

FLORIDA COORDINATING COUNCIL ON MOSQUITO CONTROL

MEETING MINUTES

MAY 18, 2021

Held via GoToMeeting due to Covid-19

MEETING OBJECTIVES

- ✦ To provide subcommittee reports.
- ✦ To provide Agency updates.
- ✦ To receive briefings and updates on current and pending issues: Zika, Dengue, Chikungunya, West Nile Virus, Keystone.
- ✦ To consider public comment.
- ✦ To consider Councilmember's comments and issues.
- ✦ To identify needed next steps, assignments, and agenda items for the next meeting.

COUNCIL MEMBERS PRESENT:

Amy Brown, Chair
James Clauson
David Cook
Randy Dominy
Rick Gleeson
Jorge Rey
Keith Singleton
Scott Schermerhorn
Gregg Walker
Mark Yanno

COUNCIL MEMBERS MISSING:

Ed Irby
Carina Blackmore
Ken Linthicum

Heath Rauschenberger

FDACS STAFF PRESENT:

Lisa L. Brown, FCCMC Coordinator
Jessica Ber
Marah Clark
Kimisha Davis
Caitlin Gill
Frieda Lamberg
Bruce Nicely

SUBCOMMITTEE MEMBERS PRESENT:

Ricardo Zambrano, Chair	Subcommittee on Imperiled Species
Ed Foley, Co-Chair	Subcommittee on Managed Marshes
Ron Brockmeyer, Co-Chair	Subcommittee on Managed Marshes
Doug Carlson	Former Chair, Research Selection Subcommittee
Peter Jiang	Research Selection Subcommittee

MEMBERS OF THE PUBLIC PRESENT:

Suzanne Bartlett	Gary Goode	Eric Justin	Teahna Ratliff
Julie Black	Susan Gosselin	Andrea Leal **	Christopher Reisinger
Richard Christoff	John Hamilton	Christopher Lesser	Adriane Rogers
Pam Davis	Kimberly Hayes	Keira Lucas	
Caroline Efstathion	Rebecca Heinig	Shannon Maginnis	
Sandra Fisher-Grainger	David Hoel	Whitney Qualls	

**** - PRESENTER**



Florida Department of Agriculture and Consumer Services

CALL TO ORDER

Amy Brown, Chair, opened the meeting at 10:03 a.m., and called roll of Council members. A quorum was present.

She reminded those calling in to MUTE their audio devices, and to email Lisa Brown so that she can get the attendee names correct in the minutes. And reminded any non-council member with matters to discuss or comments to make, please send in a CHAT or email Lisa Brown so that we can call on you at the appropriate time.

DOUG CARLSON RECOGNITION

Chair Brown then moved on to start the meeting by recognizing Doug Carlson's contributions to the Council and his long-time leadership of the Subcommittee on Managed Marshes (SOMM). Mr. Carlson is one of the original members of the Council and has been the Chair of SOMM since 1984. The Council and the Department greatly appreciate all he has done over the years. She virtually presented him with a certificate of appreciation for his work. She thanked him and hoped he will enjoy retirement.

Councilmember Rey reminded Mr. Carlson that he was the *second* chair of SOMM – that the first one only lasted a year – and thanked him for his longevity! Other council members also voiced their thanks for Mr. Carlson's years of service.

Mr. Carlson briefly spoke about his time with SOMM and said he would be available if anybody had questions or needed any guidance.

APPROVAL OF AGENDA AND PRIOR MEETING MINUTES

Chair Brown called for approval of the meeting agenda. Councilmember Rey offered the motion to approve the meeting agenda, which was seconded by Councilmember Yanno. Upon a call to vote, the motion was unanimously passed, and the agenda was accepted.

Chair Brown next asked if anyone had questions, comments, or revisions to the January 2021 Meeting Minutes. There were none. Councilmember Gleeson moved to accept the minutes, which was seconded by Councilmember Clauson. Upon a call to vote, the January 2021 Minutes were unanimously approved.

REVIEW OF ACTION ITEMS FROM JANUARY MEETING

Chair Brown then reviewed the status of the action items from the January meeting:

- o Environmental Interest Council member still pending: Recommendations for someone to represent Florida Environmental groups on the Council are still needed. It is a four-year term appointed by Commissioner Fried. If you know of someone that is interested, please email Marah Clark and Lisa Brown, who will assist with the requirements and procedures.
- o Are subcommittee members voted upon by Council? Marah Clark stated that her research into the matter shows that a subcommittee solicits nominations, reviews and internally votes on a new member. The subcommittee then submits its recommendation to the Council which votes to approve or decline the recommendation. She advised that the Council will be reviewing and voting on a recommendation later in the meeting. Additionally, this process will be included in the proposed revisions to FCCMC Organizational And Procedural Guidelines Adopted Council Policies (which has not been updated since 2009) to be discussed during Councilmember Comments.
- o Is a subcommittee chair approved by Council? Marah Clark advised that subcommittees vote for the chair without review or approval by the Council.
- o Multiple council members on subcommittee/Sunshine Law? This matter is still with the Office of General Council.

- o DOH/DEP MOU – Councilmembers Blackmore, Singleton, Walker: This will be discussed later in the meeting.
- o Revisions to Reviewer Document: This is still being worked on, and we hope to have it for the September meeting.
- o Can research grants be opened up to Mosquito Control Districts: Marah Clark advised that this requires an amendment to the line item in the appropriations bill. This could not occur for the 2021-2022 fiscal year. She advised that mosquito control programs should work with FMCA if they want to pursue this change. She stressed that the mosquito control programs **could** partner with state colleges/universities to submit research proposals.
- o Oxitec Update: Andrea Leal will give an update later in the meeting.

AGENCY UPDATE

Organizational Updates: Chair Brown advised that interviews for the vacant Environmental Specialist III position handling mosquito outreach in South Florida have begun.

Legislative and Budget: Chair Brown stated that the funding request was 2.66 million. There is \$387,389 for IFAS-FMEL. There is \$500,000 for Research projects. The budget was approved by Senate and House. The Governor has not been presented the budget; therefore, it is not final.

Councilmember Rey said that due to a glitch in this year's budget there were no changes to the FMEL appropriation. The University of Florida has taken over the funding for two of the FMEL positions funded by FDACS. And the final position will be taken over by UF in the near future. He said that next year's funding request will be changed accordingly.

Rulemaking: Marah Clark said she anticipates that rulemaking is going to restart this fall. Due to COVID-19, there will be some backtracking, as well as potential changes that have come about due to both social distancing and working remote, which will hopefully make the rule better. Increasing capacity of small mosquito control programs will also be included in the rulemaking.

Ms. Clark hopes to have workshops scheduled in the fall if at all possible.

SUBCOMMITTEE REPORTS

Subcommittee on Imperiled Species: The Subcommittee on Imperiled Species has recommended Dr. Steven Peper. Steven Peper as the replacement for Michael Hudon. Council members were provided Dr. Peper's CV to review prior to the meeting (*Attachment 1*). Chair Brown asked if there were any questions or discussion regarding Dr. Peper.

As there were none, she called for a motion to approve Dr. Peper's recommendation to serve on the Subcommittee on Imperiled Species. Councilmember Schermerhorn moved to accept the approval, which was seconded by Councilmember Cook. Upon a call to vote, Dr. Peper was unanimously approved.

Subcommittee on Managed Marshes: Co-Chair Ed Foley briefly discussed his report (*Attachment 2*). He then thanked Mr. Carlson for all his work on the subcommittee and for all the assistance he has given to him and his co-chair.

Research Selection Subcommittee: has not met since the last FCCMC meeting.

ISSUE BRIEFINGS AND UPDATES

CoAg Update: Marah Clark advised that FDACS is wrapping up the grant spending – the grant end June 30, 2021. The Department of Health and Department of Environmental Protection have successfully created a Memorandum of Agreement for tire amnesty, and she

thanked Gregg Walker for his assistance in facilitating the completion of the MOA. The SIT operational work conducted by UF/USDA/Anastasia Mosquito Control District is also wrapping up. All mosquito control programs have been encouraged to work with Dr. Buckner at FMEL to participate in the resistance study.

PFAS Update: Marah Clark began the update with Maryland reporting that Permanone 30-30 testing showed the presence of per- and polyfluoroalkyl substances (PFAS). The **containers** have been identified as the problem, not the pesticides. The containers are used in a wide range of products. Councilmember Dominy advised that there is a single point-of-contact at the EPA, whom he can contact or forward information to. Councilmember Yanno inquired about the mechanism of the PFAS leaching through the containers. Both Ms. Clark and Councilmember Dominy clarified that PFAS is leaching into the liquids in the container without any reaction to the product itself. It has been tested with alcohol which had similar levels of PFAS.

Ms. Clark said that she has asked the mosquito control programs to send any questions or comments to her which she compiles and sends to EPA.

Chair Brown provided an EPA website link for more information on PFAS:

<https://www.epa.gov/pesticides/pfas-packaging>

Arboviral Update: Next, Marah Clark gave the update. Thirteen (13) counties have had sentinel chickens test positive for Eastern equine encephalitis virus (EEEV).

There is currently one county under a Mosquito-borne Illness Alert, one county under a Mosquito-borne Illness Advisory, and potentially one more pending.

There were no further discussions.

Note: The Florida Department of Health's Florida Arbovirus Surveillance reports may be viewed at <http://www.floridahealth.gov/diseases-and-conditions/mosquito-borne-diseases/surveillance.html>

Florida Keys Mosquito Project Update: Andrea Leal gave a brief update. The project has just begun with release boxes placed in the Middle- and Lower Keys in late April. Emergence has been observed within the last week. Less than 12,000 mosquitos are expected to emerge each week. She anticipates 1000-3000 mosquitos per box to be released each week during the project. Ms. Leal said that there has been positive support received. In response to a question about release box tampering, she said there has been none thus far. A general location of the release boxes is given rather than the exact location. Since they are placed on private land trespass laws would apply. The boxes are locked and secure so she hopes that tampering will not occur.

Ms. Leal offered to give another update at the September meeting.

COUNCILMEMBER COMMENTS, ISSUES AND OTHER MATTERS

Chair Brown began this portion of the meeting by letting the Council know that an update to the FCCMC *Organizational And Procedural Guidelines Adopted Council Policies* is planned to begin in the very near future as it has not been updated since 2009. She asked Coordinator Lisa Brown to send out the current version and asked council members to email any suggested revisions to Lisa Brown.

The Chair explained that it will be a large undertaking and she hopes to have a preliminary draft ready by the September meeting.

Councilmember Yanno then let the Council know that he had been approached by a grant recipient who had an issue about the length of time to get her funding distributed. He asked if there was a way to speed up the process. Chair Brown said that she would let those working on it at FDACS know about the complaint.

There were no other issues brought up by council members.

GENERAL PUBLIC COMMENTS

There were no public comments.

FUTURE MEETINGS

Chair Brown had hoped that by September 2021 meeting the Council will be able to meet in person, but in an abundance of caution, that meeting will again be virtual. The proposed dates in September are the 14th and 28th. She asked for any conflicts or preferences. Several council members indicated a preference for the 28th, with the rest having no conflicts to either date at this time.

Chair Brown called for a motion to hold the next scheduled meeting virtually on September 28, 2021, via Go-To-Meeting. Councilmember Yanno so moved and was seconded by Councilmember Singleton. Upon a call to vote, the date of **September 28, 2021**, was unanimously approved.

Chair Brown hopes that 2022 will be the year we can get back to in-person meetings.

REVIEW OF THE MEETING'S ACTION ITEMS

Chair Brown reviewed the meeting's action items:

- ✓ Environmental Interest Council member nominations
- ✓ Council members on subcommittees/Sunshine Law? (M. Clark)
- ✓ Revisions to Reviewer Document (M. Clark/C. Gill/D. Kline)
- ✓ EPA's Webinar on Oxitec release? (R. Dominy)
- ✓ Send out the FCCMC *Organizational And Procedural Guidelines* (L. Brown)
- ✓ Inquire about length of time for grant recipients to receive funding? (A. Brown)
- ✓ Send D. Carlson's Certificate of Appreciation. (L. Brown)

ADJOURNMENT

With no further business to discuss, Chair Brown thanked the Council for its cooperation with the virtual meetings and called for a motion to adjourn. Councilmember Dominy so moved. The motion was seconded by Councilmember Clauson. Upon a call to vote, it was approved unanimously.

The meeting was adjourned at 11:11 am.

ATTACHMENTS

- 01 Dr. Steven Peper CV
- 02 SOMM Report

FCCMC MISSION STATEMENT

The mission of the Florida Coordinating Council on Mosquito Control is to provide assistance and recommendations to the Commissioner of Agriculture and the Florida Legislature in all matters related to public health pest control in the State of Florida. Areas of interest and concern would include providing guidance to, and enhancing communication between, the Department of Agriculture and Consumer Services and other appropriate agencies and interests; providing guidance to mosquito control programs and other arthropod control-related agencies to reduce duplication of efforts; maximizing efficient use of existing resources; implementing best management practices and available technology; evaluating arthropod control methods that both protect the public health and the State's natural environment; and to set priorities for research funded through Department grants.

STEVEN T. PEPER

C: 812-606-8931, W: 904-484-7336
P: steve_peper83@yahoo.com, W: speper@amcdfi.org

EDUCATION BACKGROUND

- MPH:** Currently enrolled (online program). Texas Tech University Health Science Center, Lubbock, TX. Advisor: Dr. Rubini Pasupathy. Current GPA: 4.000.
- PhD:** 2018. Environmental Toxicology. Vector-Borne and Zoonotic Diseases emphasis. Texas Tech University, Lubbock, Texas. *“Mosquito Surveillance and Tools to Aid in Intelligent Vector Management”* Advisor: Dr. Steven M. Presley. GPA: 3.926.
- MS:** 2012. Wildlife and Fisheries Biology. Frostburg State University, Frostburg, Maryland. *“Efficacy of vaccinating river otters (*Lontra canadensis*) and fishers (*Martes pennanti*) against canine distemper virus”* Advisor: Dr. Thomas L. Serfass. GPA: 3.875.
- BS:** 2009. Ecology, Wildlife, and Fisheries. Brigham Young University – Idaho, Rexburg, Idaho. GPA: 3.363.

PROFESSIONAL EXPERIENCE

Molecular Entomologist (March 2020-present). Anastasia Mosquito Control District of St. John's County. St. Augustine, FL.

- Screen mosquito populations for arboviral circulation in St. John's County
- Monitor sentinel chickens for antibodies against West Nile virus
- Monitor insecticide resistance in mosquito populations throughout St. John's County
- Assist with ongoing research projects at AMCD
- Apply for new research funding and develop research projects

Post-Doctoral Fellow/Senior Research Associate (2018-2020). Biological Threats Research and Vector-borne and Zoonoses Laboratory. Texas Tech University, Lubbock, TX.

Developed new research projects and applied for new funding opportunities:

- Evaluation of efficacy of current diagnostic protocols for mosquito-borne pathogens
 - Potential zoonotic transmission of *Neospora caninum* between wild pigs and cattle
 - Healthcare professional consideration of vector-borne diseases during differential diagnosis of sick patients
 - Understanding the effect that vector-borne diseases have on patients
 - Local outreach and educational program on mosquitoes and mosquito-borne diseases
 - State-wide evaluation of vector control capabilities
 - Conduct research in the bioterrorism response lab (BSL3) and assist with ongoing projects as an LRN lab technician
 - Certified to work with federal select agents
 - Federal Select Agent Program Security Risk Assessment (SRA) approved
- Manage ongoing research projects conducted in the Vector-borne zoonoses lab:
- Identification of *Brucella* spp. and *Francisella tularensis* infection in wild pigs
 - Seasonal screening for arboviral pathogens in local mosquito populations
 - Identification of new *Stegomyia* records in Texas counties

- Insecticide resistance in *Stegomyia* mosquitoes throughout the state of Texas
- Supervise graduate students and their research projects and prepare manuscripts for publication for completed projects

Graduate Research Assistant (2015-2018). Vector-Borne Zoonoses Laboratory, Texas Tech University, Lubbock, TX.

- Screened captive white-tailed deer for epizootic hemorrhagic disease (EHD) and efficacy of EHD vaccination
- Screened wild pig from southcentral Oklahoma for exposure to infectious pathogens including: *Brucella* spp. (brucellosis), *Francisella tularensis* (tularemia), *Trypanosoma cruzi* (Chagas Disease), pseudorabies, and porcine reproductive and respiratory syndrome
- Conducted DNA/RNA extraction, PCR, and run electrophoresis on wild pig tissue, bobwhite quail tissue, and mosquitoes for a variety of pathogens including: *Trypanosoma cruzi*, West Nile virus, Saint Louis Encephalitis, western equine encephalitis, Quail Cholera, New Castle disease
- Developed statistical models to predict mosquito abundance and probability of West Nile virus in Lubbock, Texas mosquitoes

Graduate Research Assistant (2013-2015). The Wildlife Toxicology Laboratory, Texas Tech University, Lubbock, TX.

- Captured wild Northern Bobwhite quail and equipped them with radio telemetry unit to determine survivability and reproductive success in the presence of parasitic (eyeworms and cecal worms) infections
- Identified parasitic eyeworm infections in taxidermy donated Lesser Prairie Chickens
- Surveyed deer corn for aflatoxin development and potential exposure to wild quail
- Evaluated the effect of long-term storage of supplemental deer corn on Aflatoxin development
- Evaluated neonicotinoid exposure to quail in the Rolling Plains of West Texas

Forest Biome Intern (2012). Indianapolis Zoo, Indianapolis, IN.

- Kept daily records of animal health
- Monitored and recorded vital signs during veterinary procedures
- Prepared and measured precise daily diets, prepared daily enrichment, and cleaned cages and exhibits for Alaskan brown bears, Amur tigers, Asian small-clawed otters, white-handed gibbons, red pandas, muntjacs, ring-tailed lemurs, crowned lemurs, red ruffed lemurs, collard lemurs, blue-eyed black lemurs, California sea lions, harbor seals, gray seals, and Pacific walrus'

Graduate Research Assistant (2010-2012). Frostburg State University, Frostburg, MD.

- Analyzed vaccination data from river otters and fishers against canine distemper virus
- Located river otter latrines in central Pennsylvania for comparison of longevity of latrine usage
- Conducted bridge surveys for presence/absence of river otters and beavers in western North Dakota
- Collected habitat measurements at latrine sites of river otters along rivers in eastern North Dakota for evaluation of habitat usage
- Located and collected river otter scats and processed them for parasite identification
- Set motion sensor cameras at river otter latrine sites
- Electro-shocked, marked, and measured sculpins

- Collected bass and pan fish, took measurements, and pumped the stomach for contents and analysis

Field Technician (2011). Appalachian Laboratory, University of Maryland, Frostburg, MD.

- Assisted with capturing bats in old railroad tunnels using harp traps for white-nose syndrome identification
- Recorded measurements: forearm size, weight, reproductive conditions, age, species, and wing score
- Collected fecal, skin and hair samples for DNA analysis
- Tagged Indiana bats with radio transmitters and followed movements for two weeks after tagging using radio telemetry

Research Intern (2008). Dr. Thomas Serfass, Frostburg State University, Frostburg, MD.

- Assisted graduate students with their thesis projects and field research in eastern North Dakota by setting up and collecting track plates and motion-sensor cameras, and confirmed the presence of fishers in that part of the state and determined the habitat that fishers were utilizing
- Conducted stream surveys, and located river otter latrine sites along various rivers in northeastern North Dakota to determine which stream systems were presently inhabited by river otters

Laboratory Animal Caretaker (2006-2007). University of Illinois, Champaign/Urbana, IL.

- Observed animal health and treatment of injured individuals on a daily basis
- Cared for the daily husbandry of animals used in university research such as: mice, rats, rabbits, snakes, xenopus frogs, zebra fish, and birds

Research Aid (2002-2003). University of Illinois, Champaign/Urbana, IL.

- Assisted with an ongoing research project involving metabolic changes during denning of adult black bears
- Performed venopunctures for collection of femoral vein blood, and catheterized bladders for urine collection from anesthetized adult black bears
- Checked vital signs while bears were anesthetized

Ranch Hand (1999-2000). Peper's Ostrich Ranch, Longmont, CO.

- Fed and cared for over 200 ostriches on a daily basis
- Cleaned pens and general maintenance

TEACHING EXPERIENCE

Guest Lecturer (2019-2020). Texas Tech University Health Science Center, School of Medicine, Lubbock, TX. Lecture on "Control of Arthropod Vectors and Pathogens Associated with Human Disease" for 4th year medical students in the elective class "Introduction to Tropical Medicine & Clinical Parasitology".

Laboratory Manager (2016-2020). Vector-borne and Zoonoses Laboratory, Department of Environmental Toxicology, Texas Tech University, Lubbock, Texas. Teach new graduate students/laboratory members the concepts, methodology, result analysis and interpretation of results of laboratory procedures such as: DNA/RNA extractions, PCR, ELISA, agglutination assays, CDC bottle bioassays,

Science, It's a Girls Thing (2016). Texas Tech University, Lubbock, Texas. Instructor and mentor for

a youth science Summer camp. Instructed students on basic scientific principles and conducted lab experiments with participants.

Shaking Hands with Your Future (2015). Texas Tech University, Lubbock, Texas. Instructor and mentor for a youth science Summer camp. Instructed students on basic scientific principles and conducted lab experiments with participants.

Graduate Teaching Assistant (2010-2012). Frostburg State University, Frostburg, MD. Taught two general biology lab courses per semester for undergraduate biology majors. Included lecture and lab experiments.

GRANTS AND RESEARCH SUPPORT

Current Extramural Funding

Department of Defense Deployed Warfighter Protection (DWFP) (2020-2023). **\$785,506.59**

Role: Co-investigator

Title: Establishing evidence-based action thresholds for *Aedes*, *Culex*, and *Anopheles* mosquitoes in different operational environments.

Objectives: Develop an evidence-based action threshold for use by the Department of Defense entomologists and pest managers to control mosquito species for deployed soldiers.

PEER REVIEWED PUBLICATIONS

Peper ST, Jones AC, Reinoso Webb C, Lacy M, Presley SM. Healthcare practitioner consideration of vector-borne and zoonotic diseases during initial differential diagnosis. *Southern Medical Journal* in Print.

Peper ST, Hoffarth A, Athanasiou K, Hawkins SL, Wilson-Fallon AN, Gibson A, Reinoso Webb C, Gaskamp JA, Webb SL, Haydett KM, Tiffin HS, Presley SM. *Brucella* spp. and *Francisella tularensis* from an invasive alien species (*Sus scrofa*) in the southcentral United States. *Ecosphere [Diseases Ecology Special Issue]* in Print.

Qualls WA, Xue RD, Farooq M, **Peper ST**, Aryaprema A, Blore K, Weaver R, Autry D, Talbalaghi A, Kenar J, Cermak SC, Zhu JJ. 2020. Evaluation of lotions of botanical-based repellents against *Aedes aegypti* (Diptera: Culicidae). *Journal of Medical Entomology* tjaa244. <https://doi.org/10.1093/jme/tjaa244>.

Tiffin HS, **Peper ST**, Wilson-Fallon AN, Haydett KM, Cao G, Presley SM. 2019. The influence of new surveillance data on predictive species distribution modeling of *Aedes aegypti* and *Aedes albopictus* in the United States. *Insects [Vectors and Vector-borne Diseases Special Issue]* 10:1-15. <https://doi.org/10.3390/insects10110400>.

Greenberg HS, Wilson-Fallon AN, **Peper ST**, Haydett KM, Presley SM. 2019. New records of *Aedes aegypti* and *Aedes albopictus* in eight Texas Counties, U.S.A. *Journal of Vector Ecology* 44:199-200. <https://doi.org/10.1111/jvec.12345>.

Peper ST, Dawson DE, Dacko N, Athanasiou K, Hunter J, Loko F, Almas S, Sorensen GE, Urban KN, Wilson-Fallon AN, Haydett KM, Greenberg HS, Gibson AG, Presley SM. 2018. Predictive modeling for West Nile virus and mosquito surveillance in Lubbock, Texas. *Journal of the American Mosquito Control Association* 34:18-24. <https://doi.org/10.2987/17-6714.1>.

- Peper ST**, Wilson-Fallon A, Haydett K, Greenberg H, Presley SM. 2017. First record of *Aedes aegypti* and *Aedes albopictus* in thirteen Panhandle region counties of Texas, USA. *Journal of Vector Ecology* 42:352-354. <http://doi.org/10.1111/jvec.12276>.
- Dunham NR, **Peper ST**, Downing C, Kendall RJ. 2017. Aflatoxin Contamination in Corn Sold for Wildlife Feed in Texas. *Ecotoxicology* 26:516-520. <http://dx.doi.org/10.1007/s10646-017-1782-7>.
- Kistler WM, Parlos JA, **Peper ST**, Dunham NR, Kendall RJ. 2016. A Quantitative PCR Protocol for Detection of *Oxyspirura petrowi* in Northern Bobwhites (*Colinus virginianus*). *PLoS ONE* 11(11):e0166309. (Pages 1-9) <http://dx.doi.org/10.1371/journal.pone.0166309>.
- Dunham NR, **Peper ST**, Downing C, Brake E, Rollins D, Kendall RJ. 2016. Infection levels of the eyeworm *Oxyspirura petrowi* and caecal worm *Aulonocephalus pennula* in the northern bobwhite and scaled quail from the Rolling Plains of Texas. *Journal of Helminthology* 91:569-577. <https://doi.org/10.1017/S0022149X16000663>.
- Turaga U, **Peper ST**, Dunham NR, Kumar N, Kistler W, Almas S, Presley SM, Kendall RJ. 2016. A survey of neonicotinoid use and potential exposure to Northern Bobwhites (*Colinus virginianus*) and Scaled Quail (*Callipepla squamata*) in the Rolling Plains of Texas and Oklahoma. *Journal of Environmental Toxicology & Chemistry* 35:1511-1515. <http://dx.doi.org/10.1002/etc.3305>.
- Peper, S.T.**, R.L. Peper, D.H. Mitcheltree, G.V. Kollias, R. P. Brooks, S.S. Stevens, and T.L. Serfass. 2016. Utility of two modified-live virus canine distemper vaccines in wild fishers (*Martes pennanti*). *Veterinary Quarterly* 36:197-202. <http://dx.doi.org/10.1080/01652176.2015.1114193>.
- Peper ST**, Peper RL, Mitcheltree DH, Kollias GV, Brooks RP, Stevens SS, Serfass TL. 2016. Low titers of canine distemper virus antibody in wild fishers (*Martes pennanti*). *Journal of Wildlife Diseases* 52:150-153. <http://dx.doi.org/10.7589/2015-05-108>.
- Dunham NR, **Peper ST**, Baxter CE, Kendall RJ. 2014. The Parasitic Eyeworm *Oxyspirura petrowi* as a Possible Cause of Decline in the Threatened Lesser Prairie-Chicken (*Tympanuchus pallidicinctus*). *PLoS ONE* 9(9):e108244. <http://dx.doi.org/10.1371/journal.pone.0108244>.
- Peper, S.T.**, R.L. Peper, G.V. Kollias, R.P. Brooks, S.S. Stevens, and T.L. Serfass. 2014. Efficacy of two canine distemper vaccines in wild Neartic river otters (*Lontra canadensis*). *Journal of Zoo and Wildlife Medicine* 45(3):520-526. <http://dx.doi.org/10.1638/2013-0145R1.1>

Books and Book Chapters

- Farooq M, Xue RD, **Peper ST**, Qualls WA. Chapter 4: Evaluating Techniques and Efficacy of Arthropod Repellents Against Ticks. In: *Advances in Arthropod Repellents*, 1st Edition. CRC Press. Under review.

Submitted or in preparation

- Xue RD, **Peper ST**, Muller GC. Practical control methods and new techniques for mosquito control. Book chapter in preparation.

Peper ST, Qualls WA, Xue R, Presley SM. Current Vector Control Capabilities Throughout the States of Florida and Texas and Their Public Health Consequences. In Preparation.

Peper ST et al. Evaluation of Flavivirus positive West Nile virus negative mosquito pools from Lubbock County, Texas. In Preparation.

Peper ST et al. Modeling the most abundant and medically important mosquito species in Lubbock, Texas. In Preparation.

Peper ST et al. Prevalence, epidemiological importance, and predictive modeling of human West Nile virus cases in Lubbock County, Texas. In Preparation.

Urban KN et al. Experimental infection of *Aedes albopictus* (Diptera: Culicidae) with Ilheus virus (Flaviviridae). In Preparation.

Wilson-Fallon AN, **Peper ST**, Rendon B, McConnel G, Tiffin HS, Haydett KM, Luna S, Presley SM. CDC bottle bioassay: time-mortality comparison between male and female *Aedes aegypti* and *Aedes albopictus*. In Preparation.

Wilson-Fallon AN, **Peper ST**, Rendon B, McConnel G, Tiffin HS, Haydett KM, Luna S, Presley SM. Insecticide resistance survey of *Aedes aegypti* and *Aedes albopictus* in Texas Counties. In Preparation.

Haydett KM, **Peper ST**, Reinoso Webb C, Presley SM. Comparative analysis of *Neospora caninum* in a wild pig (*Sus scrofa*) population in Oklahoma. In Preparation.

Non-peer reviewed publications

Peper, ST. 2018. AMCA's young professionals and the industry shadowing program: a review from a recent participant. Wing Beats 29:25-29.

Peper, S.T., and T.L. Serfass. 2015. Canine Distemper Virus in Wild Fishers. Martes Working Group Newsletter 21:24-25.

PRESENTATIONS

Invited presentations

Peper ST, Dawson DE, Sorensen GE, Hunter J, Loko F, Almas S, Urban KN, Athanasiou K, Wilson-Fallon AN, Haydett KM, Greenberg HS, Gibson AG, Presley SM. Comparison of Two Predictive Models: Flavivirus and West Nile Virus and Mosquito Surveillance in Lubbock, Texas. 7th International SOVE Congress, Palma of Mallorca, Balearic Islands, Spain. 1-6 October 2017.

Peper ST, Sorensen GE, Dawson DE, Hunter J, Loko F, Almas S, Athanasiou K, Gibson AG, Presley SM. Predictive Modeling for West Nile Virus and Mosquito Surveillance in Lubbock, Texas, United States. Society for Vector Ecology, 47th Annual Conference, Anchorage, AK, USA. 10-15 September 2016.

Oral and poster presentations as presenter

Peper ST, Presley SM. Texas: current vector control capabilities. Texas Mosquito Control

Association Annual Meeting, Waco, TX. 9-10 October 2019.

Peper ST, Presley SM. Consideration of vector-borne diseases in the medical community and lack of communication between vector control entities. Society for Vector Ecology, 49th Annual Conference, San Juan, Puerto Rico. 23-26 September 2019.

Peper ST, Jones AC, Lacy M, Presley SM. Vector-borne and zoonotic diseases: consideration given by local healthcare providers during initial diagnosis. American Mosquito Control Association, Orlando, FL. 25 February – 1 March 2019.

Peper ST, Dawson DE, Presley SM. Modeling human West Nile virus cases from Lubbock County, Texas. Texas Mosquito Control Association Annual Meeting, Victoria, TX. 16-18 October 2018.

Peper ST, Wilson-Fallon AN, Haydett KM, Greener, HS, Presley SM. The history of West Nile virus and surveillance in Lubbock county, Texas mosquitoes. Society for Vector Ecology, 48th Annual Conference, Yosemite, CA, USA. 7-11 October 2018.

Peper ST, Haydett KM, Wilson-Fallon AN, Greenberg HS, Gaskamp JA, Webb SL, Presley SM. A serological survey of wild pigs from south central Oklahoma. International Wild Pig Conference, Oklahoma City, OK, USA. 15-18 April 2018.

Peper ST, Haydett KM, Greenberg HS, Wilson-Fallon AN, Presley SM. Probability of canine heartworm (*Dirofilaria immitis*) infection in mosquitoes from Lubbock, Texas. American Mosquito Control Association Annual Conference, Kansas City, MO, USA. 26 February - 2 March 2018.

Peper ST, Haydett KM, Greenberg HS, Wilson-Fallon AN, Presley SM. History of West Nile virus in Lubbock County, Texas. Texas Mosquito Control Association Annual Meeting, Fredericksburg, TX. 17-19 October 2017.

Peper ST, Wilson-Fallon AN, Haydett KM, Greenburg HS, Presley SM. Serological Evaluation of an Epizootic Hemorrhagic Disease Virus Vaccine. Deer Breeders Corporation Annual Convention, San Antonio, TX, USA. 4 August 2017.

Peper ST, Dawson DE, Sorensen GE, Hunter J, Loko F, Almas S, Athanasiou K, Gibson AG, Presley SM. Modeling the Most Abundant Mosquito Species (*Aedes vexans* and *Culex tarsalis*) in Lubbock, Texas, United States. American Mosquito Control Association Annual Conference, San Diego, CA, USA. 13-17 February 2017. (Also presented at the Texas Tech Annual Biological Sciences Symposium, 8 April 2017).

Peper ST, Wilson-Fallon AN, Austin GP, Smith EE, Presley SM. What the DBC is doing for you, our members, and What else can we do? Epizootic Hemorrhagic Disease Virus. Deer Breeders Corporation Annual Convention, San Antonio, TX, USA. 25-27 August 2016.

Peper ST, Almas S, Gibson AG, Austin, GP, Webb SL, Gaskamp J, Presley SM. Screening for Selected Zoonotic and Enzootic Pathogens in Feral Hog Serum Samples from Oklahoma, USA. International Wild Pig Conference, Myrtle Beach, SC, USA. 17-20 April 2016.

Peper ST, Dawson DE, Hunter J, Sorensen GE, Loko F, Almas S, Athanasiou K, Gibson AG, Presley SM. Mosquito surveillance for West Nile virus from 2012 to 2015 in Lubbock, Texas, United States. Texas Chapter of the Wildlife Society Annual Conference, San Antonio, TX, USA. 18-20 February 2016.

Peper ST and RJ Kendall. Radio Telemetry and the Study of Parasites in Bobwhite Quail. 2nd Annual Texas Tech University Research Carnival, Lubbock, Texas, USA. 18 November 2014.

Peper ST and Serfass TL. Efficacy of two canine distemper vaccines in wild river otters. The Wildlife Society 2013 Annual Conference, Milwaukee, Wisconsin, USA. 8 October 2013. (Oral)

Oral and poster presentations as co-author

Rendon B, **Peper ST**, Presley SM. Comparison of insecticide resistance between years throughout the state of Texas. Texas Mosquito Control Association Annual Meeting, Waco, TX. 9-10 October 2019.

Haydett KM, **Peper ST**, Wilson-Fallon AN, Greenberg HS, Gaskamp JA, Webb SL, Presley SM. Seroprevalence of *Neospora caninum* in wild pigs (*Sus scrofa*). International Wild Pig Conference, Oklahoma City, OK, USA. 15-18 April 2018.

Wilson-Fallon AN, Greenberg HS, **Peper ST**, Haydett KM, Presley SM. Insecticide resistance survey of *Stegomyia* mosquito species throughout Texas jurisdictions. American Mosquito Control Association Annual Conference, Kansas City, MO, USA. 26 February - 2 March 2018.

Haydett KM, **Peper ST**, Greenberg HS, Wilson-Fallon AN, Presley SM. Prevalence of canine heartworm in potential mosquito vector populations in Lubbock, TX, USA (2010-2016). American Mosquito Control Association Annual Conference, Kansas City, MO, USA. 26 February - 2 March 2018.

Greenberg HS, Wilson-Fallon AN, **Peper ST**, Haydett KM, Presley SM. Geospatial predictive modeling of *Aedes aegypti* and *Aedes albopictus* mosquitoes in Texas. American Mosquito Control Association Annual Conference, Kansas City, MO, USA. 26 February - 2 March 2018.

Greenberg HS, Wilson-Fallon AN, **Peper ST**, Haydett KM, Presley SM. Surveillance for *Aedes aegypti* and *Aedes albopictus* Species Distribution Throughout Texas. Texas Mosquito Control Association Annual Meeting, Fredericksburg, TX. 17-19 October 2017.

Wilson-Fallon AN, Greenberg HS, **Peper ST**, Haydett KM, Presley SM. Insecticide resistance survey of *Aedes albopictus* and *Aedes aegypti* throughout Texas counties. Texas Mosquito Control Association Annual Meeting, Fredericksburg, TX. 17-19 October 2017.

Wilson-Fallon AN, **Peper ST**, Haydett KM, Greenberg HS, Presley SM. Surveillance of *Aedes aegypti* and *Aedes albopictus* mosquitoes in western Texas Counties. American Mosquito Control association Annual Conference, San Diego, CA, USA. 13-17 February 2017.

Dunham N, **Peper ST**, Kendall RJ. Survey of Aflatoxin contamination in supplemental wildlife corn feed sampled throughout the Rolling Plains of Texas. SETAC North America 36th Annual Meeting, Salt Lake City, UT, USA. 3 November 2015.

Turaga U, **Peper ST**, Gupta N, Dunham N, Kistler W, Almas S, Presley SM, Kendall RJ. Neonicotinoid pesticide use and potential exposure to Northern Bobwhite and Scaled Quail throughout the Rolling Plains of Texas and Oklahoma. SETAC North America 36th Annual Meeting, Salt Lake City, UT, USA. 3 November 2015.

Dunham NR, **Peper ST**, Pappas S, Kendall RJ. Survey of Aflatoxin Contamination in Deer Corn

Purchased throughout the Rolling Plains of Texas. SETAC North America 35th Annual Meeting, Vancouver, British Columbia, Canada. 12 November 2014. (Poster)

ORGANIZED SYMPOSIA

Peper ST, Presley SM. 2019. Healthcare, Public Health, and Vector Control: The Disconnect. Objectives are to bring attention to the discount that exists between healthcare professionals, public health entities, and vector control jurisdictions and what can be done to improve relationships. Society for Vector Ecology Annual Conference, San Juan, Puerto Rico. 23-26 September 2019.

Peper ST, Kirkscey E, Chu E, Plaisance E, Dye-Braumuller K. 2018. First Annual Student Competition. Objectives were to showcase the research that undergraduate and graduate students have been conducting while giving them an opportunity to practice their public speaking and presentation skills. Texas Mosquito Control Association, Victoria, TX. 16-18 October 2018.

Peper ST, Hopperstad K. 2016. Student Symposium. Objectives were to allow a platform for undergraduate and graduate students to present the research they have been working on and give them an opportunity to practice their public speaking. Society for Vector Ecology Annual Conference, Anchorage, AK. 10-15 September 2016.

PROFESSIONAL SERVICE

Guest editor and reviewer (2020-present). Journal of the Florida Mosquito Control Association.

Symposium Moderator (2019). Society for Vector Ecology Annual Conference, San Juan, PR.

Director of Advertising (2019-present). *Wing Beats* (non-peer reviewed scientific publication).

American Mosquito Control Association (2018-present). Training & Member Education committee member.

Young Professionals Committee Member (2018-present). The American Mosquito Control Association.

Young Professionals Committee Member (2018-present). The Texas Mosquito Control Association. Currently serve as the treasurer (2018-present).

Student Representative to the Curriculum Committee (2018). Department of Environmental Toxicology, Texas Tech University, Lubbock, TX.

Symposium Moderator (2016). Society for Vector Ecology Annual Conference, Anchorage, AK.

Vice-President (2015-2016). The Institute of Environmental and Human Health Student Association.

Student Representative on the University Discipline Committee (2015-2016). Texas Tech University, Lubbock, TX.

SCHOLARSHIP, FELLOWSHIP, AND TRAVEL FUNDING AWARDED

AMCA Young Professionals Industry Shadowing Program (2018). Atlantic Paste and Glue Co., Inc.	\$1,000
Terracon Foundation Scholarship (2017). Department of Environmental Toxicology.	\$1,000
Helen DeVitt Jones Graduate Fellowship (2017-2018). Texas Tech University.	\$3,500
Travel Support: 7th International Society for Vector Ecology Congress, Palma of Mallorca, Spain (2017). Graduate School of Texas Tech University, Department of Environmental Toxicology, and the Society for Vector Ecology.	\$2,400
Summer Dissertation Research Award (2017). Texas Tech University.	\$2,300
Terracon Foundation Scholarship (2016). Department of Environmental Toxicology.	\$500
Travel Funding to Present at the Society for Vector Ecology (2016). Graduate School of Texas Tech University.	\$325
Travel Funding to Present at The International Wild Pig Conference (2016). Graduate School of Texas Tech University.	\$250
Grant-in-Aid Research Award (2016). Texas Tech University.	\$500
Terracon Foundation Scholarship (2015). Department of Environmental Toxicology.	\$1,000
Research Carnival Travel Grant (2015). Texas Tech University.	\$500
Graduate Research/Teaching Assistantship (2010-2012). Frostburg State University.	\$20,000
Outstanding Internship Recognition Grant (2008). Brigham Young University - Idaho.	\$300
Academic Scholarship (2007). Brigham Young University - Idaho.	\$300
Academic Scholarship (2006). Brigham Young University - Idaho.	\$344

SCHOLASTIC AND PROFESSIONAL AWARDS AND HONORS

2nd Place Oral Presentation (2018). Texas Mosquito Control Association Student Competition.	\$200
1st Place Poster Presentation (2018). Texas Tech Annual Biological Sciences Symposium.	\$200

2nd Place Oral Presentation (2018). Texas Tech Annual Biological Sciences Symposium.

2nd Place Oral Presentation (2017). Texas Tech Annual Biological Sciences Symposium. **\$150**

Kelly Labell Travel Award (2017). American Mosquito Control Association. **\$1,633**

Outstanding Graduate Student (2012). Frostburg State University graduating Class of 2012.

University Recognition and Internship Spotlight (2008). Brigham Young University - Idaho.

Eagle Scout (2001). Boy Scouts of America.

PROFESSIONAL MEMBERSHIPS

Current Memberships

The Florida Mosquito Control Association (2020-present).

The American Mosquito Control Association (2016-present).

The Society for Vector Ecology (2016-present).

Past Memberships

The Texas Mosquito Control Association (2017-2020).

Wildlife Disease Association (2014-2020).

The Wildlife Society (2013-2020).

Society of Environmental Toxicology and Chemistry (2014-2018).

The Institute of Environmental and Human Health Student Association (2014-2018).

Llano Estacado Student Chapter of the Society of Environmental Toxicology and Chemistry (LE-SETAC) (2014-2018).

The American Society of Parasitology (2014-2017).

The Texas Chapter of the Wildlife Society (2015-2016).

BYU-I Pre-vet Society (2007-2009).

BYU-I Student Chapter of The Wildlife Society (2006-2009).

VOLUNTEER EXPERIENCE

Trinity Christian School, Lubbock, Texas (2015-2018).

Served as a judge for the elementary science fair.

Lubbock Independent School District, Lubbock, Texas (2014-2018).

Secondary School Science Fair Judge.

Boy Scouts of America, Lubbock, Texas (2015-2017).

Mentored local scouts as they worked towards their Super NOVA award. Served in Troop 500 as a mentor and assisted scouts with rank advancements and merit badge achievements.

South Plains Regional Science and Engineering Fair, Lubbock, Texas (2016).

Served as a judge for the poster competition.

Texas Tech University, Lubbock, Texas (2015).

Judged at the Undergraduate Research Fair

Idaho Fish and Game, Ashton, Idaho (2009).

Assisted at the Ashton Fish Hatchery, handling, moving, and feeding fish. Sampled brook trout and checked for dorsal fin erosion.

Henry's Fork Foundation, Ashton, Idaho (2009).

Assisted at the Buffalo Dam fish ladder, collecting, identifying, and tagging fish. Assisted with a fish electro-shocking project along the Snake River by electro-shocking, tagging and releasing fish after capture.

U.S. Forest Service, Idaho, USA (2009).

Participated in a snag survey in the Caribou Targhee National Forest. Participated in a bird survey in the Curlew National Grasslands and identified birds by sight and sound.

SKILLS AND TRAININGS

Laboratory Skills:

- Biosafety Level 3 Laboratory certified
- Select agent clearance (currently: *Yersinia pestis* and *Francisella tularensis*)
- Enzyme-linked Immunosorbant Assay (ELISA)
- Agglutination testing for pathogen antibodies
- RNA/DNA extraction, qPCR, qRT-PCR, PCR, RT-PCR, gel electrophoresis
- Trained as an animal caretaker in the areas of handling, husbandry, identifying illness and injury

Field Skills:

- Accustomed to working in the field in a variety of climatic conditions for varying lengths of time
- VHF radio telemetry – tagging and tracking
- Wild animal trapping
- Necropsy experience
- ATV certified – State of North Dakota
- CPR Healthcare Provider certified through the American Heart Association
- First Aid certified through the American Heart Association

Personal Skills:

- Mentoring and training graduate students
- Excellent verbal and written communication
- Accustomed to thinking quickly and making critical decisions
- Works well within a team as well as individually

TO: FLORIDA COORDINATING COUNCIL ON MOSQUITO CONTROL

**REPORT FROM: Ed Foley, Co-CHAIR - SUBCOMMITTEE ON
MANAGED MARSHES (SOMM)**

May 11, 2021

MOST RECENT SOMM NEWS:

The subcommittee is working internally to develop ideas of ways in which to advance the subcommittee as we move forward. Some great ideas have been discussed regarding future meeting locations and topic ideas to investigate as a group. We would like to focus on holding an in person meeting, with an onsite field trip, once we are able to safely do so. Ideally, we would like to look into the feasibility of hosting a workshop on Salt Marsh Research and Management down the road. The last workshop was held in 2005 and a lot of good work has been completed since then.

NEXT SOMM MEETING: The subcommittee has not yet determined a meeting date for the next Subcommittee meeting. With COVID-19 vaccines becoming more readily accessible it is feasible in person meetings will be able to safely resume. As such, meeting locations and topic ideas are being discussed internally and we hope to hold an in person meeting later this year.