



Biology Newsletter

DECEMBER 2020 NEWSLETTER

BIOLOGY SPOTLIGHT

20 Years of Service, Experience, and Fun! Beloved DBS Staff Member Pat Moore Retires



For almost 20 years, Pat Moore's smiling face has been the first thing you see upon entering the DBS Office. From Abilene, Texas, Pat graduated from Abilene High School in 1959. She then attended Texas Tech University where she majored in Education and pledged the Zeta Tau Alpha Sorority. After her time at TTU, Pat went on to be a flight attendant with Braniff International Airways before settling down in Richardson, Texas to raise her three children, Monica, John, and Kristie.

In 2001, Pat began her career in our department, being hired by Dr. Carlton Phillips to work as the Senior Office Assistant for DBS. Pat has worked with numerous Department Chairs, faculty, and staff during her tenure. She most enjoyed working with graduate and undergraduate students, making lifelong relationships and memories. During retirement Pat will be looking forward to spending more time with her grandchildren and looks forward to what the future holds. Pat would like to thank everyone in the department who she has worked alongside and has loved every minute of it!

FACULTY AND GRADUATE STUDENT EFFORTS

Dr. Jorge Salazar-Bravo edited a volume in honor of Syd Anderson's contributions to Neotropical and Bolivian Mammalogy in the journal *Therya*. The volume includes 15 papers, contributed by 42 authors from 25 institutions. Dr. Salazar-Bravo also gave a virtual keynote address at the bi-annual meeting of the Ecuadorian Mammal Society on Saturday, October 24th.

Nancy McIntyre is co-PI on a grant from the TTU College of Visual and Performing Arts in a "STEAM collaboration" to develop place-based curriculum for two east Lubbock elementary schools. Dr. McIntyre also captured a photo recently of a striped bark scorpion (*Centruroides vittatus*) under a blacklight. Scorpions fluoresce under UV light for unknown purposes (many are speculated), but it makes them easy to spot if you're out at night with a UV flashlight!

Kendra Phelps was a student in Dr. Tigga Kingston's lab and is featured in an episode of Nat Geo on Sunday 8C called Virus Hunters. Kendra travels all over Europe chasing bats and viruses.

Noshin Mubtasim, (Ph.D. Student, Gollahon Lab) recently got the confirmation of getting Study Abroad Competitive Scholarship (SACS) for Spring 2021.

In the lab of Dr. David Ray, **Diana Moreno** spoke on a panel related to the COVID-19 pandemic discussing Zoonotic Detective and how Animals can be ground zero for infectious diseases.



Nicole Paulat (Ph.D. Student, Ray Lab) and **Jenna Grimshaw** (Ph.D. Student, Ray Lab) both presented their research at the Biodiversity Genomics 2020 meeting. While virtual, the meeting itself was hosted by the Wellcome Sanger Institute in Cambridge, UK. Ms. Paulat presented her research on mutation rates related to genomic change in Myotis bats and Mrs. Grimshaw discussed her work studying the genetic diversity of the Northern long-eared bat in the US.

Dr. Hong Zhang was recently featured on Texas Tech Discoveries in an article titled "[Researchers Double Cotton Yields With Genetic Modification](#)" where they discussed his current research, finding a way to double fiber yield for cotton in semi-arid areas like that of West Texas, where drought, heat, and salinity are working against farmers.

Mohammad Jodeiri-Farshbaf (Ph.D. Student, Alvina Lab) recently won the 3-min thesis competition at Tech and will go on to compete nationally next year. Mohammad was also featured in [Texas Tech Today](#) discussing his research.

AWARDS AND PRESENTATIONS

Evan Perkowski (Ph.D. Student, Smith Lab) participated in this year's remote Graduate Climate Conference where he presented a poster titled "Plant carbon costs to acquire nitrogen are determined by interactions between plant nitrogen demand, soil nitrogen availability, and nitrogen acquisition strategy". This is a conference put on by graduate students at the University of Washington for other graduate students conducting work relevant to climate science.

Dr. Nick Smith, Graduate Student Risa McNellis and Dr. Natasja Van-Gestel recently presented at the Fall Meeting of the American Geophysical Union, with a talk titled, "Winter cover cropping increases albedo and latent heat flux in the Texas High Plains". Dr. Smith also presented another talk, "How does optimal photosynthetic acclimation affect future carbon and nutrient cycling?".

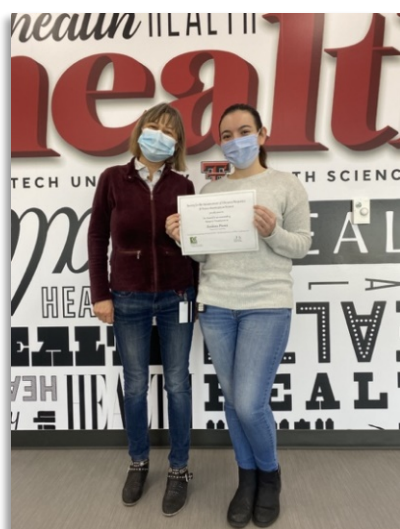
Karishma Bishit (Ph.D. Student, Wakeman Lab) was awarded a Doctoral Dissertation Completion Fellowship by the Texas Tech graduate school.

Sean Sutor (M.S. Student, McIntyre Lab) won a Best Presentation award in GIS in Wildlife Ecology at The Wildlife Society's annual meeting.

Danielle Husband, another M.S. student in the McIntyre Lab, won a TTU Graduate School Graduate Student Research Support Award.

Md Ashraf Ul Hasan, (Ph.D. Student, Kingston Lab) won the Michelle C. Knapp Memorial Scholarship for 2020.

Dr Tigga Kingston was invited to present "NASBR in the 2000s" as part of the North American Society for Bat Research's Celebration of its 50th Anniversary on November 20th, 2020.



Undergraduate Honors student **Andrea Perez** working under the supervision of **Dr. Zemfira Karamysheva** won an award at the national SACNAS conference promoting multidisciplinary and multicultural STEM diversity for her research presentation titled: *Study of Ribosome Specialization in Leishmania Parasites Using Polysomal Profiling and CRISPR-Cas9 Gene Editing Technology*.

In the Lab of **Dr. Amanda Brown**, Graduate Student **McKinlee Salazar** presented at the virtual Entomology Conference where she discussed her research over Genomic characterization of endosymbionts found in the bacteriomes of Brazilian Membracids. Undergraduate student **Liane Vásquez-Weber** presented a poster at ABRCMS titled "An initial computer model of biochemical signals through the gut-brain-axis".

PUBLICATIONS

Dr. Lauren Gollahon's Lab:

- Munir, M.T., Ponce, C., Santos, J.M., Sufian, H.B., Al-Harrasi, A., Gollahon, L.S., Hussain, F., Rahman, S.M. VD3 and LXR agonist (T0901317) combination demonstrated greater potency in inhibiting cholesterol accumulation and inducing apoptosis via ABCA1-CHOP-BCL-2 cascade in MCF-7 breast cancer cells. (2020). <https://doi.org/10.1007/s11033-020-05854-0>
- Xu, H., Liu, Q., Casillas, J., Mcanally, M., Mubtasim, N., Gollahon, L.S., Wu, D., Xu, C. Prediction of Cell Viability in Dynamic Optical Projection Stereolithography-Based Bioprinting Using Machine Learning. (2020).

Dr. Breanna Harris' Lab:

- Harris, B., McCarthy, P., Wright, A., Schutz, H., Boersma, K., Shepherd, S., Manning, L., Malisch, J. & Ellington, R. From panic to pedagogy: Using online active learning to promote inclusive instruction in ecology and evolutionary biology courses. *Ecology and Evolution*. (2020). <https://onlinelibrary.wiley.com/doi/10.1002/ece3.6915>
- Sistrunk, M., Cherrington, C., Harris, B.N., Feeling the pressure: complications associated with pregnancy. *National Center for Case Study Teaching in Science*, https://sciencecases.lib.buffalo.edu/collection/detail.html?case_id=1153&id=1153. (2020).

Dr. Tigga Kingston's Lab:

- Kading, R. & Kingston, T. Common ground: the foundation of interdisciplinary research on bat disease emergence. (2020). *PLOS Biology* 18(11): e3000947. <https://doi.org/10.1371/journal.pbio.3000947>
- Zimmerman, A., Macdonald, E. & Kingston, T. Why Mauritius is culling an endangered fruit bat that exists nowhere else. *The Conversation*. [Why Mauritius is culling an endangered fruit bat that exists nowhere else \(theconversation.com\)](https://theconversation.com/why-mauritius-is-culling-an-endangered-fruit-bat-that-exists-nowhere-else) (2020).

Dr. Nancy McIntyre's Lab:

- Heintzman, L.J., Auerbach, E.S., Kilborn, D.H., Starr, S.M., Mulligan, K.R., Barbato, L.S., McIntyre, N.E. Identifying areas of wetland and wind turbine overlap in the south-central Great Plains of North America. (2020). [Landscape Ecology 35:1995-2011](https://doi.org/10.1002/land.20111).
- Kabat, K.L., Roth, S., Emert, A., & Sutor S. Geographic distribution: *Sistrurus tergeminus* (Western Massasauga). *Herpetological Review* 51(4):783-784. (2020).
- McIntyre, N.E., Urban areas and urban ecology. Chapter 1 in: *The Routledge Handbook on Urban Ecology*. (2020).

Dr. Matt Olson's Lab:

- Sanderson, B.J., DiFazio, S.P., Cronk, Q.C.B., Ma, T., Olson, M.S., *A targeted sequence capture array for phylogenetics and population genomics in the Salicaceae*. Applications in Plant Sciences, (2020). [8\(10\): p. e11394](https://doi.org/10.1002/aps.11394).

- Yang, W., Wang, D., Li, Y., Zhang, Z., Tong, S., Li, M., Zhang, X., Zhang, L., Ren, L., Ma, X., Zhou, R., Sanderson, B.J., Keefover-Ring, K., Yin, T., Smart, L.B., Liu, J., DiFazio, S.P., Olson, M.S., Ma, T. A general model to explain repeated turnovers of sex determination in the Salicaceae, *Molecular Biology and Evolution*, (2020). msaa261. <https://doi.org/10.1093/molbev/msaa261>
- Xue, L., Wu, H., Chen, Y., Li, X., Hou, J., Lu, J., Wei, S., Dai, X., Olson, M.S., Liu, J., Wang, M., Charlesworth, D., & Yin, T., *Evidences for a role of two Y-specific genes in sex determination in Populus deltoides*. (2020). *Nature Communications*, **11**(1): p. 5893.

Dr. Caleb Phillips' Lab:

- Tipton, C.D., Wolcott, R.D., Sanford, N.E., Miller, C., Pathak, G., Silzer, T.K., Sun, J., Fleming, D., Rumbaugh, K.P., Little, T.D., Phillips, N., Phillips, C.D. Patient genetics is linked to chronic wound microbiome composition and healing. (2020). *PLOS Pathog*, **16**:e1008511

Dr. Sean Rice's Lab:

- Nafees, S., Rice, S.H., Wakeman, C.A., Analyzing genomic data using tensor-based orthogonal polynomials with application to synthetic RNAs, *NAR Genomics and Bioinformatics*, (2020). <https://doi.org/10.1093/nargab/lqaa101>

Dr. Jorge Salazar-Bravo's Lab:

- Rico-Cernohorska, A., Salazar-Bravo, J., Martínez, J., Revollo-Cadima, S.G., Kindlmann, P. Altitudinal variation of species composition of small non-flying mammals in the Yungas region of Bolivia. (2020). *Therya* 11: 447-458, DOI: [10.12933/therya-20-1000](https://doi.org/10.12933/therya-20-1000) ISSN 2007-3364

Dr. Dylan Schwilk's Lab:

- Wigley B. J., Charles-Dominique T., Hempson G. P., Stevens N., TeBeest M., Archibald S., Bond W. J., Bunney K., Coetsee C., Donaldson J., Fidelis A., Gao X., Gignoux J., Lehmann C., Massad, T. J., Midgley J. J., Millan M., Schwilk D., Siebert F., Solofondranohatra C., Staver A. C., Zhou Y., Kruger L. M., A handbook for the standardised sampling of plant functional traits in disturbance-prone ecosystems, with a focus on open ecosystems. *Australian Journal of Botany* in press. (2020). <https://doi.org/10.1071/BT20048>

Dr. Catherine Wakeman's Lab:

- Trivedi, D., Vinitha, C.M., Bisht, K., Janardan, V., Pandit, A., Basak, B., Shwetha, H., Ramesh, N., Padinjat, R., A genome engineering resource to uncover principles of cellular organization and tissue architecture by lipid signalling. *eLife* (2020). 9:e55793 DOI: [10.7554/eLife.55793](https://doi.org/10.7554/eLife.55793)

ANNOUNCEMENTS

The Texas Tech Association of Biologists is back online! We would love department faculty, staff, and alumni to follow us on Instagram and Facebook. Expect fresh content about what our members are researching, community service opportunities in Lubbock, and more. If anyone would like to contribute any photos or updates to our pages, send this content to our TTUAB Treasurer, Danielle Husband at Danielle.Husband@ttu.edu.

DECEMBER 2020 NEWSLETTER

GRADUATES DECEMBER 2020

Doctoral and Master's Graduates:

Matthew Brym (Master's)

Advisor: Dr. Ron Chesser

Thesis-Dissertation: *"An Assessment of Monarch Butterfly (Danaus Plexippus) Prevalence and Milkweed (Asclepias Spp.) Restoration in the Rolling Plains of West Texas"*

Sergio Castro Gonzalez (Ph.D.)

Advisor: Dr. Ruth Serra-Moreno & Dr. Lauren Gollahon

Thesis-Dissertation: *"Understanding the Mutual Antagonism Between HIV and Autophagy"*

Yu Ning (Ph.D.)

Advisor: Dr. Kai Zhang

Thesis-Dissertation: *"Investigating the Roles of Lathosterol oxidase and Sterol C4-demethylase in Leishmania Survival, Stress Response and Virulence"*

Betzaida Rivera (Ph.D.)

Advisor: Dr. Lou Densmore

Thesis-Dissertation: *"Difference in Heavy Metal Concentrations in the American Crocodile (Crocodylus Acutus) in Coiba Island National Park and The Gulf of Montijo, Panama"*

Undergraduate Graduates:

Alvarez, Daysi M.

Alvizo, Ashli N.

Arnold, Shjon T.

Arzate, Fabiola

Ash, Kameron L.

Bakama, Waibi E.

Beckelhymer, Kaitlin A.

Bell, Audrey M.

Bharadwaj, Taru

Boakye, Derick N.

Burrow, Lauren T.

Campos, Tabitha R.

Choi, Kyeongeun

Clifford, Clarissa I.

Cognasi, Savannah P.

Couch, Jennifer S.

Dalton, Tymon G.

Deans, Rebecca L.

Delgado, Betsaida A.

Delgado, Emily N.

Denton, McKenna E.

Everhart, Haliagh A.

Gallia, Oliver P.

George, Feba

George, Sarah

Gerner, Alexandra J.

Glidewell, Shane A.

Gonzalez, Diego

Graham, Kevin V.

Graham, Walker C.

Green, Conley J.

Guesmia, Sarra

Howell, Heather N.

Hubbard, Justice E.

Hylden, Evan H.

Irshid, Maryam

Johnston, Lyndsay T.

Jurado, Javier M.

Ledesma, Desirae

Long, Cathy N.

Loredo, Gisell C.

Manjane, Maya N.

McCoy, Shaeley J.

Mendez, Jennifer J.

Ming, Ethen L.

Morrah, Faith N.

Navarajo, Nicole J.

Nguyen, Annabelle T.

Nguyen, Mary A.

Northcut, Willem O.

Obisesan, Eniola A.

Oconnor, Emma G.

Padro, Alexandria N.

Pina, Elias A.

Pinal, Amanda I.

Ramos, Hazzel R.

Randolph, Kira K.

Roberts, Jacquelyn S.

Robinson, Mary K.

Rosado Alvarez, Yulitza

M.

Rosing, Conner S.

Roth, Cade G.

Rutayomba, Elwin B.

Santana Lamboy,

Gabriela M.

Shawky, Ibrahim M.

Shwani, Jila R.

Stephens, Ryan P.

Tairu, Fisayo A.

Thomas, Sarah K.

Thompson, Jared E.

Tienda, Alyssa M.

Trimier, Arden T.

Ugwa, Destiny O.

Valenzuela, Kaleb K.

Vasquez, Erin A.

Wahl, Joseph A.

Weitzel, Ryan E.

Worsham, Asha E.

Young, Kobe A.

Congrats and Happy Holidays to all our hard-working
students and faculty!



“So birds of peace and hope and love
Come fluttering earthward from above,
To settle on life’s window-sills,
And ease our load of earthly ills”

- Paul Laurence Dunbar (1872-1906)
(excerpt from The Sparrow)

DECEMBER 2020 NEWSLETTER