

TEXAS A&M AGRILIFE RESEARCH

Photo: S. Kuiter, Australia



BIODIVERSITY RESEARCH AND TEACHING COLLECTIONS

About

Texas A&M University's Biodiversity Research and Teaching Collections vision is to be a world-class natural history collection that supports Texas A&M University and the Department of Ecology and Conservation Biology's unified visions of advancing interdisciplinary research, elevating graduate and professional education, and engaging with Texas and beyond to enhance our impact.

Research

Projects supported by the National Science Foundation, Texas Parks and Wildlife Department, United States Geological Survey, Department of Defense, and others continue to provide significant support for enhancing the collections and research activities. Curators actively engaged numerous graduate students as Advisors or Committee members in research projects that aid in the curation of the collections and utilize specimens and/or genetic resources.

Interdisciplinary research, international collaboration, species discovery, collections growth, dissemination of results, and educating the next generation of conservation biologists.

Teaching

We hosted laboratory classes for eight ECCB courses during spring and fall semesters. In addition, field courses in ichthyology and herpetology were offered by curators and directed studies attracted students interested in learning traditional and modern museum techniques. We supported labs from outside of our department wishing to utilize specimens for their courses.

Service

We designed and installed two major public exhibits in 2024 and engaged with the public through the Texas Master Naturalists program, invited talks, and specimen loans to k-12 educators.

2024 HIGHLIGHTS

+58 PEER
REVIEWED
ARTICLES



+74 SPECIMEN
LOANS



+28 ACTIVE
RESEARCH
PROJECTS

Department of Ecology and
Conservation Biology, Texas A&M
College of Agriculture and Life
Sciences

College Station, TX 77843-2258

Phone: 979-845-5783

Email: brtc@tamu.edu

Read the full report



COLLECTIONS ACTIVITY 2024

Curators 2024

Kevin W. Conway, Faculty Curator of Fishes

Lee A. Fitzgerald, Faculty Curator of
Reptiles and Amphibians

Toby J. Hibbitts, Curator of Reptiles and
Amphibians

Jessica E. Light, Faculty Curator of
Mammals

Heather L. Prestridge, Staff Curator

Gary Voelker, Faculty Curator of Birds

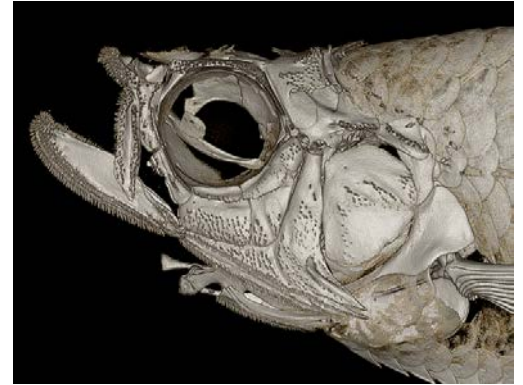
Mary K. Wicksten, Faculty Curator of
Marine Invertebrates

Our Mission

Texas A&M University's Biodiversity Research and Teaching Collections (BRTC) are dedicated to the curation of vertebrate specimens and their data in support of education, research, and conservation. The BRTC enhances collaborative and global reach through sharing digitized data sets broadly and publicly, welcoming use of our data and specimens in developing new understandings through research. Furthermore, the BRTC's mission is to support the Department of Ecology and Conservation by providing an interactive hands-on venue and resources for graduate and undergraduate research, education, and job training to prepare and grow the next generation in conservation scientists who will be able to assume roles in leadership, responsibility, and service to society.

Fishes

The Collection of Fishes added a total of 100,966 specimens divided across 3,002 lots. The total number of specimens in this collection is now 993,086, divided across 65,518 lots. In 2024, Curator of Fishes Dr. Conway described multiple species of fishes new to science including *Melanophorichthys parvipsittus* pictured in the header of this document.



Reptiles and Amphibians

The Collection of Amphibians and Reptiles added 1,868 specimens into the collection that now totals 112,049 specimens. We finalized the addition of WTAMU specimens into our collections. We also collected specimens in Texas which include species such as the two spot-tailed earless lizards and the federally endangered Houston toad.

Birds

The Collection of Birds added 3,000 specimens, bringing the total number of bird specimens to 34,340. Thousands of samples from Lights Out, Texas! salvage specimens were deployed for research projects assessing avian health. Important additions in 2024 included international material accessioned from Italian colleagues which will improve accessibility to researchers in the USA.



Mammals

The Collection of Mammals added 271 specimens, bringing the total number of mammal specimens to 68,844. Important additions included hundreds of recent bat specimens from Texas. We also entered into an agreement with National Parks Service to deposit salvage Black Bear specimens into our collections.

CURATOR RESEARCH

TX Comptroller: Surveys of Freshwater Fishes Inhabiting the Neches and Sabine River Drainages of Texas

In collaboration with Drs Joshua Perkin (TAMU, PI) and Carmen G. Montaña (Stephen F. Austin University, co-PI), Dr. Conway is aiding surveys of freshwater fishes inhabiting the Neches and Sabine River drainages of Texas. This project is funded by the [Texas Comptroller](#) and aims to compare historical survey data (compiled in the 1950s) to that of contemporary data compiled from recent surveys conducted by the research team. All material generated by this project will be deposited within the Collection of Fishes. We predict that >100,000 specimens will be generated because of project activities, helping the Collection of Fishes surpass the important milestone of 1 million specimens by 2025.

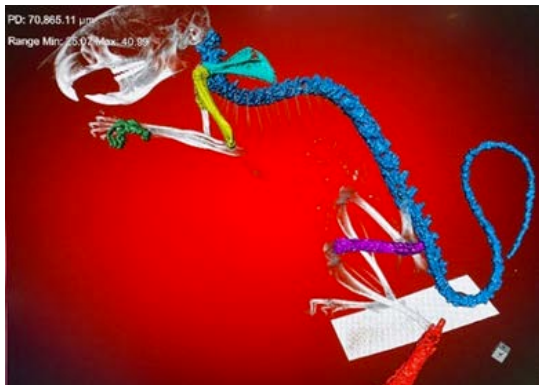


Conservation of the Imperiled Dune Sagebrush Lizard

The Dunes Sagebrush Lizard, endemic to West Texas and eastern New Mexico, has been the subject of long-term research by Fitzgerald with his students and colleagues. The species has declined due to landscape fragmentation and was recently listed as Endangered, resulting in much controversy. In 2024 Fitzgerald, Guneralp, Guneralp, and Young completed a project to assess conservation interventions across multiple scales, with the aim of guiding conservation of the Dunes Sagebrush Lizard and its habitat. Fitzgerald was interviewed by [Texas Monthly](#), [Texas Standard](#), [NPR Here&Now](#), [Vox.com](#), and other outlets about this special lizard and its conservation.

Avian Microbiomes

With Dr. Sergei Drovetski (USGS), Dr. Voelker is assessing microbiome variation in Bobwhite and Scaled Quail, Northern Mockingbirds, Golden-fronted Woodpeckers and Northern Cardinals. Specimens were collected in “clean sites” versus sites in heavy cotton production regions. We are assessing the taxonomic profiles of the microbiome, as well as the virulome, resistome and functional gene expression. This is accomplished through high throughput sequencing of the metagenome, transcriptome, and metabolome. Our first sampling for this project was in June of 2021, and additional sampling was conducted in June of 2022. We anticipate publishing a paper on mockingbird microbiomes soon.



Morphological and Genomic Diversity in the North American Deer Mouse (*Peromyscus maniculatus*)

With funding from the [National Science Foundation](#), Dr. Light is exploring genomic data and 3D geometric morphometric data (taken primarily from fluid-preserved specimens) to explore diversity of putative species within *Peromyscus maniculatus* throughout its entire geographic range. Specimens from the BRTC, in addition to specimens from other natural history collections have been instrumental in this work.

STUDENT ENGAGEMENT



Field Courses

Curators from the BRTC offered opportunities for students to get their feet wet and muddy with field courses including ECCB 316 Field Herpetology and ECCB 314/614 Biology of Gulf Coast Fishes. Field experiences train students in techniques that can't be learned in a classroom setting. Specimens collected during the field courses are deposited at the BRTC. International opportunities were also offered by BRTC curators and included Study Abroad experiences in South Africa and Trinidad.

Vertebrate Labs

The BRTC hosted ECCB on-site labs impacting over 600 students in 2024 including courses ECCB 401- Mammalogy, ECCB 402- Ornithology, ECCB 311- Ichthyology, ECCB 315- Herpetology, ECCB 316 Field Herpetology, ECCB 302- Diversity and Evolution of the Vertebrates, ECCB 314/614- Biology of Gulf Coast Fishes. All courses were curator instructed and labs instructed by graduate student TAs of the curators.

Directed Studies

Curators from the BRTC offered ECCB 485 Directed Studies for students to engage in all aspects of specimen curation and research. Typical tasks included specimen preparation, data digitization, installation of specimens and general curation.

Student Internships

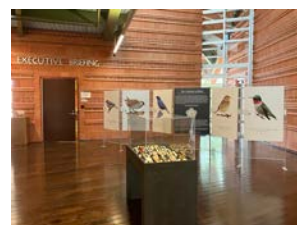
Student internships at the BRTC were offered across the collections and attracted students interested in learning museum techniques. Many exceptional students have emerged from BRTC internships including, [Skyler Nix](#), as who has established himself as a conservation leader on campus and prime example of the impact of the BRTC in the development on our next generation.



COMMUNITY ENGAGEMENT

Public Exhibits

In 2024, the Collection of Birds (Prestridge/Voelker) installed the Lights Out, Texas! exhibit at Dogwood Canyon Audubon Center in Cedar Hill TX, the Cedar Hill City Building and the Parker-Astin event space in historic downtown Bryan and attracted sponsorship dollars from HEB, Wild Spirit Wild Places, CollidEscape, Destination Bryan and Titos Vodka. In association with the exhibit, we hosted a Lights Out partners meeting and collections open house with leadership from Texan By Nature, Audubon Texas, Defenders of Wildlife, Texas Conservation Alliance and others. The exhibit served as the centerpiece for Dr. Perry Barbozas ECCB 308 Fundamentals of Environmental Decision-Making, engaging undergraduates in the issues of bird window collisions.



The Collection of Amphibians and Reptiles (Fitzgerald) installed an exhibit in Stark Galleries collaboratively with Dr. Amanda Stronza and conservation artist Rachel Ivanyi. The exhibit included animal memorials with scientific specimens and ecological data to place the problem of road-killed animals in broad societal contexts. Visitors experienced the memorials for road-killed animals, side-by-side with scientific specimens and data, and were moved by the realization these animals were individuals who lived and died. The exhibit inspired the audience to ponder ways to make roads safer for everyone. The exhibit was funded by the Texas A&M University Academy of Visual and Performing Arts and featured in Texas Monthly and KAMU Heart of the Art podcast

Texas Master Naturalists

Texas Master Naturalists training took place at the BRTC in 2024 with chapter members donating their time to assist with curatorial tasks and maintenance of the outdoor classroom and native garden. In addition to their training class, the chapter hosted a native plant sale at the BRTC as a fundraiser for the groups activities. Prestridge continues to serve as chapter advisor and coordinates their use of space in the BRTC and volunteer activities.



EXTRAMURAL SUPPORTERS

