



The Official newsletter for the North Carolina Mosquito & Vector Control Association



PRESIDENT'S MESSAGE

Neill Cagle
NCMVCA President



Hello to all The Biting Times readers out there! My name is Neill Cagle and it is my honor to serve as the 58th President of the North Carolina Mosquito and Vector Control Association (NCMVCA). I am an Environmental Health Program Specialist for Transylvania County where my main job duties include On-Site Wastewater, On-Site Water, Pools, and a relatively new Vector Control Program. My work in vector control started in 2016 with the arrival of Zika in the US. It was at that time I attended my first NCMVCA Annual Conference. And can I say...Wow! I was blown away! The quality of the speakers, the presentations, and the thoughtful way in which the conference was arranged and carried out was inspiring. I have since been able to attend the conference every year. I am continually amazed by the commitment to excellence participating vector control programs, university partners, and the private sector have towards the ever-changing world of vector control.

I am excited to announce that we are returning to our original format for the 2023 NCMVCA Annual Conference, which will be held November 15th-17th at Carolina Beach. I hope everyone is making plans to attend. Our new Vice President, Dr. Avian White is working hard putting together a great list of presenters that will cover various engaging topics. There will be good

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North Carolina Mosquito and Vector Control Association

2023 NCMVCA Annual Conference November 15-17

**Courtyard Marriott in Carolina Beach
100 Charlotte Ave.
Carolina Beach, NC**

The NCMVCA is excited to be hosting our annual conference this year on November 15th - 17th at the Courtyard Marriott in Carolina Beach, NC. As part of this year's conference, we are having a Lightning Round entitled "Most Interesting Thing I have Seen in Vector Control." During this portion of the program, vector control personnel will give a short (~3 minute) presentation on the most interesting thing they have seen on the job. This could be an event from when you first started up until conference attendance. As an added bonus, the top 2 presenters will win a \$25 Amazon gift card. We would love to have you be a part of this. All you have to do is simply click on the link to let us know you would like to participate in this exciting event.

Lightning Round

Additionally, we want to know what questions you have in vector control. We will have a panel set up of experienced persons from different professions to help address questions or issues you currently see in vector control. Please submit your questions in the following link.

Panel Q&A

We look forward to hearing from you.

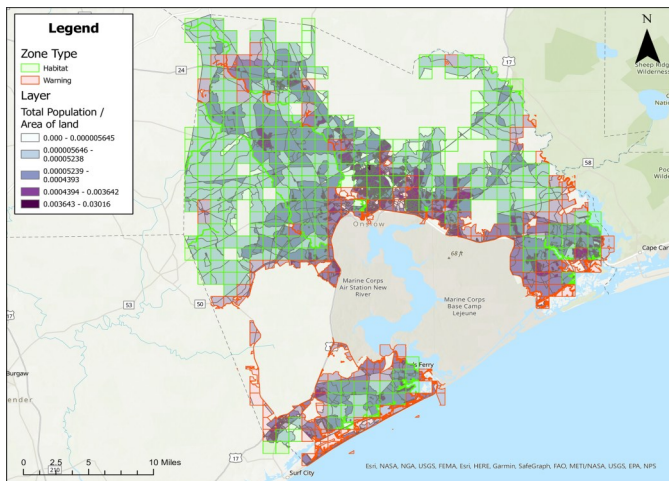
Registration link [here!](#)

Check the [website](#) for updates and additional information.

LEADING CONCEPTS:

LITERATURE PREVIEW

Geographic information system protocol for mapping areas targeted for mosquito control in North Carolina



Areas in Onslow County, North Carolina for treatment consideration classified as approved (green) or warning (red).

Andrew Mueller

Brunswick County Geographic Information Systems

Anthony Thomas

Brunswick County Geographic Information Systems

Jeffery Brown

Brunswick county Mosquito Control

Abram Young

Brunswick county Mosquito Control

Kim Smith

Columbus County Health Department

C. Roxanne Connelly, PhD, BCE

Centers for Disease Control and Prevention

Stephanie L. Richards, MSEH, PhD

East Carolina University

ABSTRACT

Geographic information systems (GIS) can be used to map mosquito larval and adult habitats and human populations at risk for mosquito exposure and possible arbovirus transmission. Along with traditional methods of surveillance-based targeted mosquito control, GIS can help simplify and target efforts during routine surveillance and post-disaster (e.g., hurricane-related flooding) to protect emergency workers and public health. A practical method for prioritizing areas for emergency mosquito control has been developed and is described here. North Carolina (NC) One Map was used to identify state-level data layers of interest based on human population distribution and mosquito habitat in Brunswick, Columbus, Onslow, and Robeson Counties in eastern NC. Relevant data layers were included to create mosquito control treatment areas for targeted control and an 18-step protocol for map development is discussed. This protocol is expected to help state, territorial, tribal, and/or local public health officials and associated mosquito control programs efficiently create treatment area maps to improve strategic planning in advance of a disaster. This protocol may be applied to any NC county and beyond, thereby increasing local disaster preparedness. operators who are familiar with treatment areas are an essential component of successful operations. Here, practical advice is provided to plan, prepare, and implement a successful ground- and aerial-based mosquito control response.



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The World Needs



Mosquito Control

Continued from p. 1

PRESIDENT'S MESSAGE

food and plenty of opportunities for networking with like minded people. If you need equipment, adulticides, or larvicides in your fight against mosquitoes and ticks there will be several vendors from the private sector on hand to answer questions and provide resources.

The NCMVCA Board is in the planning stage of creating a "Resources" tab, which will be located on the NCMVCA website. Within the Resources tab, there will be sub-tabs for education materials, a photo gallery, and helpful links. You will be able to download useful educational material, such as brochures, add your logo and information, print, and begin distributing. Currently, there are vector control programs that have engaging and effective education materials which they are willing to share, however, people outside their county, district, or municipality are unaware of such resources. We want to change this.

We have an amazing community of state and local government, university partners, and private sector folks, but unless you have been fortunate enough to attend one of the NCMVCA Annual Conferences, this community, and its resources, go largely unutilized. It is the vision of the NCMVCA Board to increase the accessibility of our community knowledge by pooling our resources and making them readily available to vector control programs in need. Often, getting started is the hardest step. We aim to make that first step easier. As plans get finalized in the coming months, be on the lookout for an email inviting vector control programs to share editable versions of their best education materials and photos. It is NCMVCA Board's desire that this project would be a collective effort, not just one or two programs, but many coming together to provide great resources for new and seasoned programs. The success of this effort will come down to one word...participation. I hope you will make plans to aid us in this project.

Thank you,

Neil O. Coffey REHS

GUESS THAT SKEETER!



By Michael Doyle, NC DHHS

I am a strikingly patterned black, white, and brown mosquito with an unusual life cycle. Some would say my name is, well, "agitating." I can be found as an adult in North Carolina from early April through the end of September, but peak most commonly from mid-April through mid-June.

I can fly far (5 miles) and am a vicious biter -- even penetrating clothing when needed. I lay my eggs on or near aquatic plants, then my offspring seemingly disappear. Dip all you wish, but you'll rarely catch me!

Who am I?

Answer on p. 9

Photo Credit: Sean McCann, Department of Biology, Simon Fraser University, Vancouver, BC, Canada.

NOMINATE YOUR COLLEAGUES TODAY

Hamilton W. Stevens Award

The Hamilton W. Stevens Award can be given annually to a person who, in the opinion of the Awards and Nominating Committee, has made a significant contribution to mosquito or vector control in North Carolina. This person must be a member in good standing of the Association and must be nominated by a member in good standing of the Association. Typically, this award is for an individual whose commitment goes beyond local endeavors. The recipient of this award generally has 360 degree mosquito and vector control vision and has demonstrated a willingness to provide statewide leadership and passion for the work. The passion for conscientious public health efforts and his/her love of their fellow man drive this recipient to practice mosquito and vector control.

William F. Strickhouser Award

Formally the Golden Dipper Award, the William F. Strickhouser Award may be awarded to up to three outstanding vector control operators or technicians (front line field workers). Ideally, the awards will be spread across the state. Nominees should show dedication and diligence “above and beyond the call of duty”, and have done something specific to demonstrate outstanding service to his or her vector control program.

Contact Dr. Brian Byrd (bdbyrd@wcu.edu; Chair of Awards and Nominating Committee) with nominations.

Awardees will be recognized at the upcoming NCMVCA educational conference in [Carolina Beach, NC, November 15-17, 2023](#)

Please consider serving the NCMVCA this next year as a Vice-President or other board member. The Vice President has the privilege and responsibility of organizing the annual meeting (with help from the NCMVCA Board) and, historically, is elected as President the following year. If you are looking to gain some executive leadership experience with a dedicated group of vector-control professionals, please consider self-nominating and contact Dr. Brian Byrd (bdbyrd@wcu.edu; Chair of Awards and Nominating Committee). Any member of the NCMVCA Board of Directors is happy to answer questions about the roles and responsibilities of the Vice President. Additional information may be found in the NCMVCA Constitution and the Manual of Procedures.



MEMBER SPOTLIGHT

Amanda Morrison

Tell us a little about yourself!

In May 2021 I graduated from ECU with a BS in Environmental Health, a BA in Geography, and a GIS certificate. I started my career at Wilson County Environmental Health in the food, lodging and institutions section in October of 2021. Currently, I am the NCMVCA secretary.

How did you get started in the mosquito control industry?

I was first introduced to the mosquito control industry the summer of my sophomore year at ECU, as I completed my internship with Mr. Gardner at Pitt County Environmental Health. During this time, I learned how to identify mosquitoes, set various different traps and egg cups. I continued working with mosquitoes as an undergraduate lab assistant for Dr. Richards at ECU during the following semester. I have continued working with Mr. Gardner from my current food, lodging, and institutions position to grow the mosquito program in Wilson County.

Where do you see yourself in 5 years?

In 5 years, I would like to be in a full-time vector control position in a government setting (preferably local). I look forward to remaining active in the mosquito/vector control industry even without such a position.

What is your favorite tool used for your job and why?

In my current position, my favorite tool is education. The inspections that I complete don't always overlap with vector control, however I always take the opportunity to educate owners/management of the establishments I inspect on why excess equipment or storage in outside areas should be removed, and how to limit breeding sites.

Global Mosquito Resistance Management

- A Virtual Summit -

In the face of vector-borne disease, global mosquito insecticide resistance poses a more subtle, but no less ominous threat. The tools we have are numbered and for many of them, their effectiveness is waning. How do those entities and individuals charged with protecting human potential harness the collective strength and knowledge of the Global Public Health community to combat the onset of resistance?

To find out, watch the Global Mosquito Resistance Management Virtual Summit that was held last year. The Virtual Summit included presentations by a distinguished list of international Public Health experts from government, academia, and industry, all working collectively with the objective of communicating ideas and strategies for resistance management in the battle against vector-borne disease. Highly focused on research, presentations included information on:

- types of resistance mechanisms
- current resistance trends from the US, Africa, Latin America, and Asia
- alternate vector control tools to combat resistance
- resistance management best practices
- recent field work from those battling with resistance in local mosquito populations

You can find the entire summit, as well as individual presentations, at the following address: <https://tinyurl.com/Global-Resistance-Summit-2022>



GUESS THAT SKEETER

By Michael Doyle, NC DHHS

My name is *Coquillettidia perturbans*, commonly known as the cattail mosquito !

I am a vicious biter and readily found in adult traps, but my larvae (and pupae) spend their life connected to cattails with a unique, saw-like siphon -- instead of the common tube-like siphon used by other larvae.



Fig. _ : A close relative to *Coquillettidia perturbans*, *Coquillettidia xanthogaster* larvae are shown in this image attached via modified siphon to cattail. Photo by S.L. Doggett.

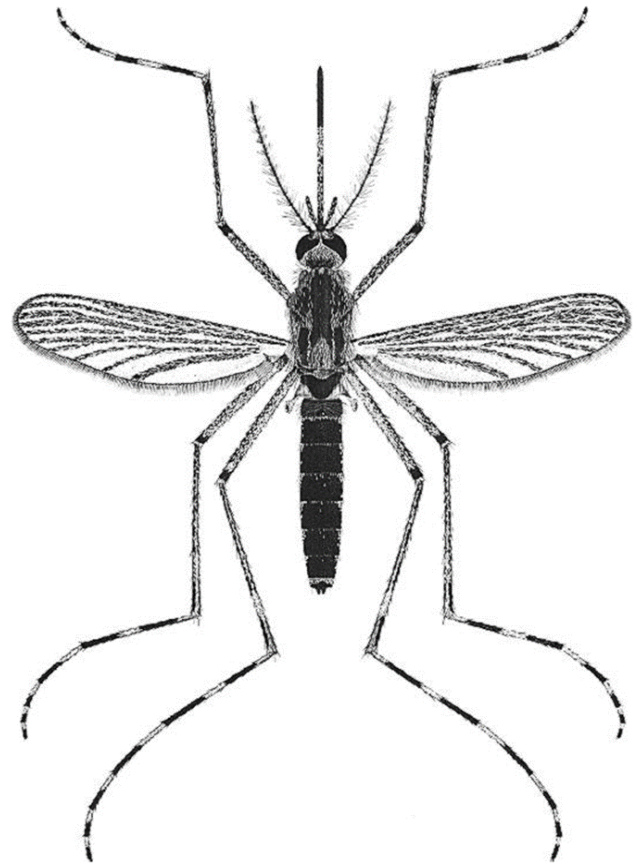
I am also capable of transmitting both West Nile virus and eastern equine encephalomyelitis virus (Darsie and Hutchinson 1990, CDC WNV 2015), I am not particular in what I feed on, reportedly a wide variety of wild and domestic birds and mammals, including chickens, quail, cattle, rabbits, armadillos, raccoons, opossums, and humans (Edman 1971).

My species name is very appropriate, meaning “to perturb or agitate.”

Over the last 5 years I’ve been collected in a wide variety of traps over a wide swath of North Carolina. Between 2017 and 2022 of the 27 counties that looked for me, I was found in 19 -- ranging from Haywood County in the west to Brunswick and Currituck Counties in the east. My fellow females were tricked most often by traps emitting carbon dioxide, with CDC light traps averaged 16, BG Sentinel traps 6, gravids traps 1, and New Jersey light traps 1 females per night. (Source: NCSurv, a sub-

set of [VectorSurv](#)).

I am difficult to kill as a larvae, so some say that adulticiding after large emergences is the only effective method to keep my at bay.



Drawing of *Coquillettidia perturbans*. Drawing by Carpenter and LaCasse, 1955 edition of *Mosquitoes of North America*.

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Contact:

Steve Molnar
Vector Control Sales Representative

Phone number: 470-432-3134
Email: steve.molnar@target-specialty.com

5785 Brook Hollow Pkwy, Ste. C
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Sapphirine Spiral, NK Godbey

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Editor-in-chief: N. Kyle Godbey

Contributors: Neill Cagle, Andrew Mueller, Anthony Thomas, Jeffrey Brown, Abram Young, Kim Smith, C. Roxanne Connelly, Stephanie L. Richards, Amanda Morrison, Michael Doyle, Brian D. Byrd

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Have something you'd like to share with the mosquito and vector control community?

Consider sharing it in



THE BITING TIMES

[Click here to contact the editor!](#)

NCMVCA SUSTAINING MEMBERS



ADAPCO
INNOVATIVE MOSQUITO SOLUTIONS
KODJ DISTRIBUTION GROUP

Joe Iburg
jiburg@myadapco.com

Kelly Deutsch
kdeutsch@central.com



Derek Wright
941-737-9883
DerekW@amvac.com

NCMVCA SUSTAINING MEMBERS



Sydney Brogden
sbrogden@clarke.com

Seth Egan
s.egan@codiagnostics.com



Chris Buitron
cbuitron@mainlinebrands.com

NCMVCA SUSTAINING MEMBERS



Steve Molnar
steve.molnar@target-specialty.com

Jim Andrews
James.andrews@valentbiosciences.com



Kris New
knew@vdc.net

