GMCA Annual Meeting Notes – 2025

15 Oct 25

Session 1

A. AMCA Washington Day Update – Natasha Agramonte
    a. One day of meetings
    b. Advocacy vs lobbying
        i. Raise awareness
        ii. Provide information
        iii. Not influencing vote (lobbying)
    c. Priorities
        i. ELC
        ii. SMASH Act/Kay Hagan Tick Act
        iii. Farm Bill support
        iv. Drones
        v. IPM
        vi. Others
    d. Message training
    e. Grassroots training
    f. Meetings & info drop off
B. GMCA Spring Workshop Wrap-up – Elmer Gray
    a. Griffin Campus
    b. Free workshop
        i. 90 people registered
        ii. 55 people attended
C. Assessment of Ornithophilic Mosquito Attraction to Bird-Scented Baited Traps – Nalany Richardson
    a. Target mosquito – *Culiseta melanura*
    b. Attraction is multi-modal
        i. Heat/moisture
        ii. CO2
        iii. Movement/color/contrast
        iv. Body odor/heat
        v. Taste
    c. Alternative surveillance tools
        i. Sentinel chickens
            1. Expensive

2. Animal use permits
3. Husbandry

ii. Bird scented traps

1. Design
    a. 3 sets of paired traps
    b. Baited with either pentene or bird odor attractant and CO2
        i. Blend a – whole chicken
        ii. Blend b – feather extract
2. Results
    a. Trends toward attraction to whole body odor
    b. Still analyzing data
3. Next steps
    a. Mist net passerine birds
    b. Collect whole body odor from birds
    c. Analyze chemicals and use for traps

D. History of Mosquito Control in Georgia – Rosmarie Kelly

E. Overwintering in Mosquitoes - Mike Riles

a. Biology of mosquitoes
    i. Eggs
    ii. Larvae
    iii. Pupae
    iv. Adults
b. Univoltine vs multivoltine
c. Habitats
d. “Overwintering” survival mechanism
    i. Dormancy
        1. Maternal pre-diapause stage
        2. Embryonic pre-diapause stage
        3. Obligate flood stage
        4. Obligate winter stage
        5. Temperature-dependent
    ii. Quiescence – an immediate response to environmental factors
        1. Non-seasonal
        2. Slowed metabolism
        3. Less complex than diapause
        4. Based on temperature and humidity
        5. Primarily observed in the egg stage

iii. Diapause – biologically controlled process based on environmental cues (innate)
1. Species specific ecological interactions
2. Biogeography
3. Life history
4. Physiological
5. Genetically determined
6. Mediated by neurohormones
7. Reactivating via external cues
    a. Photoperiod
    b. Gradual temperature change
8. 3 phases
    a. Preparation
    b. Development interruption
    c. Complete reactivation
9. Progressive

e. Cues for overwintering
i. Length of day
ii. Temperature
iii. Hormonal & physiological

F. Pesticide Resistance & Testing Methods – Katie Williams
a. Pesticide classes & modes of action
b. Larvicides (resistance can be found in products with residuality
i. Bacterial – very target specific
1. Bti – no resistance
2. Bs – resistance can occur
ii. JH – can develop resistance
iii. Spinosads – can develop resistance
c. Adulticides
i. Heritable change in sensitivity of a pest population
ii. Selection of resistance genes by continuous use of the same product
d. Types
i. Behavioral
ii. Penetration
e. 3 chemical modes of action in adulticides
i. Pyrethroids
ii. Organophosphate
iii. Avermectins

f. Monitoring insecticide resistance
    i. Bioassays – do not correlate with operational control
    ii. Testing – looking for mutation
    iii. Field trials
g. Using the data
    i. Rotate modes of action
    ii. Emphasize other control methods
    iii. Change decision points to reduce pesticide use

G. Responding to Locally Acquired Malaria: A Mosquito Population Surveillance Perspective – Natalie Barber
    a. Mid-May to mid-June
    b. 7 local cases of malaria
    c. Anopheles crucians
        i. 173 tested
        ii. 85 came back positive for *Plasmodium vivax*
    d. Found very few *Anopheles quadrimaculatus*
    e. Malaria parasites found in midgut
    f. Public communication is important but needs to be controlled
    g. Interdepartmental communication is equally important

H. Avoiding the Reappearance of New World Screwworms in the Southeast – Nancy Hinkle
    a. Screwworms pushed south to Panama where they strayed for 40 years using sterile male technique
    b. Larvae eat living tissue
    c. Devastating effect on wild animals
    d. Egg to adult in a week to 10 days
    e. Sterile male technique
        i. Males sterilized using radiation
        ii. Millions of sterilized males release by air
            1. Eradicated in southeast between 1957-1959
            2. Southwest 1962-1966
            3. Mexico by 1981
            4. Got to Panama by 1997-2001
    f. What happened? Politics
    g. Local issues
        i. 2016 – Florida Keys
            1. Outbreak in Florida key deer (endangered species)
            2. First time in 30 years screwworms were found in the US
            3. Used an insecticide application bait station to treat deer

ii. Texas, 1970s
    1. Cost to cattleman in excess of $300 million per year
    2. Georgia deer population would be heavily impacted
iii. 2025, Maryland – screwworms in travelers

h. Antibiotics have no effect on screwworm larvae
i. Pesticides are not the solution
j. Sterile insect technique works
k. Can be treated using ivermectine

16 Oct 25

Session 2

A. Emerging Tick-Borne Viruses – Arabella Terpin-Lewis
    a. TBDs have more than doubled in the past 13 years
    b. 13 newly discovered tick pathogens in the western hemisphere
    c. Viruses
        i. Heartland
            1. Bandavirus
            2. Lone star ticks
            3. Discovered in Georgia in 2009
        ii. Bourbon virus
            1. Togovirus
            2. Lone star ticks
            3. Not reported in Georgia…yet
    d. Lone star ticks
        i. Most common tick found attached to humans in Georgia
        ii. Active questers
        iii. 3 host tick
        iv. Heavily vegetated undergrowth
    e. Objectives
        i. Understand HRTV phylodynamices
        ii. Detect other viruses that may be present
        iii. Study sites
            1. Chattahoochee Bend State Park (HRTV found)
            2. Privately owned isolated strip of land (HRTV found)
            3. Piedmont National Wildlife Refuge
            4. Buck Shoals (ALT found)

f. Methods
    i. Collect by flagging
    ii. Wash off environmental contaminants
    iii. ID, sort, pool
    iv. Grind up ticks
    v. Test using RT-PCR
g. Results
    i. Bourbon virus found in privately owned strip of land in 2025
    ii. Found in larvae
    iii. Found in same geographic area
h. Future plans
    i. Blood meal analysis
    ii. Phylogenetic analysis

B. Fulton County Mosquito Control Overview – Caroline Efstathion
    a. Manager – Jennifer Riley
    b. VDCI (Rentokil/Terminix)
        i. Works with BOH
        ii. Larvicide distribution
        iii. Mosquito surveillance and testing
        iv. Mosquito control in response to positive mosquito pools
    c. Testing lab – Louisiana Animal Disease Diagnostic Lab
    d. Fulton County Response
        i. Catch basin
            1. Treatment with altosid xr
            2. 1400 catch basins treated in July
        ii. Developed informational packets in collaboration with the BOH
            1. Signs
            2. Door hangers
            3. QR Codes
            4. Door-to-door
        iii. Media events
        iv. Inspection & surveillance
            1. Larval and adult
                a. 26 locations
                    i. Gravid traps
                    ii. CDC traps
                b. Landing rates
            2. Service requests

a. Inspection
b. Documentation
c. Reported to BOH

v. Adult control in response to positive mosquito pools
1. Notify Dr Leftwich
2. Handed out pamphlets
3. Truck spray 2 consecutive nights with pyrethroids
4. Larvicide standing water
5. Surveillance and testing

C. Uncovering Interactions Between Invasive Wild Pigs and Vector Mosquitoes and Their Synergistic Threats to Humans and Other Animal Health – Mary Beard
a. Wild pigs (*Sus scrofa*)
i. Introduced in the 1500s
ii. Disruptive and invasive
iii. Pathogen reservoirs
1. Japanese encephalitis virus
a. Potential economic loss
b. $300 - $600 million per year
2. Other zoonotic viruses
iv. Wallowing behavior
b. Wallows are mosquito habitats
i. Pigs supply blood meal
ii. Pigs are amplifiers for mosquito-borne viruses
c. Critical impacts can occur
i. Feral pigs
ii. Culex quinquefasciatus
iii. Bird malaria
iv. Decline of native honey creepers in Hawaii
d. Mosquitoes of interest
i. *Anopheles* spp
ii. *Culex* spp
e. Goals
i. Mosquitoes using wallows
ii. Blood meal analysis
iii. Viruses in system
f. Methods
i. Sites
1. Pig barn

2. Wallows

ii. Collection
    1. CDC light traps
    2. Larval dippers
    3. Plan to add aspirators to collect adults

iii. Blood analysis

iv. RT-PCR for viruses

v. Concerns
    1. Spill over from feral pigs to domestic pigs
    2. Spill over into people
    3. Environmental destruction ($150,000 per year in damages)
    4. Viral spread to other animals

D. Georgia Vector Surveillance State Report, 2025 – Tiffany Nguyen
    a. Weird weather in 2025
    b. 10 counties testing mosquitoes with 5 reporting positives
    c. EEE in Fulton County
    d. Pesticide resistance testing is currently minimal due to funding shortfalls
        i. Developing pyrethroids resistance
        ii. Malathion and fenthion still working
    e. Tick surveillance
        i. Collaborative
        ii. Relies on interns
        iii. Summaries available
    f. MAMCA student scholarships

E. Assessing Behavioral Resistance to Targeted Insecticide Spraying in Acapulco in Mexico – David C Jimenez-Vallejo
    a. History
        i. 1940s DDT – resting habits critical to control
        ii. Persistence led to resistance
    b. Daily activity
        i. Resting
        ii. Early host-seeking
        iii. Blood feeding
        iv. Digestion
    c. Key determinant of physiology and survival
    d. Resting vs active stages
    e. Mosquitoes often rest closer to the ground
    f. Can be strain difference

g. Selective spraying
    i. Indoor application of pesticides
    ii. Spraying lower in the room increases control
h. Yucatán trial
    i. 50 clusters located in dengue area
    ii. 25 TIRs and 25 controls
    iii. Run for 3 years
i. Resistance testing
    i. How does behavioral resistance occur?
        1. Plasticity
        2. Short term change
        3. Genetic
    ii. Selective force changed in the houses, leaving unexposed areas higher up
    iii. If resting behavior traits are heritable, using TIRS may be in jeopardy
j. Hypothesis
    i. Behavioral resistance can develop in TIRS situation
    ii. Stratified collections
    iii. Random sample of 10% of houses
    iv. Collected in both control and treatment houses 2, 4, and 6 months after treatment
k. Results
    i. No significant difference in location of resting after spraying
    ii. Variation across clusters
    iii. No difference between control or treatment
    iv. Seeing a reduction in mosquito numbers
l. Conclusion
    i. Reject the null hypothesis
    ii. Why?
        1. Resting behavior traits not heritable
        2. Not enough time for change
        3. Change may be to resting outdoors instead of resting higher
        4. Other resistance mechanisms might be favored

F. INDUSTRY SPOTLIGHT
a. AMVAC – Derek Wright
    i. AMGUARD specialty group
    ii. Registrant, manufacturer/formulation, and steward of the products
    iii. Products
        1. Web sites kept up-to-date and accurate

2. All public health products
    a. Avesta
    b. Dibrom
    c. Nuvan pro strips
    d. Summit Bti
    e. Trumpet
3. Lots of data on website on efficacy testing

iv. Https://mosquitocontrolfacts.com
v. Modeling refinements for ULV spraying
vi. Closed system drum handling
vii. Drum return program
viii. Applicator spotlights

b. Clarke – Sydney Brogden (she is leaving the industry and will be missed)
    i. Call 800 number after Nov 14
    ii. Manager is aware of customer base

G. From Air to Ground: Aerial Application in IMM – Kevin Card
    a. Very challenging
    b. Role of aerial application in IMM
        i. Complements other control methods
        ii. Extends reach into inaccessible areas
        iii. Targets large areas
        iv. Surveillance driven
        v. Precision applications
    c. Aircraft
        i. Fixed wing
        ii. Rotary wing
        iii. Drones
    d. Control methods
        i. Adulticiding
            1. High- or low-pressure systems
            2. ULV spraying
        ii. Larviciding
            1. Liquid – open area
            2. Granular – heavy vegetation
            3. Wide area larviciding (WALS)
                a. Fly low over houses
                b. Requires special permissions
    e. Spray systems

i. Started with home-built systems
ii. Modified and improved
iii. Have to take into account the aircraft's capabilities

f. Spray nozzles
i. Rotary atomizers – electric and air driven
ii. Fan nozzles – generally used with high pressure systems

g. Other equipment
i. GPS
ii. Spray computer
1. Spray modeling
2. Weather
3. Flow controllers

h. Factor affecting efficacy
i. Release height
ii. Offset
iii. Chemical
iv. Terrain/landscape
v. Droplet size

i. Drift
i. Needed
ii. Must be managed
iii. Minimize deposition
iv. How droplets move
1. Aircraft wake effects
2. General atmospheric conditions
3. Sedimentation energy

16 Oct 25

Session 3

A. Developing Mosquito-Based Detection Methods for Invasive Brown Tree Snakes in Guam – Larry Reeves
a. Fauna
i. Coconut crabs
ii. Geckos
iii. Skinks
iv. Monitor lizard
v. Fruit bats

vi. Rail
    1. Extinct in the wild in the 1980s
    2. Reintroduced
vii. Kingfisher
    1. Extinct in wild since 1986
    2. Not reintroduced
viii. Other extinct bird species

b. Reason for extinctions
    i. Early 1950s, brown tree snake (mildly venomous colubrid) introduced
    ii. Island-wide by 1968
    iii. Extreme densities

c. Effort to remove/prevent spread of tree snakes
    i. Traps
    ii. Exclusion fences
    iii. Poison bait
        1. Stations
        2. Bait dropped by helicopter
    iv. Trained sniffer dogs
    v. Teams of biologists

d. Detecting brown tree snakes in new locations
    i. Environmental DNA
    ii. Mosquito blood meals
        1. Xenosurveillance
            a. Host species
            b. Pathogens
        2. Host presence

e. Project
    i. Collect resting blood fed mosquitoes
    ii. Preserve blood meal on a Whatman DNA card
    iii. Extract DNA
    iv. Blood meal analysis
        1. Serological
        2. PCR, etc
        3. Nex-gen approaches
    v. DNA barcoding

f. Goal – develop a mosquito blood meal-based method for detecting brown tree snakes
    i. Need to identify reptile-feeding mosquitoes

ii. Develop morphological ID keys
iii. Native mosquito species – 7
    1. Aedes
    2. Culex
iv. Many introduced species
    1. 16 established
    2. 5 detected but eliminated
    3. Reeves and Rudnick, 1951
v. Collected
    1. 14 species
    2. 12 species had blood meals (221 blood meals)
    3. 174 blood meals identified
vi. Results
    1. 4 species fed on reptiles
        a. *Aedes guamensis* appears to be a reptile specialist
        b. *Aedes oakleyi* fed on geckos and is likely a reptile specialist
        c. *Culex marianae* fed on birds and reptiles
    2. Many other mosquitoes fed primarily on domestic animals

B. In2Care, a Newer Approach in Mosquito Control – Kris Hamby (NA)
    a. What is in2care?
        i. Mosquito control station
        ii. Designed for large scale areas
        iii. Focus on container breeding *Aedes* spp and *Culex* spp
        iv. Can be used with other mosquito control treatments
        v. Uses egg-laying female to disperse IGR to cryptic breeding sites
            1. Larvicide – pyriproxyfen
            2. Adulticide – *Beauveria bassiana (fungus)*
    b. Traps should be serviced every 4-6 weeks
    c. Refill sachets have a shelf life and is temperature sensitive
    d. Case studies
        i. 10 stations per acre recommended
            1. Can be used to treat hot spots
            2. Number of stations can vary according to area use
        ii. Reduced dengue transmission in areas that could not be sprayed
        iii. Positive results in areas with insecticide-resistant mosquitoes
C. From Surveillance to Suppression: Glynn County's Integrated WNV Response Strategy – Samuel Harrod
    a. Prior to 2014 the county had its own program through Public Works

b. VDCI is a contractor
    i. Adulticide
        1. Truck
        2. Aerial
    ii. Larvicide
    iii. Surveillance
c. 2025
    i. 5 WNV+ pools
    ii. 4 sites
    iii. Response
        1. Increased surveillance
        2. Targeted larval control
        3. Adulticiding with alternating chemicals
        4. Population monitoring
    iv. Control proved to be very effective
    v. Now for the messy part
        1. New public works director
        2. New communications director
        3. Public Works posted info on social media
        4. Generated lots of angry calls from the public and lots of service requests
        5. GDA reached out to attend the aerial mission
    vi. Response
        1. Educational outreach
        2. Strengthen community awareness and preparedness
        3. Created a good working relationship with the new Public Works Director
        4. Showed off for GDA in a good way

D. Kissing Bugs at UGA: Georgia and Beyond – Kevin Vogel
a. Background
    i. Kills 12,000+ people annually
    ii. Treatment only effective in the early acute stages of the diseases
    iii. May be dormant for 15-20 years
    iv. Primarily a disease of Central and South America
    v. Vector
        1. Triatome kissing beds
            a. ~150 species worldwide
            b. Almost all in the Americas

2. Exclusively hematophagous
3. Only ~30 species are significant vectors
4. US locations
    a. Dog kennels
    b. Chicken houses
    c. Wood piles

b. Kissing bugs in the US
    i. Sylvatic reservoirs - 30-50% of bugs in US carry *T cruzi*
    ii. Some peridomestic species with evidence of feeding on humans
        1. 2 native Georgia species
        2. *Triatoma sanguisuga* is most commonly
    iii. 50% of raccoons and possums are infected and can transmit vertically to their offspring
    iv. Emerging Infectious Diseases, 3(9). Chagas Disease, an Endemic Disease in the US
    v. Transmission routes
        1. Fecal
        2. Blood meal
        3. Vertical
        4. Predation
    vi. Issues
        1. Do tests detect chagas strains in US
        2. Sylvatic species vs peridomestic species
        3. Most of the sylvatic transmission occurs via predation

c. Lab studies
    i. Obligate & exclusively hematophagous invertebrates require bacterial symbiotes
    ii. Environmentally acquired
    iii. Without the bacteria, the bugs do not develop
    iv. Without symbiont, bugs are sensitive to infection
        1. Symbiont protects the bug from other bacteria
        2. Bugs produce more immune cells

E. South Health District's Mosquito Surveillance Program – Austin Haney & Blake Lowery
    a. Health district
        i. 221 employees
        ii. EH staff
    b. GIA grant
        i. $300,000 for 2 years (2018-2020)

ii. Personnel
    1. 9 trapping full-time
    2. Manager
    3. 1 floater/logistics coordinator
iii. Initially contracted with VSU for ID and testing
iv. Trapped 9 district counties
    1. 2 nights a week
    2. 2 different locations per county
    3. Used gravid & light taps
v. Started from scratch

c. New funding
    i. $150,000 per year for 2 years
    ii. Couldn't afford VSU
    iii. Trained EH staff to ID mosquitoes
    iv. Used Vector Test for testing
    v. Starting using only gravid traps
d. Got an additional funding cut to $60,000
    i. Cut down to one night a week
    ii. Collected mosquitoes in all 10 counties in District
e. Mosquito ID
    i. In-person training by State
    ii. Trained 4 people
    iii. Tested mosquitoes using Vector Test WSE-K05
    iv. Tested *Culex* spp.
f. Data are submitted to State
g. Current state
    i. Funding is non-existent at the moment
    ii. Dated equipment needs repaired or replaced
    iii. However, since the program is entirely internal, it can be started up with limited problems

F. Mosquito IPM in a Zoo Environment – Dan Killingsworth
    a. Role of tech services is to optimize the treatment plan and deal with issues as they arise
    b. IPM
        i. Science-based sustainable decision-making process
        ii. Started in agricultural chemical use
        iii. Requires monitoring and adaptation
    c. IP3M takes into account the human element

d. Any environment can be a sensitive site
e. The zoo challenge
    i. WNV issue in flamingos
    ii. Developed a collaborative plan
        1. Surveillance
        2. Source reduction
        3. Educate staff
    iii. Zoos host diverse wildlife in a highly sensitive environment
    iv. Other pests
        1. Flies
        2. Ants
        3. Rodents
    v. Non-chemical strategies (build into workflow)
        1. Sanitation
        2. Exclusion
        3. Mechanical control
        4. Cultural practices
    vi. Track mosquito issues using QR Code
    vii. Training how to inspect and report
    viii. Using in2care traps
    ix. Chemical strategies
        1. Coordinate response
        2. Avoid very sensitive areas
        3. Use signs for information
    x. Take home message
        1. Coordinate
        2. Communicate

G. INDUSTRY SPOTLIGHT
    a. Central Life Sciences – Mike Riles
        i. Distribution partners
            1. Veseris
            2. Target Specialty Products
            3. Clarke - Fourstar
        ii. Products
            1. Altosid - many formulations
            2. Fourstar bacterial product (Bs/Bti) – 3 formulations
        iii. Zenivex (etophenprox) Adulticide – 3 formulations
        iv. Drones (Leading Edge)

1. Mapvision
2. Precision Vision
3. Drop Vision
4. Droplet software

b. Veseris – Scott Artman

H. POSTER SESSIONS
   a. Toxicological Effects of Nano- and Microplastics on *Aedes albopictus*
   b. Engaging Undergraduate Researchers in Mosquito Surveillance Activities

BANQUET – TALK ON MOSQUITOES BY LARRY REEVES

17 Oct 25

Session 4

a. Introduction of the New Entomology Department Head: Approaching Mosquito Control with Caution for Butterflies and Non-Target Insects – Sonia Altizer
   a. Studied moth and bee behavior in spreading mold to flowers
   b. Studied monarch butterfly protozoan
   c. Started at UGA in the Odum School of Ecology looking at disease ecology
      i. Community Science Project – Project Monarch Health
      ii. 20-year study
      iii. North American
      iv. 90,000+ samples
      v. People have changed the habitat to promote year-round breeding in the southern US leading to disease hotspots and loss of migration
   d. Focus on shaping future and creating partnerships
   e. Entomology Department
      i. 75 years of excellence
      ii. Expertise in medical entomology, urban entomology, and vector science
      iii. Extension and Outreach
      iv. The field of entomology is changing
   f. How can UGA partner with GMCA to meet community needs?
   g. Butterflies and pesticides
      i. Butterflies and native bees are declining across the US
      ii. Pyrethroids implicated
      iii. Other pesticides implicated include

a) Neonicitionoids
b) Organophosphate
c) Other broad-spectrum products

iv. Need to avoid spraying critical areas

h. Minimizing risks while protecting the health of people, animals, and food systems

B. Mosquito Service and Trends in the Structural Pest World – Billy Blasingame
   a. Been in pest control for 50 years; family in pest control for 75 years
   b. Commercial applicators got involved in mosquito control due to WNV
      i. County funding decreased so counties did less control
      ii. Opened a gap that commercial applicators filled
   c. Need to continue learning and changing
   d. Need to get commercial applicators involved
   e. Horace Olan "H. O." Lund: The founder and former head of the University of Georgia's (UGA) Department of Entomology is a prominent figure in the field of entomology in Georgia.
      i. While his primary work with the university's department was prior to the 1980s, his work laid the groundwork for the pest control industry in the state.
      ii. He was celebrated in the Congressional Record in November 1983 for his contributions to the field of entomology in Georgia.
      iii. University of Georgia (UGA) Department of Entomology:
         a. Under Lund's legacy, UGA continued to be a hub for pesticide and pest management research in the 1980s.
         b. The department is known for publishing the Georgia Pest Management Handbook, which contains pesticide and pest control recommendations.
   f. Need better training and regulation for mosquito control
      i. CAT 41 license started in the 2010 (https://www.gamosquito.org/resources/2012Meeting/Olsen.pdf)
      ii. Needs to be more stringent for both commercial and municipal applicators

C. Development of a Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) Assay for Detecting the Infective Stage of *Dirofilaria immitis* in Mosquitoes – Eric Chambers (VSU)
   a. Diagnostic tool
   b. Heartworm is a huge veterinary issue
      i. Primarily in dogs
      ii. Cats can have issues
      iii. Infect a number of other animals as well, including humans

c. Incidence keeps increasing in spite of availability of prophylaxis
d. At least 60 mosquito vectors in a number of genera
e. Determining presence of filarial worms in mosquito
    i. Dissection – tedious and slow
    ii. PCR – detects parasites but not if mosquito is able to transmit the parasite
    iii. Solution – develop a tool to detect only the L3 (infective) stage using RT-PCR
f. This approach has been used to develop assays for human filarial parasites
g. Used a bioinformatics approach
    i. Identified spline junction points
    ii. Need a primer to span an intron-exon junction, which will prevent amplification of any mosquito DNA and genomic DNA
    iii. Designed primers that only amplified L3 DNA and found one that worked
h. Time-course study done
    i. Tested against 2, 5-, 10-, 11-, and 14-days post blood meal
    ii. Need primer to only work at 14-day post blood meal
i. Can get cross reactivity to human filaria
j. Still need to determine sensitivity and sequence the PCR products
k. Next step – field screen product
l. Working to make VSU the biotechnology and genomics hub in South Georgia

D. Pesticide Regulations and Inspections – Nicholas Sumner
a. All non-structural applications
b. Laws
    i. FIFRA – 1947
        a. Administered by EPA
        b. The label is the law
    ii. Georgia
        a. Pesticide control act – 1976
        b. Regulates RUPs
c. EPA and the Endangered Species Act
    i. Court required EPA to come into compliance
    ii. Must work with other agencies
    iii. Final insecticides strategy released April 29, 2025
    iv. Look for label language changes
    v. https://www.epa.gov/endangered-species/bulletins-live-two-view-bulletins

d. Product Updates
    i. Malathion –
        a. Final review decision pending
        b. Special use for bed bugs in poultry houses
    ii. Methomyl –
        a. Fly control
        b. Reclassified as restricted use
e. Certification and training rules changes
    i. Federal rule revisions
    ii. Training for non-licensed applicators
f. Pesticide contractors
    i. Commercial - 995
    ii. CAT 41 – 1466
    iii. CAT 31 – 51
g. Record keeping – more is better
    i. GA Rule 40-21-5
    ii. Date & time
    iii. Applicator
    iv. Location & size of area
    v. Pesticide used and amount
    vi. Method of application
    vii. Weather & wind speed are good info to keep
    viii. Equipment logs can be helpful
h. Safety issues
    i. Storage
    ii. PPE
    iii. Label
    iv. Pesticide put into wrong container
i. Field watch mapping program
    i. drift watch
    ii. Beecheck
    iii. Fieldcheck
    iv. Cropcheck
    v. Seedfieldcheck
j. Complaint investigation
    i. Drift
    ii. Runoff
    iii. Poisoning

iv. Baiting
v. Unlicensed applicator
vi. Illegal sale/use/storage/disposal etc

k. Licensed individual is the responsible party

E. Operational Mosquito Control in DeKalb County – Natasha Agramonte
   a. WNV surveillance program
      i. Gravid traps
      ii. Dead birds – less of a focus now
      iii. Source reduction and larviciding
   b. All insect-related complaints, and rodents
   c. Focus on community education
   d. Follow up on complaints

F. Mosquito Pollination – Skyler Nichols
   a. Background
      i. Differences in sex and species may affect pollination efficiency
      ii. Mosquitoes have been found to have distinct responses to floral cues
      iii. Understanding these pollination patterns could lead to control opportunities
   b. Study species
      i. Anopheles, Aedes, and Culex species
      ii. Several plant types
   c. Bag flowers to prevent other exposures to pollinators
   d. Introduce mosquitoes
   e. Current results
      i. Females carrying double the number of pollen grains
      ii. Carry on legs, wings, and body
      iii. Probably related to body size
      iv. Different species show differences in amount pollen they carry
      v. Location of pollen differs between species
   f. Odor-based assays
      i. Dual portal
         a. Flower
         b. Flower stem
      ii. Mosquitoes seem to be more attracted to the flower
   g. Research is ongoing

Business Meeting

1. Need to nominate a 3rd and 2nd year directors as Bryan Boone needs to step down.
    a. Sam Harrod
    b. Nalany Richardson
    c. Shelby Toon
2. Sustaining member will remain Mike Riles

<u>2025-2026 Board</u>

President – Natasha Agramonte

Vice President – Dan Peach

1st year – Mindy Kruty-Crothers

2nd year – Sam Harrod

3rd year – Shelby Toon

Secretary/Treasurer – Misty McKanna

GA Cooperative Extension Rep – Elmer Gray

GA Public Health Rep – Rosmarie Kelly

Planning & Negotiations – Tiffany Nguyen

Sustaining Member – Mike Riles

Past President – Caroline Efstathion