



THE UNIVERSITY OF
TENNESSEE



2022

Annual Report

Research.

Outreach.

Education.

Director's Update

It has been 3 years since the inception of the UT One Health Initiative, and through that time, we have experienced much success. Along with our partners NIMBioS, Tennessee RiverLine, Smith International Center, Center for Global Engagement, Humanities Center, and the College of Veterinary Medicine, we have provided \$600,000 in seed funding for 12 transdisciplinary research teams, which have thus far generated nearly \$4 million in external funding, for a total of well over \$10 million in OHI-supported external funding. We instituted a One Health minor, which includes courses representing the colleges across UT, and we partnered with UT Extension, UT Gardens, Tennessee Department of Health, Tennessee Department of Agriculture, Biology in a Box, Nashville Zoo, and Lincoln Memorial University to develop K-12 education materials. We also lead continuing education training workshops and sponsored a student leadership summit. We continue to host monthly lunch-and-learn seminars and expand our One Health podcast series. In addition, we hosted a week-long One Health rally event and organized annual celebrations recognizing One Health Day (November 3rd). To top it all off, we are leading a book on using the One Health approach to tackle the United Nations Sustainable Development Goals.

In these pages, we highlight several OHI supported projects. First, we take a look at the work of Heather Sedges and her efforts with the Southern Ag Exchange Network, which focuses on stress in rural communities, especially stress experienced by farmers and ranchers. Next, we highlight efforts being taken by Michael McKinney's group to improve the health of and along the Tennessee River by transitioning riprap to a living shoreline. This seems such a simple transition yet will prove so important to reduce erosion and secure this rich environment. We also highlight the work being done by Matt Gray's group to explore development of a 'clean trade' system for wildlife. It is hard to believe that such a system does not currently exist but is very much needed if we are to fight the spread of pathogens that can decimate native species and/or contribute to the spread of zoonotic pathogens. Another study we highlight is Jennifer Retherford's group focused on training the next global One Health workforce. This group's efforts in Panama will serve as a model to apply to other regions across the globe. Finally, we will highlight the work being conducted by Nina Fefferman's group, which tackles the mystery of how infectious disease turns into a pandemic. Is it a result of the quantity of factors, the quality of factors, or a combination?

We continue to join forces to tackle local, national, and global wicked problems, including emerging pathogens, food insecurity, changing climate, biodiversity loss, antimicrobial resistance, and so many others. Despite these daunting challenges, we are empowered through consilience and interdisciplinary collaborations. Indeed, all that we have accomplished these past three years is a testament to our amazing UT faculty, staff, and students. It emphasizes that there is nothing we cannot achieve when we believe in something and work together to make it happen. So, let us continue to inspire one another locally, nationally, and globally as we continue *uniting disciplines to protect and promote the health of all life on Earth!*



OHI Team



Deb Miller
Interim Director



Nina Fefferman
Associate Director

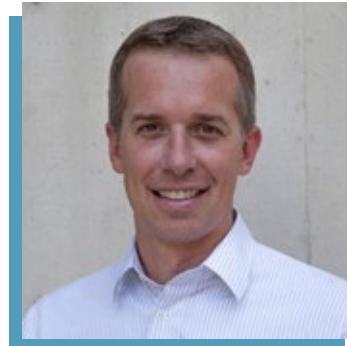


Kimberlyn Roosa
Post-Doctoral Researcher



Alyssa Merka
Administrative Specialist

One Health Scholars



Brad Collett
Assistant Professor,
Dept. of Plant Sciences
Associate Professor,
School of Landscape
Architecture
Director, Tennessee
RiverLine



Jennifer DeBruyn
Professor,
Dept. of Biosystems
Engineering and Soil
Science



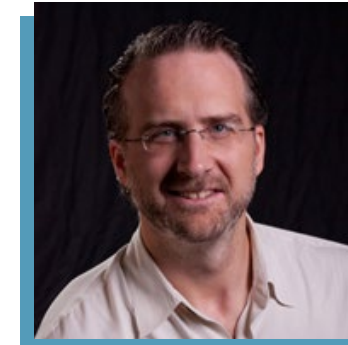
Michelle Dennis
Associate Professor,
Dept. of Biomedical and
Diagnostic Sciences



Shigetoshi Eda
Professor,
School of Natural
Resources



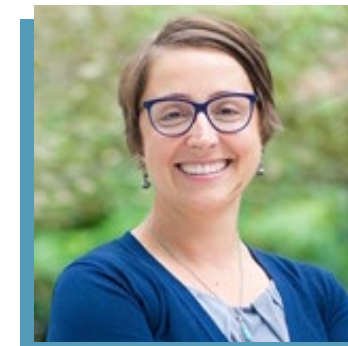
Jeanine Fletcher
Professor,
Agriculture and
Veterinary Medicine
Librarian



Matt Gray
Professor,
School of Natural
Resources



Dan Grove
Extension Assistant
Professor,
School of Natural
Resources



Denita Hadziabdic-Guerry
Associate Professor,
Dept. of Entomology and
Plant Pathology

One Health Scholars



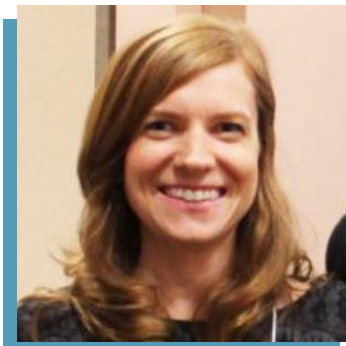
Becky Jacobs
Waller Lansden
Distinguished Professor,
College of Law



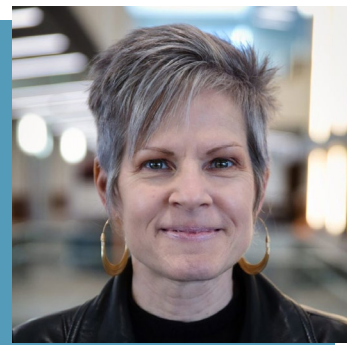
Xueping Li
Dan Doulet Faculty
Fellow and Professor,
Dept. of Industrial and
Systems Engineering



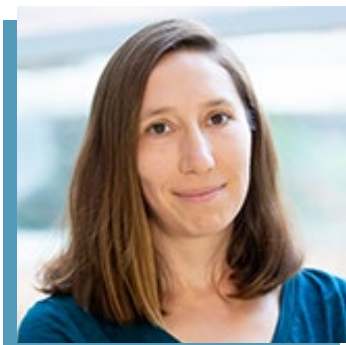
Emily Martin
Associate Professor,
Dept. of Medicine



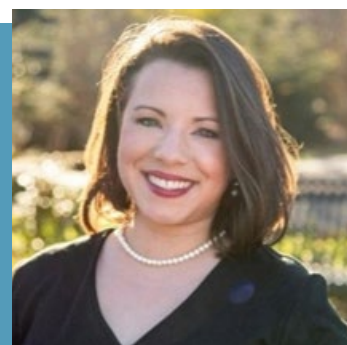
Laura Miller
Associate Professor,
School of Communication
Studies



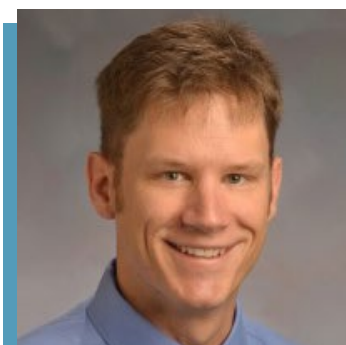
Hollie Raynor
Professor and Executive
Associate Dean of
Research and Operations,
Dept. of Nutrition



Laura Russo
Assistant Professor,
Dept. of Ecology and
Evolutionary Biology



Heather Sedges
Associate Professor,
Dept. of Family and
Consumer Sciences



Charles Sims
Director,
Baker Center for Public
Policy, Energy and
Environment Program
Associate Professor,
Dept. of Economics

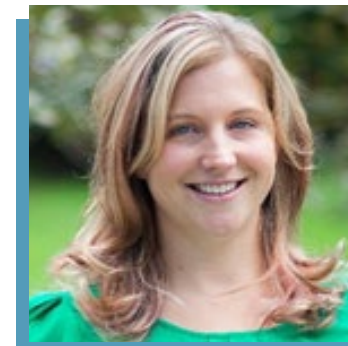
One Health Scholars



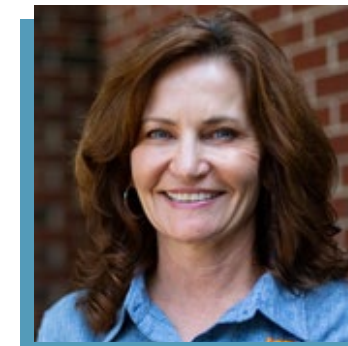
Marcy Souza
Professor and Associate
Dean for Outreach and
Global Engagement,
Dept. of Biomedical and
Diagnostic Sciences



Chunlei Su
Associate Professor,
Dept. of Microbiology



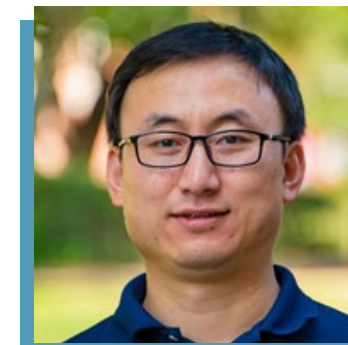
Becky Trout Fryxell
Associate Professor,
Dept. of Entomology and
Plant Pathology



Brynn Voy
Professor,
Dept. of Animal Science



Adam Willcox
Research Associate
Professor,
School of Natural
Resources



Yang Zhao
Associate Professor,
Dept. of Animal Science

Year Three Accomplishments

Research



One Health Research Seed Grant Program

Funded six new transdisciplinary research projects across UT in the 2022-23 academic year

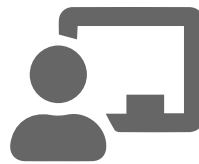
Extramural Funds Generated

Of the 25 new proposals submitted by the One Health community in the 2022-23 academic year, 11 have been funded, totaling \$3.9M

Peer-reviewed Publications

The UT One Health community had 70+ health-related publications published in the 2022-23 academic year

Education



One Health Minor

33 students have declared the minor since it became available in 2021; additional courses are being added each year

Leadership Summit

15 graduate and professional students participated in the first One Health Student Leadership Summit,

K-12 Materials

The K-12 working group continues to add new partners and produce valuable resources for educators

Outreach



Monthly Seminar Series

Features local and international speakers discussing their One Health approach to current global challenges

One Health Rally

Week-long event featuring research talks, expert panels, and creative presentations, as well as games, door prizes, a free yoga class, and an evening social

One Health Day

The 2022 annual celebration took place at locations across campus and included a keynote speaker and community service project

Deliverables by 2024

Formation of the Tennessee Center for Global One Health

>1.2M annual operating budget supported by state and federal funds and private industry



Increase in extramural grants

>2.7M per year

Expected >8 proposal submissions per year by One Health-associated faculty



Peer-reviewed publications

Increased by 10-20 above 2023



Provide diagnostic support for research/surveillance activities

>20 UT faculty per year



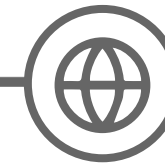
Train >100 students and post-docs in One Health



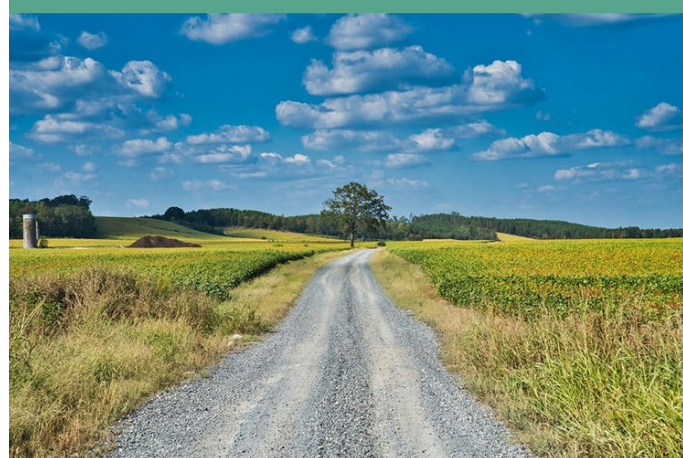
Organize 12+ public seminars and 4 One Health Day celebrations



Become nationally recognized as one of the premier One Health programs and partners

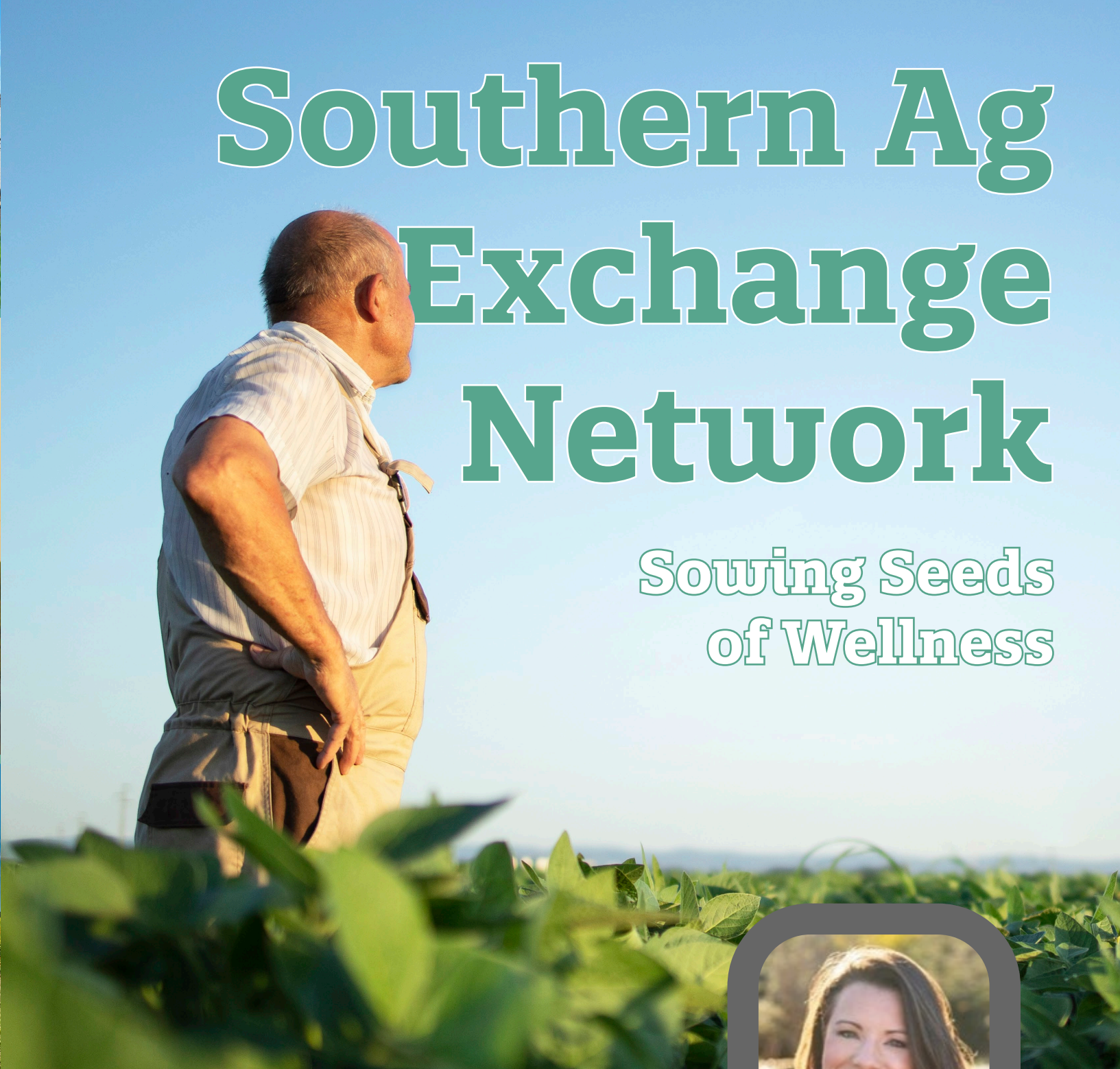


- The Southern Ag Exchange (SAGe) network was created in 2020 through a three-year, \$7.2 million USDA grant to provide reliable tools to alleviate stressors in the agricultural community. The SAGe network, coordinated by a UT team, spans 13 states and two U.S. territories.
- In 2022-23, SAGe directly reached over 258,000 people with farm stress mitigation efforts through various avenues, including: a 24-hour, text-enabled response line for those seeking support; a user-friendly website housing 500+ assets organized by topic; and certification in suicide prevention and stress management tactics of nearly 350 Farm Service Agency loan officers in Tennessee alone, another example of SAGe's integrated, One Health approach.
- SAGe was awarded an extension and \$2.6 million to carry the initiative into August 2024.



Southern Ag Exchange Network

Sowing Seeds of Wellness



Heather Sedges
Principal Investigator
Associate Professor, Human Development Specialist
Dept. of Family and Consumer Sciences

“SAGe employs the One Health lens to interpret information gleaned from farmers and agricultural stakeholders about their strengths, needs, fears, and barriers to service. Peer-reviewed publications communicating tangible and

relevant advice is translated into Spanish and made publicly accessible to enable quick and early adoption of efficacious stress reduction methods across a variety of disciplines and audiences. The One Health perspective is of great value

when untangling the complexity of farm stress. This is crucial given the challenges facing farmers across commodities, scale, markets, and regions. Our teams of researchers, Extension agents, and community organizations continue to grow as we provide a warm, well-informed space for every farmer in need.”



A Living Shoreline

Fortifying Human and Environmental Health on the Tennessee River

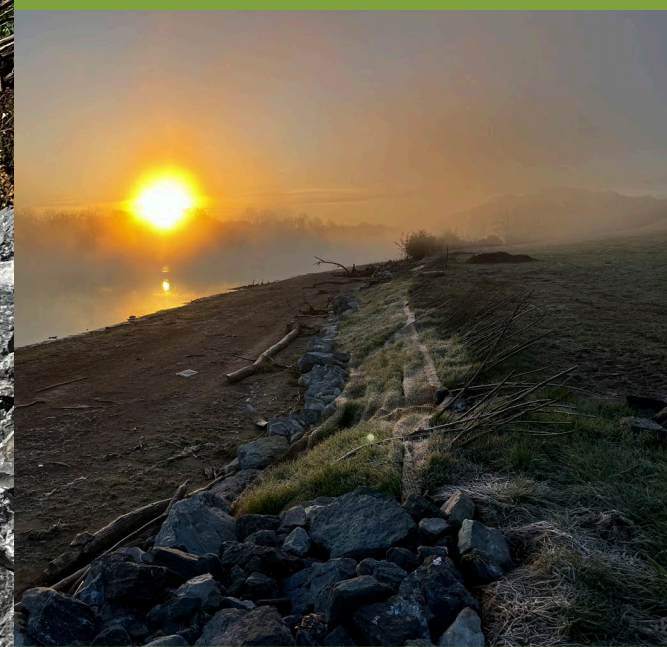


Michael McKinney
Principal Investigator
Professor
Dept. of Earth and
Planetary Sciences

“ True sustainability requires a holistic approach that addresses all aspects of our environmental and social problems. A great example of this is the increasing use of green infrastructure, which replaces the costly,

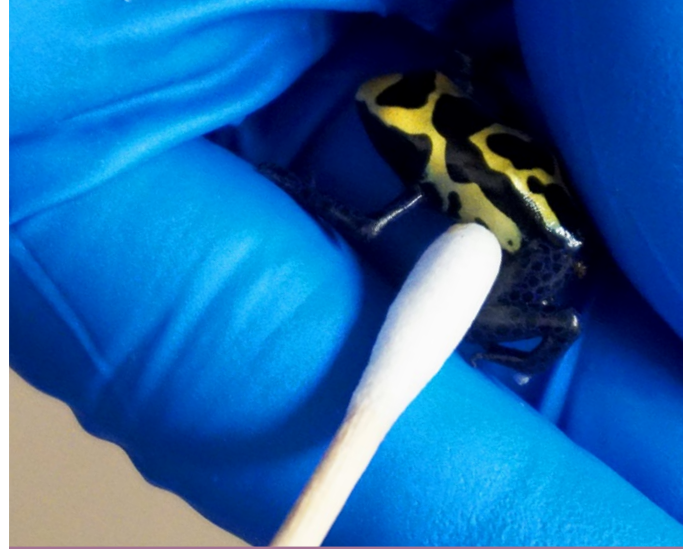
temporary, and often ugly approaches of traditional engineering solutions with nature-based methods that are less expensive, longer-lasting, and have many more social benefits.

Our goal is to grow this experimental project along the length of the Tennessee River to improve the health of the whole ecosystem, including the people who live along its shores.



- Erosion is a major contributor to sedimentation, a primary pollutant within water bodies. 11,000 miles of Tennessee reservoir shorelines are at risk of an accelerated rate of erosion due to watershed urbanization, increasing rainfall intensity, and increased boat traffic.
- The typical bank stabilization solution to prevent erosion is riprap. This project tests the strength and effectiveness of brush mattresses, a bioengineering technique that will be applied as a form of shoreline stabilization.
- Bioengineering techniques use native plants and biodegradable materials to assist in engineering designs. They also provide food sources and habitat for wildlife, improve water quality, increase biodiversity, and often have lower carbon footprints compared to hard armoring techniques.

- Decline in wild populations of amphibians worldwide has been linked to the growth in global wildlife trade. The risk of pathogen spillover from domestic to wild amphibians is very high.
- Three federal agencies awarded a \$2.75 million grant to a team of UT-led, interdisciplinary researchers to identify disease mitigation strategies that will minimize the risk of amphibian pathogens spreading from captive pet populations to wild populations and negatively impacting biodiversity.
- Through a partnership with national stakeholders in the pet industry, this project utilized cutting-edge pathogen testing technology and social science methods to study pathogen spread in amphibian trade networks, as well as the values, perception, and behavior of stakeholders.



Leaping Forward

Moving Toward Healthy and Sustainable Amphibian Pet Trade



Matt Gray
Principal Investigator
Professor
School of Natural Resources

“ The US pet amphibian industry supports the creation of a healthy trade certification program, where traded amphibians are certified as pathogen-free. Annually, US businesses lose around \$140 million per year due

to amphibian pathogens. Pathogens in captive trade also can spillover to the wild and negatively impact native species. The UT School of Natural Resources with support of the UT One Health Initiative is leading development

of a US healthy trade program for amphibians that is scientifically credible and market driven. Ultimately, our efforts will help grow this industry and protect our native biodiversity. ”

Expanding Horizons

Training the Next Global One Health Workforce



Jennifer Retherford
Principal Investigator
Distinguished Lecturer
Dept. of Civil and
Environmental Engineering



- Rural, indigenous Panama is experiencing emerging community health issues related to water quality and access.
- In January 2023, UT faculty and students from various disciplines traveled to Panama where they worked with local stakeholders to test and improve water quality and sanitation, which required a One Health approach.
- Through concepts related to nursing, agriculture, civil engineering, and policy, they sought to better understand current conditions and articulate technical needs that support viable, clean water solutions, and thereby, improved health outcomes.
- This experience allowed the students to engage with several UN Sustainable Development Goals and explore how multiple disciplines can work together to achieve those goals.

“ The One Health Initiative and related concepts allowed us to apply a multi-disciplinary framework in a ‘clean water’ theme in rural Panama. Our UT students used their diverse specializations in a collaborative effort to understand the needs and opportunities at hand.

When students are asked to address technical questions in a new space, they start to think like problem-solvers. They rely less on finding an example that a class or textbook offered them and move toward their fundamentals. And when they realize those fundamentals are universal, they can

solve problems of different complexities when they return and rethink what’s possible in any professional or personal situation they face.

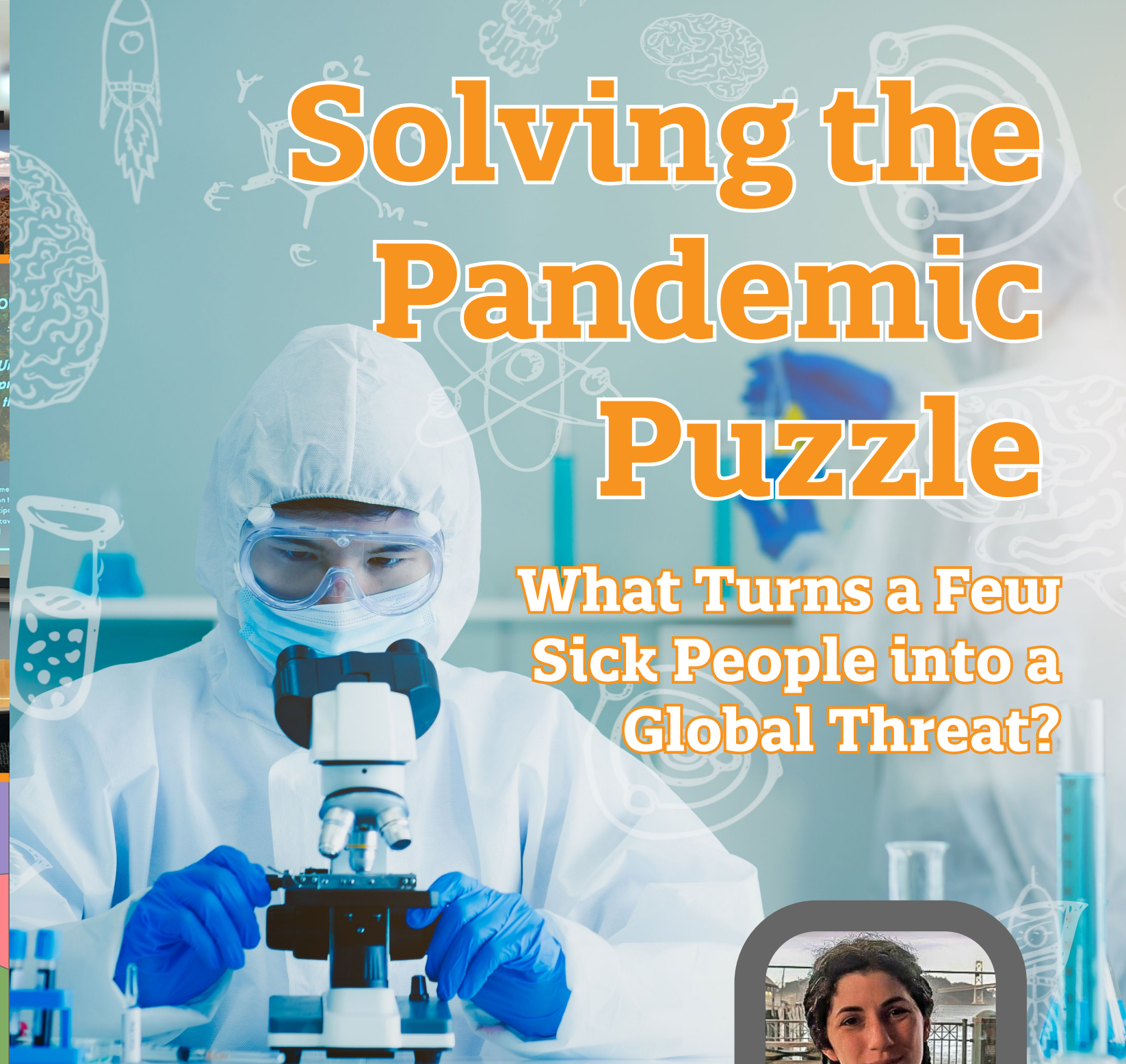


- One of the biggest challenges to understanding how an infectious disease turns into a pandemic risk is that there are so many important factors that are studied by so many different types of researchers.
- It's already difficult to understand single disciplinary questions, but it's much harder to know how partial answers fit together. For example, how a news story that tells people to wash their hands combines with installing copper doorknobs (a metal known to kill some viruses) to reduce how many people get sick.
- In August of 2022, a UT-led team received a \$1 million grant to try a new way of forming multidisciplinary teams to ask these complicated, mixed-answer questions relating to understanding what changes a small outbreak into a global pandemic.



Solving the Pandemic Puzzle

What Turns a Few Sick People into a Global Threat?



Nina Fefferman
Principal Investigator
Professor
Depts. of Ecology and Evolutionary Biology,
Mathematics



One of the most exciting things in science is when you aren't just discovering new knowledge, but designing a new way to discover new knowledge.

Our team is bringing together 21 researchers from 16 different disciplines of study, ranging from sociology to public health to biology to engineering and information science to mathematics. We're designing a new framework for

communicating with each other to ask questions we couldn't know to ask *without* each other. Building on our shared One Health perspective, we're taking on the challenge of trying to anticipate and prevent the next pandemic.



ONE HEALTH DAY '22

SAVE THE DATE!

We partnered with the Howard H. Baker Jr. Center for Public Policy, UT Gardens, and Tennessee RiverLine to celebrate the 7th Annual Word One Health Day on November 3, 2022.

The day began with a picnic in the UT Gardens and a presentation on UT's horticultural therapy program by Dr. Derrick Stowell.



A recording of Dr. Bayham's address, "Economics and Epidemiology: Beyond Dollars and Cents," is available at tiny.utk.edu/JudeBayhamEE.

That afternoon, the Tennessee RiverLine team led a group of volunteers on a guided kayak excursion and river cleanup at Third Creek. In less than two hours, we removed 10+ bags of trash from the creek!



Dr. Jude Bayham, Assistant Professor of Agricultural and Resource Economics at Colorado State University, gave the keynote address in the Baker Center as part of their Energy and Environment Forum.



Economics and Epidemiology:
Beyond Dollars and Cents

Jude Bayham
Associate Professor
Department of Agricultural and Resource Economics | CSU
Department of Epidemiology | Colorado School of Public Health



This year, we're partnering with the UT Humanities Center to produce One Health and Humanities Days on October 25-27, 2023.

One Health and Humanities Days is a three-day series of events, including interdisciplinary lectures, speaker panels, and interactive activities. These free, public events will showcase the critical role that arts and humanities play in understanding and exploring sustainability and global wellbeing, including human, animal, plant, and environment health.

October 25-27, 2023

One Health + Humanities Days

Arts + Humanities Interventions

*What do the arts and humanities have to do with health?
Join us this fall to find out!*



The University of Tennessee is an EEO/AA/Title VI/Title IX/Section 504/ADA/ADEA institution in the provision of its education and employment programs and services. All qualified applicants will receive equal consideration for employment and admission without regard to race, color, national origin, religion, sex, pregnancy, marital status, sexual orientation, gender identity, age, physical or mental disability, genetic information, veteran status, and parental status.

ONE HEALTH RALLY '23

SPECIAL THANKS

In April of 2023, we celebrated the important One Health work underway at UT with a week-long One Health Rally. The week included research talks, expert panels, and interactive presentations given by faculty and graduate students from across the UT system, as well as an address by UT System President Randy Boyd.

Events were held at a different campus location each day to allow us to connect with new audiences. In addition to the informative sessions, the week was filled with fun activities like a free

Events were held at a different campus location each day to allow us to connect with new audiences. In addition to the informative sessions, the week was filled with fun activities like a free



yoga class in the UT Gardens, as well as a Science on Tap social event at Albright Grove Brewing Company, which included two mini-presentations on One Health issues by UT and Lincoln Memorial University faculty, live music, and trivia.

We also participated in the Earth Day Festival, sponsored by the UT Office of Sustainability, and had the opportunity to interact with hundreds of students who stopped by our booth to play One Health Jenga and get connected to the UT One Health community.

This event was quite the undertaking! We are so thankful to the community of faculty, researchers, and graduate students who shared their time and expertise with us throughout the week!



Special thanks to the presenters and panelists who participated in our One Health Rally!

Maggie Albro, UT Libraries, Agriculture and Natural Resources Librarian

Jamie Armitage, UT Institute of Agriculture, Dept. of Biosystems Engineering and Soil Science

Karen Armsey, UT College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences, Human Animal Bond in Tennessee

Randy Boyd, UT System President

Niki Cobb, UT Libraries, Health Sciences Librarian

Paul Dalhaimer, Tickle College of Engineering, Dept. of Civil and Environmental Engineering

Madhu Dhar, UT College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences

Melanie Dixson, UT Libraries, Health Sciences Librarian

Brianne Dosch, UT Libraries, Psychology Librarian

Nina Fefferman, College of Arts and Sciences, Dept. of Mathematics, Dept. of Ecology and Evolutionary Biology; National Institute for Mathematical and Biological Synthesis

Garrett Ferry, UT Facilities Services

T' Fisher, College of Social Work, Center for Behavioral Health Research, Program for Pet Health Equity

Jeanine Fletcher, UT Libraries, Veterinary Medicine Librarian

Tom Gill, UT Institute of Agriculture, Smith Center for International Sustainable Agriculture

Louis Gross, College of Arts and Sciences, Dept. of Mathematics, Dept. of Ecology and Evolutionary Biology; National Institute for Mathematical and Biological Synthesis; Institute for Environmental Modeling

Jian Huang, Tickle College of Engineering, Min H. Kao Dept. of Electrical Engineering and Computer Science

Sharon Jean-Philippe, UT Institute of Agriculture, School of Natural Resources

Ozlem Kilic, College of Emerging and Collaborative Studies

Matt Kolp, Lincoln Memorial University, College of Veterinary Medicine

Jun Lin, Herbert College of Agriculture, Dept. of Animal Science

Andrea Ludwig, UT Institute of Agriculture, Dept. of Biosystems Engineering and Soil Science

Michael McKinney, College of Arts and Sciences, Dept. of Planetary Sciences

Kristen Mecke, National Institute for Mathematical and Biological Synthesis

Steven Milewski, UT Libraries, Social Work Librarian

Deb Miller, UT Institute of Agriculture, School of Natural Resources; UT College of Veterinary Medicine

Jay Ramos, UT Institute of Agriculture, School of Natural Resources

Jenny Retherford, Tickle College of Engineering, Dept. of Civil and Environmental Engineering

Jessie Richards, UT College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences

Heather Sedges, UT Extension, Dept. of Family and Consumer Sciences

Jeronomo Silva, UT College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences

Charles Sims, Baker School of Public Policy and Public Affairs; Haslam College of Business, Dept. of Economics **Derrick Stowell**, UT Gardens, Education and Horticultural Therapy Program

Chunlei Su, College of Arts and Science, Dept. of Microbiology

Amy Webb, UT College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences

Lauren Wisnieski, Lincoln Memorial University, College of Veterinary Medicine

ONE HEALTH STUDENT LEADERSHIP SUMMIT

Mariah Dee and Tamara Roba

On January 7, 2023, 15 graduate and professional-level students checked into the Howard J. Baker Center to engage in UT's first-ever One Health Student Leadership Summit. Involved in the event were 6 volunteers, 8 facilitators, and 11 in-person speakers. This marked the beginning of an initiative on the UT campus which will continue to shed more light on One Health issues as well as highlight key competencies for building and sustaining One Health and other cross-disciplinary projects.

Throughout the summit, there were activities like the Root Cause Activity, where participants were challenged to think backwards from a present day One Health issue. Participants chose to dissect out a phenomenon called colony collapse disorder, which is associated with dwindling bee populations.

Participants also engaged in activities that challenged them to work in teams. For example, students were tasked to build a car out of cardboard, wooden

wheels, dowels, various papers, and other materials that they thought would make their car great. Each item was given a value, a cost... but instead of having a monetary value attached to these items, they each represented something that might be an important aspect of planning a One Health project (a needs assessment, sustainable materials, etc.).

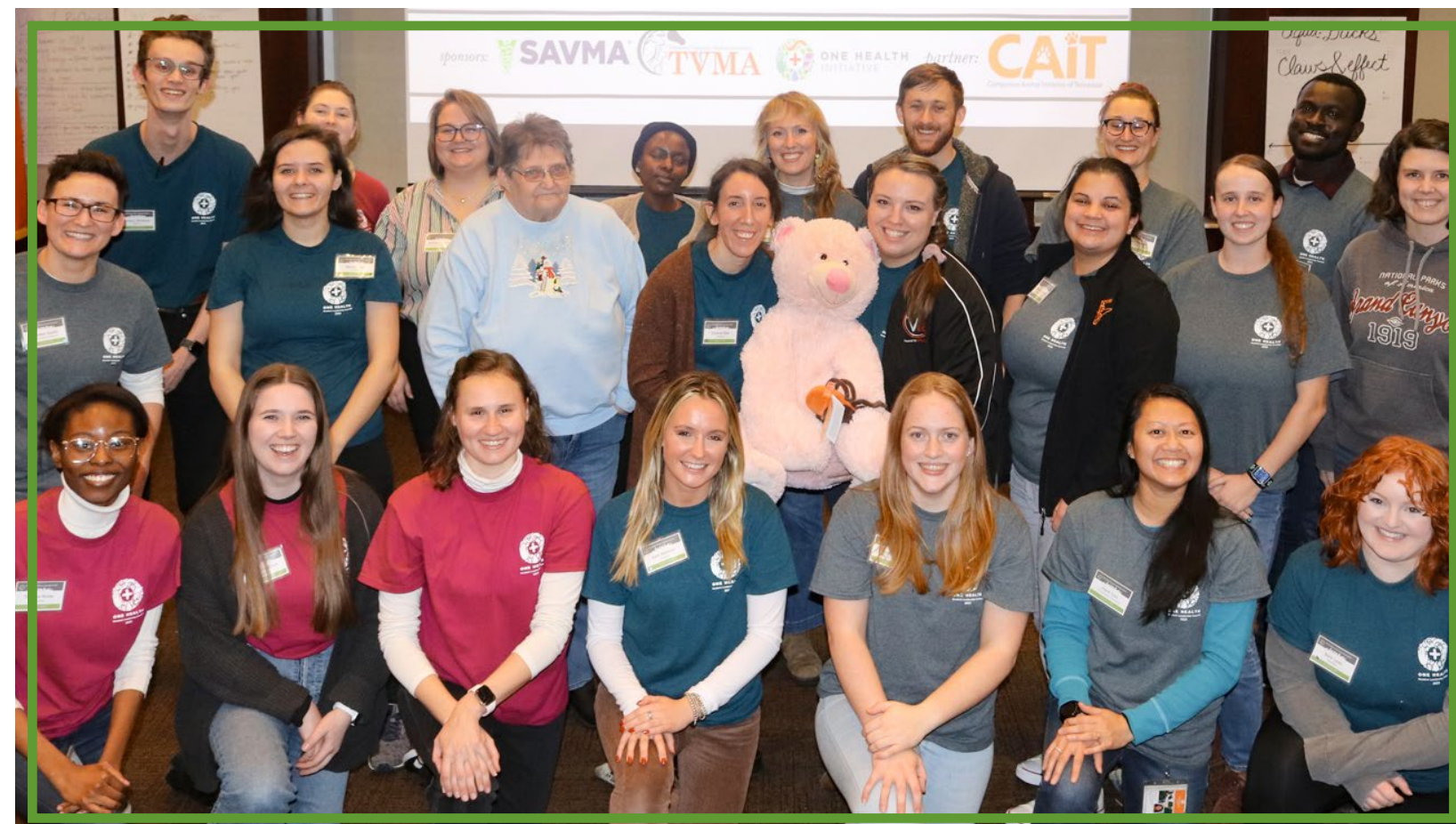
The summit culminated in a community service project that allowed participants to have an impact in an area that embodied One Health. Here, Alexis Niceley from the Companion Animal Initiative of Tennessee (CAIT) explained the importance of taking care of people experiencing homelessness in Tennessee and the free-roaming cat populations, both of which share a large commonality. Oftentimes, especially during the winter months, conditions can become dangerous and life-threatening.

With that in mind, students were responsible for building ~17 cat shelters as well as 25 warm packs,



which included reusable items like warm clothing, water bottles, hygiene products, and snacks. Each warm pack also included a handwritten card written by a participant, facilitator, or volunteer. All supplies were intentionally selected based on consultation from CAIT and the Volunteer Ministry Center, as well as the Sustainability Coordinator of UT.

This portion of the summit really resonated with the audience, according to our initial results from our post-event survey. Students were excited to see a One Health project in action and thus passionately contributed to what were called "I will..." statements, written and shared at the closing ceremony. In this final activity, students were challenged to share what they plan to do differently following their experience at the One Health Student Leadership Summit. Participants proudly announced their renewed interest in advocacy, One Health, and community service—all of which were important goals for this project.



Seed Grant Program

With the support of partnering organizations, OHI has awarded \$600,000 in seed funding to 12 teams of UT researchers since its launch in 2020. The goal of the program is to create transdisciplinary synergies among faculty, staff, students, and external collaborators that embrace a One Health approach to investigations. More information about these projects, including abstracts and updates, is available on our website at www.onehealth.tennessee.edu/seed-grant-program/.

This fall, we are offering four, \$40,000 awards through partnerships with the UT College of Veterinary Medicine Center of Excellence, UT Humanities Center, National Institute for Mathematical and Biological Synthesis (NIMBioS), and the Tennessee RiverLine. Recipients will be announced in October 2023.

Developing a Model of Chronic Inflammation to Elucidate its Effects on Reproduction

- PI: Dr. Brian Whitlock (College of Veterinary Medicine, Large Animal Clinical Sciences)
- Co-PI: Bhavya Sharma (College of Arts and Sciences, Department of Chemistry)
- Co-PI: Allison Renwick (College of Veterinary Medicine, Comparative and Experimental Medicine Program)

Developing a System for Molecular Detection and Identification of Zoonotic Pathogens of Most Concern in the USA

- PI: Chunlei Su (College of Arts and Sciences, Department of Microbiology)
- Co-PI: Richard Gerhold (College of Veterinary Medicine, Biomedical and Diagnostic Sciences)
- Co-PI: Michelle Dennis (College of Veterinary Medicine, Biomedical and Diagnostic Sciences)
- Co-PI: Sree Rajeev (College of Veterinary Medicine, Biomedical and Diagnostic Sciences)

Effectiveness of a “Living Shoreline” on Environmental and Human Health on the Tennessee River

- PI: Michael McKinney (College of Arts and Sciences, Department of Earth and Planetary Sciences)
- Co-PI: Andrea Ludwig (Herbert College of Agriculture, Department of Biosystems Engineering and Soil Sciences)
- Co-PI: John Schwartz (Tickle College of Engineering, Department of Civil and Environmental Engineering)
- Co-PI: Michael Ross (Herbert College of Agriculture, Department of Plant Sciences)
- Co-PI: Garrett Ferry (Facilities Services)

Impact Assessment of Climate Change on Cotton Production via Computational Simulation

- PI: Xinhua Yin (Herbert College of Agriculture, Department of Plant Sciences)
- Co-PI: Joshua Fu (Tickle College of Engineering, Department of Civil and Environmental Engineering)
- Co-PI: Sangeeta Bansal (Herbert College of Agriculture, Department of Plant Sciences)

Integration of Molecular Biology, Electrochemistry, and Electrical Engineering for the Development of a Rapid On-site Detection Platform for Zoonotic RNA Viruses

- PI: Shigetoshi Eda (Herbert College of Agriculture, Department of Forestry, Wildlife, and Fisheries)
- Co-PI: Doris D’Souza (Herbert College of Agriculture, Department of Food Science)
- Co-PI: Jayne Wu (Tickle College of Engineering, Department of Electrical Engineering and Computer Science)

Multiscale, Poly-topographic Platforms for Complex, Multifunctional Tissue Regeneration Using Precision Engineering: A Prelude to Organogenesis

- PI: Madhu Dhar (College of Veterinary Medicine, Large Animal Clinical Sciences)
- Co-PI: Dayakar Penumadu (Tickle College of Engineering, Department of Civil and Environmental Engineering)

One Health Approach to Controlling Escherichia albertii, the Emerging Human Pathogen

- PI: Jun Lin (Herbert College of Agriculture, Department of Animal Science)
- Co-PI: Qiang He (Tickle College of Engineering, Department of Civil and Environmental Engineering)

Physics-Based and Machine-Learning Models for Goat Tibia Fracture

- PI: Timothy Truster (Tickle College of Engineering, Department of Civil and Environmental Engineering)
- Co-PI: Pierre-Yves Mulon (College of Veterinary Medicine, Large Animal Clinical Sciences)
- Co-PI: David Anderson (College of Veterinary Medicine, Large Animal Clinical Sciences)

Socio-Economic Epidemiology of Disease Risk in Wildlife Trade Networks

- PI: Matthew Gray (Herbert College of Agriculture, Dept. of Forestry, Wildlife, and Fisheries)
- Co-PI: Neelam Poudyal (Herbert College of Agriculture, Dept. of Forestry, Wildlife, and Fisheries)
- Co-PI: Nina Fefferman (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology, Dept. of Mathematics)

Towards a Biogeochemical Coupling of Machine Learning and Process-based Modeling for Improved Prediction of Soil’s Climate Mitigation Potential

- PI: Debasish Saha (Herbert College of Agriculture, Department of Biosystems Engineering and Soil Sciences)
- Co-PI: Subhadeep Chakraborty (Tickle College of Engineering, Department of Mechanical, Aerospace, and Biomedical Engineering)

Training the Next Global One Health Workforce: An Educational Pilot Program for Cross-Sectoral Engagement in Darien, Panamá

- PI: Jennifer Retherford (Tickle College of Engineering, Department of Civil and Environmental Engineering)
- Co-PI: Nan Gaylord (College of Nursing)
- Co-PI: Sara Mulville (Smith Center for International Sustainable Agriculture)
- Co-PI: David Ader (Smith Center for International Sustainable Agriculture)

Transdisciplinary Diagnostic Investigation of Freshwater Mussel Mortality in the Clinch River

- PI: Michelle Dennis (College of Veterinary Medicine, Biomedical and Diagnostic Sciences)
- Co-PI: Nina Fefferman (College of Arts and Sciences, Department of Ecology and Evolutionary Biology, Department of Mathematics)
- Co-PI: Gerald Dinkins (McClung Museum of Natural History and Culture)

Proposals submitted by UT's One Health community of One Health Scholars and leadership; alphabetical by funding organization.

FUNDED

**Intelligence Advanced Research Projects Activity
Bio-Inspired Robustness and Resilience in Dynamic
Supply Chain Distribution Networks**

Awarded: \$575,332

PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

**Morris Animal Foundation Wildlife Pilot Study
Initial Assessment of Hemolymph Analytes as
Disease Biomarkers in Freshwater Mussels**

Awarded: \$10,433

PI: Michelle Dennis (College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences)

Co-PI: Rebecca Hardman (Florida Fish and Wildlife Conservation Commission), Gerald Dinkins (McClung Museum of Natural History and Culture), Michael Fry (College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences)

National Science Foundation

**CPS: Medium: Bio-socially Adaptive Control of
Robotics-Augmented Building-Human Systems for
Infection Prevention by Cybernation of Pathogen
Transmission**

Awarded: \$1,132,178 (continued from 2020)

PI: Xueping Li (Tickle College of Engineering, Dept. of Industrial and Systems Engineering)

Co-PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics), Qiang He (Tickle College of Engineering, Dept. of Civil and Environmental Engineering), Ming Jin (Tickle College of Engineering, Dept. of Industrial and Systems Engineering), Jindong Tan (Tickle College of Engineering, Dept. of Mechanical, Aerospace and Biomedical Engineering)

National Science Foundation

**PIPP Phase I: Predicting Emergence in
Multidisciplinary Pandemic Tipping-points
(PREEMPT)**

Awarded: \$997,265

PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

Co-PI: Mike Blum (College of Arts and Sciences, Dept. of Ecology and Evolutionary Biology)

**National Science Foundation
Predicting the Evolution of Vector-borne Disease
Dynamics in a Changing World**

Awarded: \$2,498,876 (continued from 2017)

Co-PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

**National Science Foundation
Socioeconomic and Epidemiological Drivers of
Pathogen Dynamics in Wildlife Trade Networks**

Awarded: \$2,999,695 (continued from 2022)

PI: Matt Gray (Herbert College of Agriculture, School of Natural Resources)

Co-PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics), Neelam Poudyal (Herbert College of Agriculture, School of Natural Resources)

**USDA Animal and Plant Health Inspection Service
Surveillance of SARS-CoV-2 and Coronaviruses in
Free-ranging Wildlife**

Awarded: \$1,357,281

PI: Chunlei Su (College of Arts and Sciences, Dept. of Microbiology)

Co-PI: Richard Gerhold (College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences), Tim Sparer (College of Arts and Sciences, Dept. of Microbiology), Emma Willcox (Herbert College of Agriculture, School of Natural Resources)

**USDA-NIFA Research and Extension Experience for
Undergraduates**

**BiGG FACTS: Research Experiences in Plant Health
and Production to Increase Numbers of Women in
Bioinformatics, Genetics, and Genomics Sciences**

Awarded: \$475,895

PI: Kimberly Gwinn (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)

Co-PI: Denita Hadziabdic-Guerry, Bonnie Ownley, Margaret Staton, Becky Trout Fryxell (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)

**USDA-NIFA Crop Protection and Pest Management
Development, Validation, and Evaluation of
Computer Imaging for Tick Detection on Cattle**

Awarded: \$293,834

PI: Becky Trout Fryxell (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)

Co-PI: Hao Gan (Herbert College of Agriculture, Dept. of Biosystems Engineering and Soil Sciences)

U.S. Army Corps of Engineers

Arthropod Study at Arnold Air Force Base

Awarded: \$220,000

PI: Jerome Grant (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)

Co-PI: Ernest Bernard, Becky Trout Fryxell (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)

U.S. Department of the Interior

**Enhancing Climbing Recreation and Conservation in
Vertical Environments Shared by Humans and Bats
Through Input from Climbers Visiting National Parks**

Awarded: \$50,350 (continued from 2022)

PI: Adam Willcox (Herbert College of Agriculture, School of Natural Resources)

PENDING

National Science Foundation

**Collaborative Research: Advancing Theory for
Disease Dynamics in Marine Protected Areas**

Requested: \$231,234

PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

National Science Foundation

**Collaborative Research: Applications of Deterministic
and Stochastic Impulsive Modeling in Immunology
with Implications for Epidemiology**

Requested: \$70,282

PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

National Science Foundation

**Collaborative Research: Seasonal and
Spatiotemporal Heterogeneity in Deterministic and
Stochastic Epidemiological Frameworks**

Requested: \$61,175

PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

National Science Foundation

**Developing Healthy Behavioral Choices to Promote
Illness Prevention in Preschool Children**

Requested: \$1,103,927

Co-PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

National Science Foundation

**IHBEM: Modeling the Coupled Spatial-Temporal
Dynamics of Socio- Economics, Health Understanding
and Behavior, and Infectious Outbreaks among
Neighborhoods in US Cities**

Requested: \$973,340

PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

**USDA Animal and Plant Health Inspection Service
Surveillance of SARS-CoV-2 and Coronaviruses in
Free-ranging Wildlife**

Requested: \$1,357,281

PI: Chunlei Su (College of Arts and Sciences, Dept. of Microbiology)

Co-PI: Richard Gerhold (College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences), Tim Sparer (College of Arts and Sciences, Dept. of Microbiology), Emma Willcox (Herbert College of Agriculture, School of Natural Resources)

NOT FUNDED

**National Science Foundation
Decomposing the Drivers of Pathogen Persistence
Across Ecological Scales**

Requested: \$608,188

PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

**National Science Foundation
NSF Convergence Accelerator Track J: Shelf Stable
Nutrition-Security for the Most Vulnerable**

Requested: \$750,000

PI: Deb Miller (College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences; Herbert College of Agriculture, School of Natural Resources)

Co-PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

**National Science Foundation
RAISE: IHBEM Modeling the Coupled Spatial-
Temporal Dynamics of Socio-Economics, Health
Understanding and Behavior, and Infectious
Outbreaks among Neighborhoods in US Cities**

Requested: \$993,053

PI: Nina Fefferman (College of Arts and Sciences, Depts. of Ecology and Evolutionary Biology, Mathematics)

**South East Climate Adaptation Science Centers
Linking Health with Hydrology to Inform
Management of Imperiled Freshwater Mussels
Affected by Mass-mortality Events**

Requested: \$208,130

PI: Gus Engman (Herbert College of Agriculture, School of Natural Resources)

Co-PI: Michelle Dennis (College of Veterinary Medicine, Dept. of Biomedical and Diagnostic Sciences)

**USDA Animal and Plant Health Inspection Service
Regional Surveillance and Education for Theileria
Orientalis Ikeda and Haemaphysalis Longicornis in
Tennessee, a Focus to Livestock Markets**

Requested: \$588,369.

PI: Becky Trout Fryxell (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)

**USDA National Institute of Food and Agriculture
Integration of Real-time Monitoring and Advanced
Data Science for Precision Control of Horn Flies and
Mastitis in Dairy Farms**

Requested: \$1,037,676

PI: Shigetoshi Eda (Herbert College of Agriculture, School of Natural Resources)

Co-PI: Becky Trout Fryxell (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)

**USDA National Institute of Food and Agriculture
Rapid Response to and Recovery from Theileria
Orientalis Ikeda Genotype and Haemaphysalis
Longicornis in Tennessee**

Requested: \$649,999

PI: Becky Trout Fryxell (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)

**USDA National Institute of Food and Agriculture
Development of a One Health Entomology Training
Program for Current and Aspiring Veterinarians and
Associated Health Professionals**

Requested: \$231,868

PI: Becky Trout Fryxell (Herbert College of Agriculture, Dept. of Entomology and Plant Pathology)



Publications by UT's One Health community of One Health Scholars and leadership; alphabetical by author.

Adhikari, K., A. F. Astner, **J. M. DeBruyn**, Y. Yu, D. G. Hayes, B. T. O'Callahan, M. Flury. 2023. Interactions of earthworms with polyethylene and PBAT microplastics in soil: Microplastic characterization and microbial community analysis. *ACS Agricultural Science & Technology* Accepted. doi: 10.1021/acsagscitech.2c00333.

Beattie, U. K., E. S. Rosen, **N. Fefferman**, and M. L. Romero. 2023. House sparrows prioritize skin repair over constitutive innate immunity during long-term chronic stress. *Journal of Experimental Zoology Part A: Ecological and Integrative Physiology*. <https://doi.org/10.1002/jez.2692>

Blackwood, J. C., J. Duan, M. M. Malakhov, J. J. Pellet, I. Phadke, S. Lenhart, **C. Sims**, and K. Shea. 2021. Governance structure affects transboundary disease management under alternative objectives. *BMC Public Health*, 21(1): 1-13.

Brenes, R., L. M. N. Nguyen, **D. L. Miller**, and M. L. Rohde. 2022. Hepatocellular toxicity of the metabolite emodin in tadpoles. *Journal of Wildlife Diseases*, 58(2):341-347. <https://doi.org/10.7589/JWD-D-21-00040>.

Buch K. R., and **N. Fefferman**. 2023. Mathematical Model of Basal Sprout Production in Vector-Borne Tree Disease. *Forests*, 14(2):349. <https://doi.org/10.3390/f14020349>.

Buck, Z. 2022. When hospitals sue patients. *College of Law Faculty Scholarship*. 193. https://ir.law.utk.edu/utk_lawpubl/193.

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cow-calf farm in east Tennessee. *Journal of Medical Entomology*. JME-2023-0086 (under review).

Butler, R. A., **R. T. Trout Fryxell**, A. E. Houston, L. B. Coons, E. K. Bowers, J. Baxter, D. Paulsen, and M. L. Kennedy. 2022. No relationship observed between habitat type and *Rickettsia* presence in ectoparasites collected from rodents in southwestern Tennessee. *Southwestern Naturalist*. 66(3): 233-239. <https://doi.org/10.1894/0038-4909-66.3.233>.

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Cavasos, K., N. C. Poudyal, J. L. Brunner, A. R. Warwick, J. Jones, N. Moherman, M. George, J. D. Willard, Z. T. Brinks, and **M. J. Gray**. 2023. Exploring business stakeholder engagement in sustainable business practices: Evidence from the US pet amphibian industry. *Business Strategy and the Environment*, DOI: 10.1002/bse.3455.

Cavasos, K., R. K. Adhikari, N. C. Poudyal, A. R. Warwick, and **M. J. Gray**. 2023. Natural area visitors' potential role in preventing pathogen threats to amphibian biodiversity. *Environmental Conservation* 50: 142 – 147. DOI: <https://doi.org/10.1017/S0376892923000048>.

Chahal, K., R. Gazis, W. Klingeman, P. Lambdin, J. Grant, M. Windham, **D. Hadziabdic**. 2022. Differential virulence among *Geosmithia morbida* isolates collected across the U.S. occurrence range of Thousand Cankers Disease. *Frontiers in Forests and Global Change: Pests, Pathogens and Invasions*. Special Topic: Forest Pathology in Changing Climate 5:726388. <https://doi.org/10.3389/ffgc.2022.726388>.

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343-350.

Chesser, D., J. L. Purswell, J. Davis, J. Ward, **Y. Zhao**, T. Tabler. 2023. Comparison of outside air and sol-air design temperatures for estimating insulation needs. *Applied Engineering in Agriculture* (under review).

Dalton, B. E., **L. E. Miller**, S. A. Eldredge, and I. Pjesviac. Between the facts and a hard place: Trust judgments and affective responses in information-seeking processes during early COVID-19. *Health Communication* (in press).

Dalton, B. E., **L. E. Miller**, S. E. Eldredge, and I. Pjesviac. 2022. Information-seeking barriers and strategies in maternity care: A framework analysis of nurses' goals, plans, and actions. *Journal of Communication in Healthcare*. <https://doi.org/10.1080/17538068.2022.2060455>.

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Day, C. A., R. A. Butler, H. E. Durick, J. G. Chandler, D. J. Paulsen, S. L. Mordoh, C. Foggin, R. Parry, I. Moyo, L. Russo, M. A. Kennedy, and **R. T. Trout Fryxell**. 2023. An ecological and epidemiological single season survey of *Anaplasma* and *Ehrlichia* positive ticks in Victoria Falls National Park,

Zimbabwe via Invitation to Medical and Veterinary Entomology: Special Issue Neglected Bacterial Pathogens Special Issue, p 1-14. <http://doi.org/10.1111/mve.12640>.

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Dye-Braumuller, K. C., M. K. Lynn, P. M. Cornejo Rivas, M. S. Rodríguez Aquino, J. G. Chandler, **R. T. Trout Fryxell**, S. Slef, M. Kanyagarara, C. Lee, H. Valafar, M. S. Nolan. First report of multiple *Rickettsia* spp., *Anaplasma* spp., and *Ehrlichia* spp., in El Salvador: global implications for underdiagnosis of neglected bacterial pathogens in low- and middle- income countries. *Acta Tropica*. 242: 106909. <https://doi.org/10.1016/j.actatropica.2023.106909>.

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Hadziabdic, D., A. Onufrak, R. Gazis. 2022. Fungi in forested ecosystems. In: Gall, I. and N. Benkeblia eds. *Mycoagroecology: Integrating fungi into agroecological systems*. CRC Press, Boca Raton, FL. pp. 175–195. <https://doi.org/10.1201/9780429320415>.

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Huang, M. H. J., S. Demarais, B. K. Strickland, W. C. Brookshire, J. G. Chandler, R. A. Butler, and **R. T. Trout Fryxell**. 2022. Supplemental feeding of deer reduces tick abundance in Mississippi U.S.A. *Journal of Vector Ecology*, 47(1): 29-37. 10.52707/1081-1710-47.1.29.

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Lofgren, E. T., E. N. Naumova, J. Gorski, Y. Naumov, and **N. H. Fefferman**. 2022. How drivers of seasonality in respiratory infections may impact vaccine strategy: a case study in how coronavirus disease 2019 (COVID-19) may help us solve one of influenza's biggest challenges. *Clinical Infectious Diseases Society of America*, 75(Suppl 1), S121–S129. <https://doi.org/10.1093/cid/ciac400>.

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S. J. Kennel, and J. S. Wall. Clinical Confirmation of Pan-Amyloid Reactivity of Radioiodinated Peptide 124I-p5+14 (AT-01) in Patients with Diverse Types of Systemic Amyloidosis Demonstrated by PET/CT Imaging. *Pharmaceuticals* 2023, 16, 629. <https://doi.org/10.3390/ph16040629>.

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N. H. Fefferman. 2022. Seasonality in multi-host disease systems. *Ecological Modelling*, Volume 470, <https://doi.org/10.1016/j.ecolmodel.2022.109973>.

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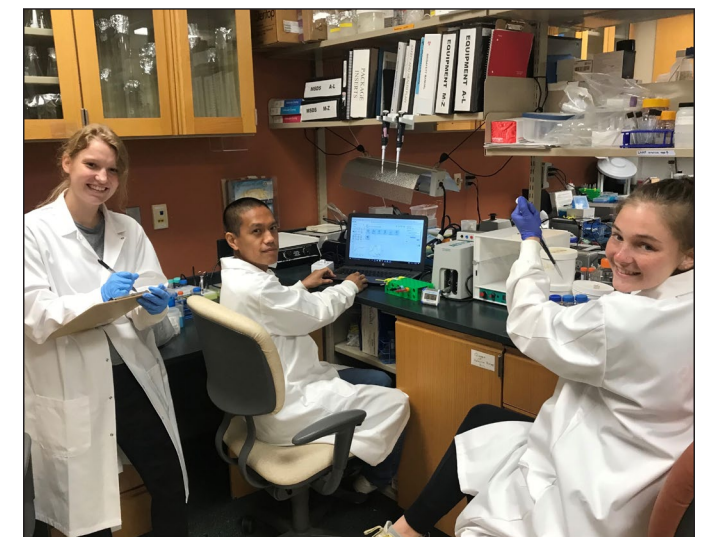
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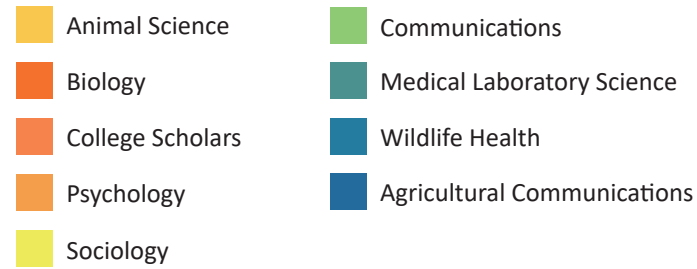
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One Health Minor

Since its launch in 2021, the One Health minor program has continued to attract students from across the UT system. Twenty-three students declared the One Health minor in the 2023-24 academic year from a wide range of disciplines (noted below).

AGNR 101, the Introduction to One Health class taught by One Health Scholar Adam Willcox, has outgrown its classroom each year.



K-12 Working Group

The K-12 Working Group is a robust partnership of OHI, UT Gardens, UT Extension, TN Department of Health, TN Department of Agriculture, Nashville Zoo, Lincoln Memorial University, and CAC AmeriCorps. They have continued to gain momentum each year and produce valuable One Health resources for educators. Their noteworthy achievements include:

- Creating a One Health Jenga game and lesson plan, which they've presented at local schools and outreach events.
- Creating a 2023 edition of the Jr. One Health Scholars Activity Book, with a special focus on "One Health in your backyard"
- Creating a list of children's books related to One Health for bookmarks made freely available to the public
- Creating a repository of One Health-related lesson plans, activities, and resources
- Partnering with the UT Gardens and UT Extension to create backpacks that children and families can check-out while in the gardens; they contain laminated activity books and dry erase markers with the purpose of guiding exploration through the gardens, with a One Health focus
- Continuing partnership with Nashville Zoo, which has resulted in incorporating One Health messaging and graphics throughout the zoo, One Health themes and activities incorporated into summer camp programs, and a One Health Day celebration




One Health Lunch & Learn Series

Chief among OHI's outreach efforts is its monthly seminar series. The series has attracted excellent speakers from across UT, the nation, and world to discuss their work, how they tackle current global challenges, and how solutions can be achieved with a One Health approach.

Seminars are held on the last Thursday of each month, and all past seminars are available on demand on the OHI website and YouTube channel.

Thursday, May 26, 2022


Conserving Mountain Gorillas through the One Health Approach



Dr. Gladys Kalema-Zikusoka
Founder and CEO
Conservation through Public Health

Thursday, June 30, 2022

Chronic Wasting Disease in Deer in Tennessee



Dr. Dan Grove
Assistant Professor and Wildlife Veterinarian
UT School of Natural Resources

Thursday, August 25, 2022

Peace, War, and Science: Embracing Forest Pathology as a Global Citizen



Dr. Denita Hadziabdic Guerry
Associate Professor
UT Dept. of Entomology and Plant Pathology

Thursday, October 27, 2022


The Chicago Rat Project: A One Health Approach to a Global Urban Pest



Dr. Maureen Murray
Wildlife Disease Ecologist
Lincoln Park Zoo
Urban Wildlife Institute

Thursday, January 26, 2023

Exploring the Religious Dimensions of Environmental Challenges



Dr. Joseph Witt
Associate Professor
UT Dept. of Religious Studies

Thursday, February 23, 2023


One Health Research Prospects in South Africa



Dr. Fortunate Phaka
Postdoctoral Fellow
North-West University
School of Biological Sciences

Thursday, March 30, 2023

Unhealthy Food: Chocolate Production, Slavery, and Unfree Food Systems



Dr. Chris Magra
Professor
UT Dept. of History

Thursday, April 27, 2023


Green Spaces and Childhood Development



Ashley Kite-Rowland
Urban and Community Forestry Partnership Coordinator
Tennessee Urban Forestry Council

Thursday, May 25, 2023

Rabies Research in Ethiopia: A Systematic Review



Dr. Aga Gelgie
Research Assistant, PhD Student, and DVM
UT Dept. of Animal Science

Presentations (conferences)

Batrachochytrium salamandrivorans in the cuban treefrog (*Osteopilus septentrionalis*)
International Association for Aquatic Animal Medicine Conference
Date: May 2022 Staff: Miller

Enhanced survival in Eastern Newts after a second exposure to *Batrachochytrium salamandrivorans*
North American Comparative Immunology Workshop
Date: Jun 2022 Staff: Miller

Widespread Hepatozoon sp. infection in southeastern coyotes
70th International Wildlife Disease Association Conference
Date: July 2022 Staff: Miller

Finding normal in a warming world: Baseline PCV and TS data and its relation to incubation temperature in leatherback sea turtle hatchlings and post hatchlings
70th International Wildlife Disease Association Conference
Date: July 2022 Staff: Miller

Use of implants for terbinafine administration to prevent chytridiomycosis in greater sirens
70th International Wildlife Disease Association Conference
Date: July 2022 Staff: Miller

Risk of bacteremia associated with probiotic treatment of *Batrachochytrium salamandrivorans*
70th International Wildlife Disease Association Conference
Date: July 2022 Staff: Miller

Risk of bacteremia associated with probiotic treatment of *Batrachochytrium salamandrivorans*
ExoticsCon
Date: Aug 2022 Staff: Miller

Risk of bacteremia associated with probiotic treatment of *Batrachochytrium salamandrivorans*
Global Amphibian Reptile and Disease Conference
Date: Aug 2022 Staff: Miller

Use of implants for terbinafine administration to prevent chytridiomycosis in greater sirens
Global Amphibian and Reptile Disease Conference
Date: Aug 2022 Staff: Miller

Use of implants for terbinafine administration to prevent chytridiomycosis in greater sirens
ExoticsCon
Date: Aug 2022 Staff: Miller

From the early stages of infection to the grave: how does *batrachochytrium salamandrivorans* transmission probability shift throughout infection?
Global Amphibian Reptile and Disease Conference
Date: Aug 2022 Staff: Miller

Parasites in wild-caught *Notophthalmus viridescens* experimentally infected with *batrachochytrium salamandrivorans*
Boehringer-Ingelheim Veterinary Scholars Symposium
Date: Aug 2022 Staff: Miller

Electrolyte imbalances and dehydration play a key role in *Batrachochytrium salamandrivorans* chytridiomycosis
Global Amphibian and Reptile Disease Conference
Date: Aug 2022 Staff: Miller

Broad host susceptibility of North American amphibian species to *Batrachochytrium salamandrivorans* suggests high invasion potential and extinction risk
Global Amphibian and Reptile Disease Conference
Date: Aug 2022 Staff: Miller

Are hatchlings emerging dehydrated? Preliminary packed cell volume and total solids data in leatherback (*Dermodochelys coriacea*) sea turtle hatchlings and post hatchlings and their relation to incubation temperature
Global Amphibian and Reptile Disease Conference
Date: Aug 2022 Staff: Miller

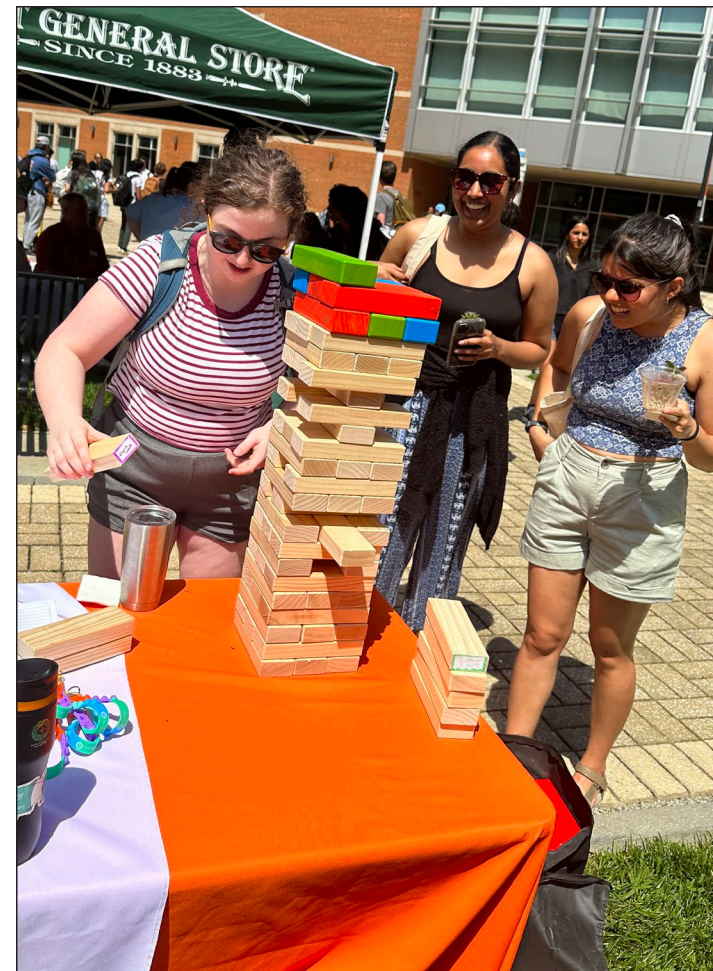
Serum Protein Electrophoresis in Leatherback Sea Turtle Hatchlings
Florida Keys Annual Sea Turtle Workshop
Date: Aug 2022 Staff: Miller

Enhanced survival in Eastern Newts after a second exposure to Batrachochytrium salamandrivorans
Global Amphibian and Reptile Disease Conference
Date: Aug 2022 Staff: Miller

Parasites in wild-caught Notophthalmus viridescens experimentally infected with batrachochytrium salamandrivorans
UT College of Veterinary Medicine Research Day
Date: Sept 2022 Staff: Miller

The topology of interdependent multi-domain behavioral systems
Air Force Office of Scientific Research Trust and Influence Program Review
Date: Sept 2022 Staff: Fefferman

Risk of bacteremia associated with probiotic treatment of Batrachochytrium salamandrivorans
American Association of Zoo Veterinarians Conference
Date: Sept 2022 Staff: Miller



Gopher tortoise health assessment
UT College of Veterinary Medicine Research Day
Date: Sept 2022 Staff: Miller

Use of implants for terbinafine administration to prevent chytridiomycosis in greater sirens
American Association of Zoo Veterinarians Conference
Date: Sept 2022 Staff: Miller

Predicting emergence in multidisciplinary pandemic tipping-points
National Science Foundation PIPP Program Kickoff
Date: Nov 2022 Staff: Fefferman

A template for responsive translational pandemic science
PanCommunity Conference
Date: Feb 2023 Staff: Fefferman





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