

December 2025



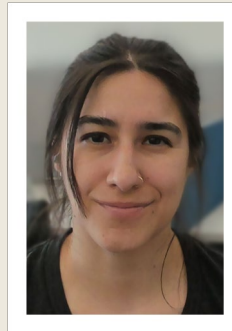
Director Christopher Vitek shares swag at outreach 2025

## Happy Holidays!

I am happy to write that we are resuming our bi-annual newsletter for the Center for Vector-Borne, Zoonotic, and Emerging Diseases (CVBZED). For those that may not be aware, we officially changed our name (from the Center for Vector-Borne Disease) back in January. The year has been busy, starting with hiring a new program specialist, Ms. Priscilla Nevarez. She is the front contact and the glue that holds the Center together. Welcome aboard Priscilla!

This year the Center has funded four students to attend the annual meeting of the Entomological Society of America (ESA) conference. Please read their thoughts and comments about attending the meeting below. For many, this was their first (but hopefully not last) national conference.

## Contact Us



Ms. Priscilla Nevarez,  
Program Specialist

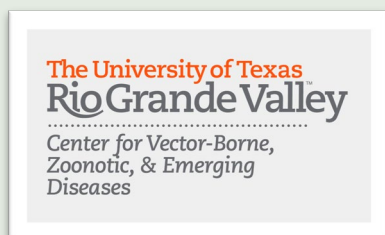
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The Center also continued to host the fall Student Research Symposia for the annual One Health Conference put on by the Texas Department of State Health Services. This year, there were eight students presenting from UTRGV, Texas A&M, and Instituto Politecnico Nacional in Reynosa.

The Center has also fully embraced the internship program we developed. This internship, open to any undergraduate and graduate students, allows students to work closely for one semester with a partnering agency and receive course credit. Current partners include the USDA, The Texas Department of State Health Services, the health departments in Cameron and Hidalgo County, and we just recently added the City of Mission Environment, Health, Code Enforcement and Animal Service Department. We are always looking for new partners, so please contact us if interested. To date, we have had 14 students involved (four undergraduate and ten graduate students), and we have nine more students signed up for the spring. Students interested in this internship can apply via our website.

Speaking of the [CVBZED website](#), we are currently working on changes to the [CVBZED website](#), so keep an eye out there for any updates!



Fresh 2025 Logo

“Promoting research, education, and community engagement in the RGV.”



Presenting during the 2025 Oct Symposium

Currently you can reach out to the Center, apply to the Internship program, and Center members can submit requests for publication cost assistance, funding graduate student travel, and apply for the **\$3000 pilot study program** we offer.

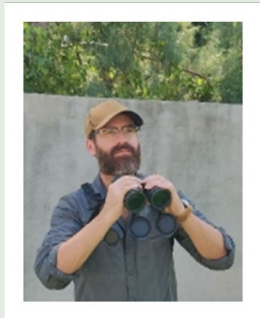
Lastly, I will update what we hope will be a new change regarding our certification program. While this program was developed to work with the Biology Master's degree, we have submitted a request to open it up to all graduate students. Students would work with their advisors and graduate coordinators to ensure the classes required will meet their program requirements, but hopefully students in other academic disciplines will be able to participate starting Fall 2026.



Eligible candidates for certification will include any graduate students conducting research in a topic relevant to the center and who take the three required courses. For example, economic graduates studying the economic effect of COVID or sociology students studying the societal impact of vector-borne disease who also take the three required courses would be eligible. Keep an eye on the [CVBZED website](#) for additional updates.

## Research Focus

The Center welcomes new member Dr. Andrea Contina, who researches species resilience ornithology, and has recently started exploring Avian Influenza dynamics.



**Professor Andrea Contina**

Email: [andrea.contina@utrgv.edu](mailto:andrea.contina@utrgv.edu)

[Google Scholar](#) | [Contina Lab](#)

Dr. Andrea Contina is an Assistant Professor in the School of Integrative Biological and Chemical Sciences at the University of Texas Rio Grande Valley, a role he has held since September 2023. Prior to joining UTRGV, he held postdoctoral and research associate positions at the University of Colorado Denver, the University of Texas at Austin, and the University of Oklahoma, and contributed to research initiatives with the U.S. Geological Survey.



He has published more than 30 peer-reviewed articles that advance the fields of ornithology and aero ecology. His research focuses on the ecology, evolution, and conservation of avian communities across North and Central America, with a particular emphasis on understanding bird movements and the environmental forces that shape them.

In 2024, he established the Southern Ornithology Network for Applied Research (SONAR), a distributed system of autonomous acoustic recording units built on compact Linux-based processors. These nodes collect day and night bird vocalizations, which are processed through custom R and Python tools and a new Convolutional Neural Network classifier, enabling real-time data visualization and advancing automated bioacoustics monitoring across the region. His work in movement ecology also led him to supervise the development of *abmR*, an open-source R package designed to address the lack of flexible, spatially explicit agent-based modeling platforms for studying animal movement and disease dynamics. This work continues at UTRGV in collaboration with colleagues at the Center for Vector-Borne, Zoonotic, and Emerging Diseases through a new project investigating the links between avian migration and the potential spread of avian influenza in the U.S. and Texas.



## Student Focus

This semester the Center for Vector Borne, Zoonotic, and Emerging Diseases (CVBZED) funded four students to attend and present at the 73<sup>rd</sup> annual meeting of the Entomological Society of America (ESA) in Portland, OR. All students were eager to attend the conference, as awardee Ms. Fernanda Martinez stated, “I wanted to attend the ESA meeting to present my research, learn from other [students], and connect with professionals.” Ms. Martinez presented on the topic “Investigating insecticide resistance in *Aedes* mosquitoes after blood feeding in South Texas.” Mr. Abbey Abalos, who presented on “Optimization of detection of *Ixodiphagus* spp. infection in *Rhipicephalus sanguineus* S.L.”, said “One reason [to attend] was to see how professional in our field presented...I wanted to analyze...and adopt/adapt some of the ways they presented their information.” The students all presented talks in different research symposia. Mr. Joshua Morris presented on “Environmental influences on soft tick populations and *Borrelia* presence in burrow habitats of South Texas.” “I really enjoyed spending time with other researchers and hearing about what they’re working on. It was interesting to learn what’s going on in the field,” said Mr. Morris, “especially with vector-borne disease research as there are new issues.” All student presentations were well thought out and received. Ms. Esmeralda Rosas said, “I was surprised by the density of research topics presented and how creatively others approached their studies.” Ms. Rosas, presenting on the topic “The impact of nutrition on insecticide resistance and gene expression in *Aedes aegypti*”, added “One of the biggest highlights was winning first place in the student oral presentation competition in the MUVE [Medical, Urban, and Veterinary Entomology] molecular biology section.”



Entomology Society Conference 2025 Group Photo

When asked if they have suggestions for students who attend meeting, Ms. Martinez said “[students should] attend sessions that are outside your research area. You never know what ideas or techniques may help guide your research.” Mr. Morris added “Preparation is important for giving a good presentation, and I would recommend talking to your peers about your presentation to get advice.” Mr. Abalos echoed this statement, saying “[One tip] is be prepared and practice your talk. Practice with your peers and have them...give you feedback on things to improve on.” When asked if there was anything else she wanted to share, Ms. Rosas ended with “[Attending ESA] was a truly rewarding and memorable experiences as a scientist.”, adding “It was fascinating to see the range of approaches within entomology and related field. The experience gave me a broader perspective on the discipline and strengthened my interest in continuing research.” **Congratulations to all students who attended!** 🎉



## Publications

1. Aguilar, C., Oraby, T., Torres-Avila, M., René, S., & Feria-Arroyo, T. P. (2025). Tick-borne diseases knowledge in the transboundary USA–Mexico region. *Vector-Borne and Zoonotic Diseases*. <https://doi.org/10.1177/15303667251393965>

2. Aguilar-Duran, JA., Ramirez, J., Rodriguez-Perez, MA., Vitek, CJ., Fernandez-Santos, NA., and Estrada-Franco, JG. Assessment of vector control strategies based on mass *Aedes (Stegomyia)* mosquito trapping (AGO traps) pilot study in a US-Mexico border region of South Texas. 2025. *PloS Neglected Tropical Diseases*. <https://doi.org/10.1371/journal.pntd.0013665>

3. Laxmi, Oraby, T., Tyshenko, M., Danquah, I., & Bhattacharyya, S. (2025). Insecticide-treated net use and elimination of malaria in Sub-Saharan African countries: assessing the Global Technical Strategy using an evolutionary game approach, *BMC Infectious Diseases*, 25:1707. <https://doi.org/10.1186/s12879-025-12066-z>

4. Medelez, E, Vitek, CJ, Maestas, S, and Soti, P. Influence of Guinea Grass of *Aedes aegypti* behavior in urban landscapes of the semi-arid subtropics. (accepted, in press in *Biological Invasions*)

5. Yin, W., Ragab, S., Tyshenko, M. G., Feria-Arroyo, T. P., & Oraby, T. (2025). Comparing machine learning, deep learning, and reinforcement learning performance in *Culex pipiens* predictive modeling. *PLOS ONE*, 20(11), e0333536. <https://doi.org/10.1371/journal.pone.0333536>

## Research Updates

Submitted: Population dynamics at an invasive front: *Aedes aegypti* in the American Southwest, submitted to the NIH.

This is a multi-institute grants with partners at Texas Tech, NMSU, Connecticut Agricultural Experiment Station, University of Nevada, and UTRGV. The goal of this grant is to explore population dynamics of *Aedes aegypti* across multiple habitats to determine how species movement may be impacting the populations.

Submitted: *Cochliomyia macellaria* as a model for habitat associations and control measures of screwworm fly *Cochliomyia hominivorax* in a changing landscape, submitted to the USDA. This grant plans to explore multiple the use of a model species to understand and control the New World Screwworm. We plan to use modeling, behavioral assays, and other techniques to determine potential range expansion in the Southern US, as well as the potential to use native or invasive plants in control efforts.

## Community Engagement

The following is a service presentation (community engagement):

- The 19th STPA Annual Border Conference at South Padre Island, 10/12/2025 Promotoras/HCWs and Artificial Intelligence. Oraby, T., and Arroyo, F. and Others.
- Unidos Contra El Diabetes – Community Health Fair, Valley Nature Center, Weslaco, TX – Vitek, C.”
- Led a One Health Immersion Activity for the UTHealth Houston STEM Immersion Summer Camp (for high school students) - Vitek, C.





## Introducing Priscilla

Hi, I'm Ms. Priscilla Nevarez, a Texas native who spent nearly ten years in Pittsburgh, PA. I graduated from Point Park University (PPU) with a degree in Sports, Arts, and Entertainment Management (SAEM) and continued taking classes in Architectural Studies at the University of Pittsburgh while working there. I've played sports my whole life and participated in a mix of art and science camps—happy to share more about these experiences in person.

My interests include sports, music, and architecture. I'm drawn to science, and I have loved ones who work—or have worked—in the field, which connects me to the Center.

At the Center, I hope to promote research, education, and community engagement in the Rio Grande Valley (RGV), focusing on vector-borne, zoonotic, and emerging diseases. I'm currently working with web developer Russell Dove to transition our website to a new version and keep it up to date with Center news, activities, and work. I also support administrative and creative efforts in the School of Integrative Biological and Chemical Sciences (SIBCS).

Here's to doing meaningful work well—and having a good time doing it!

*"Striving for excellence."*

If you have an idea for something to include in this newsletter, please contact us.

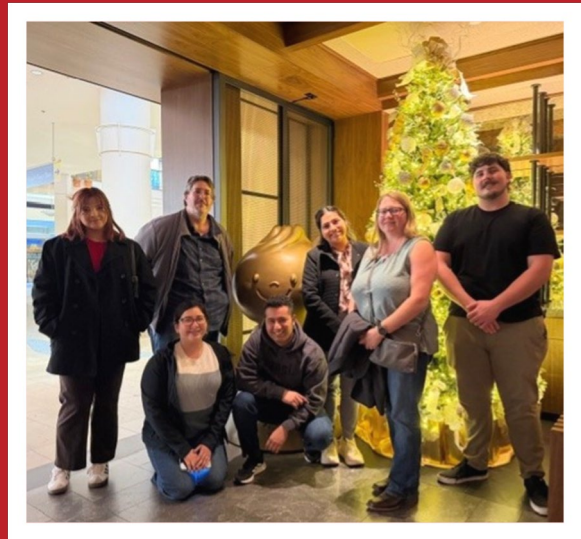
**THANKS! HAPPY HOLIDAYS! HAVE A  
SAFE BREAK!**



Lab Work  
Students: Abbey Abalos  
Antonio Rodriguez

**UTRGV**  
Center for Vector-Borne,  
Zoonotic, & Emerging  
Diseases

New 2025 UTRGV Center Logo



**2025 Entomology Society Conference Group Trip**



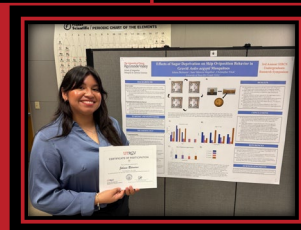
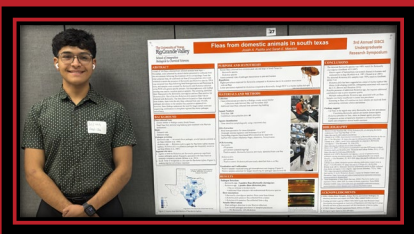
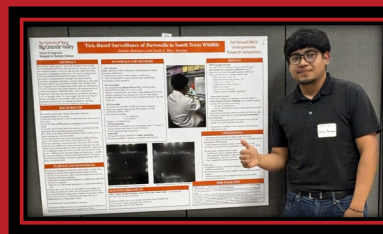
**Professor Maestas and  
Joshua Morris Tick Trap Deployment**



**Field Research: Professor Vitek, Isabella Ochoa,  
Esmeralda Rosas, Alex Loshkarev, Johana Belmares,  
Fernanda Martinez**



**2025 SIBCS Research Conference:  
Joshua Morris, Rosalinda Morgado,  
Professor Sarah Maestas**



**2025 Undergraduates presenting at the SIBCS Research Conference:  
Antonio Rodriguez, Josiah Agape Padilla, Johana Belmares**