosquito with cross-joint leg banding. They were quickly ruled out as *Ae. canadensis* because the abdominal banding on the specimen was not consistent with this species. The mosquitoes were confirmed to be *Ae. atropalpus* using a dichotomous key.



Portsmouth Mosquito Control staff attempted to breed *Ae. atropalpus* for over two years in a rock pool without success, yet it was discovered breeding in a boat cover in the same location. This could be because of larval competition, but no breeding has occurred in the bucket since it was placed behind the chemical building. Research will be necessary to explore this hypothesis. Nevertheless, Portsmouth Mosquito Control will continue to thoroughly monitor the Operations complex for more *Ae. atropalpus*.

References: <https://vectorbio.rutgers.edu/outreach/species/atro.htm>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2652682/>

Submitted by Addison Weddle

SUFFOLK FARM DAYS



Kids learn about dairy farmers



Junior Harrell SMC Technician & Ann Herring SMC Crew Leader teach kids about the mosquito life cycle

Each year Suffolk Mosquito Control participates in Farm Days. This is an event that is organized by the Peanut Soil and Water Conservation District (Peanut SWCD) and held at the Virginia Tech Tidewater Agricultural Research and Extension Center in the Holland community of Suffolk, VA. Through this event, each and every second grade class in the city of Suffolk gets an opportunity to see and experience farm life. Due to the Covid-19 pandemic and the schools being taught through virtual learning, when the schools opened up to kids again, there were not field trips happening. So the Peanut SWCD organized a 3-day event for May 3-5, 2022 that invited all the second grade classes from Isle of Wight County, Surry County, and City of Suffolk to come out and visit Indika Farms in Windsor, VA.

continued next page

Quick Tip!

Beware of Poisonous Plants

The phrase "Leaves of 3, let it be; leaves of 5 let it thrive" does not always jibe. Nonetheless, it is a memorable reminder to watch for poison ivy, poison oak, and poison sumac; all 3 of which we have in Virginia according to the CDC/USDA. These plants can cause a significant allergic reaction through dermal contact or inhalation of burning plant material. Be on the lookout for these plants during fieldwork, at your trap sites, during home inspections, larval checks, etc.

More information [here](#).

SUFFOLK FARM DAYS CONTINUED

There the kids were able to learn

- » how to milk a cow
- » how to pick strawberries
- » about the water shed
- » what trash and pollution does to waterways and oceans
- » about the planting of cotton and how it is made into clothing
- » bees and their importance to fruits and vegetables
- » how our food is grown along with the harvesting that takes place to get it from the fields to the table.



The children got to see and even touch some chickens, pigs, donkeys, and a cow. Suffolk Mosquito Control (SMC) was there to give information on the life cycle of mosquitoes, how to tip and toss items that could breed



mosquitoes, and how to stay safe from mosquito bites when outside (Top right: Alex Riley, SMC Technician; Bottom left: Charles Abadam, SMC Superintendent)



There were lots of other displays and booths with all kinds of information. They even got to see all kinds of farm equipment too. It was a long 3 days with around 1500 second graders in attendance but we all had a good time.

Submitted by Ann Herring

SAVE THE DATE!
NEXT VMCA ANNUAL CONFERENCE

Virginia
Mosquito Control Association
 Founded 1947



FEBRUARY 14-16, 2023
Hilton
Virginia Beach
Oceanfront

VIRGINIA MOSQUITO CONTROL JURISDICTIONS & OTHER RESOURCES

Virginia mosquito control jurisdictions

- [Alexandria Health Department](#)
- [Boykins, Town of](#)
- [Chesapeake Mosquito Control Commission](#)
- [Chincoteague Mosquito Control](#)
- [Fairfax County Health Department](#)
- [Gloucester County Mosquito Control](#)
- [Hampton Environmental Services](#)
- [Henrico County](#)
- [Joint Base Langley-Eustis](#)
- [Newport News Vector Control](#)
- [Norfolk Vector Control](#)
- [Poquoson Mosquito and Drainage](#)
- [Portsmouth Mosquito Control](#)
- [Prince William County Mosquito & Forest Pest Management](#)
- [Suffolk Mosquito Control](#)
- [Virginia Beach Mosquito Control](#)
- [Williamsburg Public Works](#)
- [York County Mosquito Control](#)

Neighboring, regional, & national mosquito control organizations

- [American Mosquito Control Association](#)
- [Mid-Atlantic Mosquito Control Association](#)
- [Delaware Department of Natural Resources and Environmental Control](#)
- [Maryland Department of Agriculture](#)
- [New Jersey Mosquito Control Association](#)
- [North Carolina Mosquito and Vector Control Association](#)
- [Northeastern Mosquito Control Association](#)
- [South Carolina Mosquito Control Association](#)
- [Georgia Mosquito Control Association](#)
- [Florida Mosquito Control Association](#)

Other resources

- [Virginia Department of Health](#)
- [Centers for Disease Control & Prevention](#)
- [Fairfax County Education and Outreach Materials](#)
- [Northeast Regional Center for Excellence in Vector-borne Diseases](#)
- [VMCA Employment Opportunities](#)
- [AMCA Career Center](#)

**Know of another jurisdiction or resource to add?
Please submit them to the [Editor](#).**

SUBMISSIONS WANTED!

Do you have photos of mosquitoes or other insects?

Do you have information you'd like to share with membership?



The Information Committee is always on the hunt for organizational updates, operational news, experimental findings, education/outreach activities, pictures, stories...even the bloopers! If you have anything remotely vector-related and are willing to share it in an upcoming newsletter or on Facebook/Instagram, please send it in!! You can email *The Skeeter* Editor, Karen Akaratovic at kakaratovic@suffolkva.us or [submit online](#).

2022 SUSTAINING MEMBERS

The VMCA gratefully acknowledges the support of the following sustaining members for 2022. Without their generous contributions, much of what we do would not be possible. Please do not hesitate to contact them. They are here to help you!



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Student Competition	Jay Kiser	Karen Akaratovic, Alex Cumbie, Ann Herring, Ryan Levering, Kaitlyn Price, George Wojcik
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Website	Karen Akaratovic	Alexandra Cumbie

Take the time to volunteer on a committee! An active membership makes for a stronger organization. Contact the chairperson of any committee that interests you or any member of the [VMCA Executive Board](#) to participate. Read about the committees in the [VMCA Book of Guidelines](#).

2022 VMCA EXECUTIVE BOARD

THE SKEETER

OFFICIAL NEWSLETTER
OF THE
[VIRGINIA MOSQUITO
CONTROL ASSOCIATION](#)

Skeeter Production Team

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**EDITORIAL REVIEW
VMCA Executive Board**

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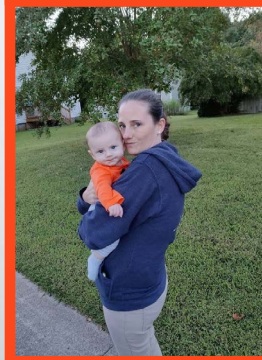
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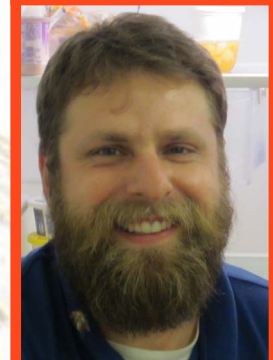
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The Skeeter is the official publication of the Virginia Mosquito Control Association. The VMCA membership is encouraged to submit articles, reviews, photography, and any other interesting facts or tidbits for publication. Submissions can be sent to Karen Akaratovic: kakaratovic@suffolkva.us

