



## Recognitions and Awards

**Dr. Harrell Gill-King**, director of UNT's Laboratory of Forensic Anthropology (<https://www.untchi.org/anthropology.html>) and co-founder of the UNT Center for Human Identification (<https://www.untchi.org/Forensic.html>) was awarded the T. Dale Stewart Award by the American Academy of Forensic Sciences for his outstanding work in forensic anthropology. His peers nominated him for this award for the outstanding work he has conducted in forensic anthropology. Dr. Gill-King, whose research interests are in forensic biology and anthropology, has joint appointments at UNT-Denton and the UNT Health Science Center. At UNT-Denton, he teaches Introduction to Physical Anthropology, Human Evolution and Physical Anthropology, and Biomedical Criminalistics.



Dr. Harrell Gill-King

## Thesis and Dissertation

Congratulations to our graduate students who successfully defended their thesis/dissertation.

**Olubu Adeoye Adiji** successfully defended his PhD thesis '*Identification, Characterization and Engineering of UDP-Glucuronosyltransferases for Synthesis of Flavonoid Glucuronides*' on August 28, 2020. Distinguished Research Professor Dr. Richard Dixon was Ade's dissertation advisor.



Olubu Adiji



Delany Baum

**Abdulmajeed Alharbi** defended his PhD dissertation '*Role of 5.8S rRNA in Zebrafish and Human Blood Coagulation*'. The defense was on July 22, 2020. Abdulmajeed is now back home in Saudi Arabia. Dr. Pudur Jagadeeswaran was Abdulmajeed's dissertation advisor.

**Delany Baum** successfully defended her MS thesis 'Documenting the presence and abundance of endangered native Texas plants and assessing their risk for extinction'. Her major professor is Aaron Roberts. Delany has accepted a position as Project Coordinator at Texas A&M AgriLife Research Agency.



Sarah Daniels

**Sarah Daniel** successfully defended her PhD dissertation '*Investigating the Effects of Traffic – Generated Air Pollution on the Microbiome Immune Responses in Wild-Type Mice Lung*'. Sarah's major advisor was Associate Professor Dr. Amie Lund,

**Sarah Johnson** successfully defended her MS thesis '*Comparative Resistomics of Ancient and Modern Human Microbiomes*'. Sarah's major advisor was Associate Professor Dr. Rajeev Azad. Sarah is pursuing her PhD in Human Health and Biology at the University of Oklahoma.



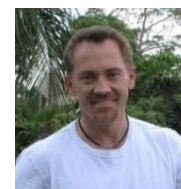
Sarah Johnson

**Garrett Meeks** defended his MS thesis '*Peregrine Falcon (*Falco peregrinus*) Subspecies Phylogenomics Using Whole Genome Re-Sequencing*'. Garrett's thesis advisor was Associate Professor Dr. Jeff Johnson.

**Karem Vazquez Roman** defended his MS thesis '*Metabolic responses to crude oil during very early development in zebrafish (*Danio rerio*)*'. Distinguished Research Professor Dr. Warren Burggren was Karem's thesis advisor.

## Faculty Promotions

**Dr. Dane Crossley** was promoted to the rank of Professor. Dr. Crossley is an integrative physiologist investigating the power of phenotypic plasticity in establishing the limits of cardiopulmonary capacity during periods of elevated metabolic rate that accompany exercise and digestion.



Dr. Dane Crossley

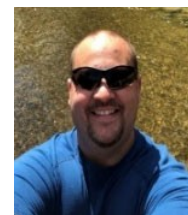


Dr. Hyunju Kim

**Dr. Hyunju Kim** was promoted to the rank of Senior Lecturer. Dr. Kim is Lecturer and Faculty Advisor in the department. As a lecturer, she teaches Biology for Science Majors I, Microbiology, and Medical Bacteriology. As a faculty advisor, she advises our undergraduate students as they progress through their degree requirements, is involved with curriculum updates and departmental scholarships, in enriching student campus experience as the faculty advisor for student organizations and connecting current students with our alum.

## Faculty Appointments

**Dr. Andrew Gregory** joined the Department at the rank of Assistant Professor. Dr. Gregory is a wildlife and conservation biologist, with a specific research focus on the spatial ecology of wildlife. Prior to joining UNT, he served on the faculty at Bowling Green State University. He received his PhD in Biology (Ecology and Evolutionary Biology) from Kansas State University.



Dr. Andrew Gregory Dr. Yangqing Deng

**Dr. Yangqing Deng** joined UNT as Assistant Professor with joint appointments in the Department of Mathematics and Department of Biological Sciences. Dr. Deng received his PhD in Biostatistics from the University of Minnesota. His research interests are in developing methodology in statistical genetics that have applications in medicine and addressing biological problems.

**Dr. Lisa Welch** joined the Department at the rank of Lecturer. Prior to joining UNT, Dr. Welch was a faculty member at Midland College and Weatherford College. Dr. Welch's expertise are in the area of reproductive physiology. She received her PhD from Texas Tech University.

**Dr. Brian Meckes**, Assistant Professor in Biomedical Engineering was appointed Adjunct Professor in the department. Dr. Meckes research interests are in the development and application of nanopatterning for controlling diverse cell behaviors that include controlling stem cell differentiation and identifying novel nanoparticle uptake pathways. His group also synthesizes novel nanoparticles that have next generation functionality for enhanced delivery control. Dr. Meckes obtained his PhD in Bioengineering from the University of California, San Diego, where he was a recipient of an NIH Ruth Kirschstein Predoctoral F31 Fellowship. Prior to joining UNT, Dr. Meckes was an International Institute for Nanotechnology and the Eden and Steven Romick Postdoctoral Fellow at Northwestern University.



Dr. Lisa Welch Dr. Brian Meckes

## More Biology News

The University of North Texas student chapter of the Society for Ecological Restoration and the students of the Ecology Laboratory (BIOL2141) participated in the Dallas-Fort Worth Fall 2020 Socially Distant BioBlitz on iNaturalist. Over 50 UNT students and Dr. Jaime Baxter-Slye comprised nine percent of the total 35,719 observations made during the six-day bioblitz of the DFW area. They documented 845 species, with some never identified on iNaturalist in Denton County prior to the challenge. Students were able to interact with some of the leading experts for various taxa, not only in our regional area, but global experts as well.

Overview of the University of North Texas Pecan Creek Pollinative Prairie: an undergraduate education experience aiming to reconstruct a native, north central Texas prairie in an urban setting. Texas Plant Conservation Conference hosted by the Botanical Research Institute of Texas, Restoration Session, Virtual meeting Fort Worth, Texas, August 13 – 14, 2020. Best Undergraduate Presentation Award to Clarissa M. Molina, Savannah M. Thomas, and Dr. Jaime Baxter-Slye.



## Extramural Grants and Contracts

*Genetic analysis comparing Oklahoma, Kansas, and Nebraska Greater Prairie-Chicken Populations.* OK State Wildlife Research Grant. \$164,474. UNT PI: Andrew J. Gregory; Collaborator: Lena Larson.

NERC/NSF: *Wildlife corridors: do they work and who benefits?* National Environmental Research Council, UK/ National Science Foundation, USA. £600K and \$499,995. UNT PI: Andrew J. Gregory; Collaborators: James Bullock, Justin Travis, Paul Beier, Emma Spence.

## Publications

Ayre B.G., El-Gebaly F.E., McGarry R.C. (2020) eXtra Botany Insight: Virus induced flowering – A tool for cereals. *Journal of Experimental Botany* 71: 2839-2841. <https://academic.oup.com/jxb/article/71/10/2839/5848912>

Basta, N. E., Berthe, A., Keita, M., Onwuchekwa, U., Tamboura, B., Traore, A., Hassan-King, M., Manigart, O., Nascimento, M., Stuart, J. M., Trotter, C., Blake, J., Carr, A. D., Gray, S. J., Newbold, L. S., Deng, Y., Wolfson, J., Halloran, M. E., Greenwood, B., Borrow, R., Sow, S. O. (2018). Meningococcal carriage within households in the African meningitis belt: A longitudinal pilot study. *The Journal of infection*, 76(2), 140-148.

Berstis, L., Elder, T., Dixon, R.A., Crowley, M., Beckham, G.T. (2020) Coupling of flavonoid nucleation sites with monolignols studied by density functional theory. *ACS Green Chemistry* 8: 11033-11045.

Butela, K., Chung, H.-M., Hughes, L., Monti, D. L. (2020). Student and Faculty Tools for Generating High-Quality Phage Annotations. <https://qubeshub.org/publications/2048/1>.

Chaturvedi, R., Giri, Mrunmay, Chowdhury, Z., Venables, B.J., Mohanty, D., Petros, R.A., Shah, J. (2020) CYP720A1 function in roots is required for flowering time and systemic acquired resistance in the foliage of *Arabidopsis*. *Journal of Experimental Botany*. eraa374, <https://doi.org/10.1093/jxb/eraa374>.

Contador, T., Gañan M., Bizama G., Fuentes-Jaque G., Morales L., Rendoll, J., Kennedy J., Rozzi, R., Convey, P. (2020) Assessing distribution shifts and ecophysiological characteristics of the only Antarctic winged midge under climate change scenarios. *Nature Sci Rep* 10, 9087 (2020). <https://www.nature.com/articles/s41598-020-65571-3>

Deng, Y., Pan, W. (2020). A powerful and versatile colocalization test. *PLoS computational biology*, 16(4), e1007778. <https://doi.org/10.1371/journal.pcbi.1007778>.

Dixon, R.A. and Sarnala, S. (2020). Proanthocyanidins- a matter of protection. *Plant Physiology*. Published online August 2020. DOI:10.1104/pp.20.00973.

Gallardo, G., Pacheco, L.F., Rios, R.S., Jiménez, J.E. (2020) Predation of livestock by puma (*Puma concolor*) and culpeo fox (*Lycalopex culpaeus*), numeric and economic perspectives. *Therya*. DOI: 10.12933/therya-20-986 ISSN 2007-334.

Gañan, M., Contador, T., Rendoll, J., Simoes, F., Pérez, C., Graham, G., Castillo, S., Kennedy, J., Convey, P. (2020) Records of *Parochlus steinenii* in the Maritime Antarctic and sub-Antarctic regions. Version 1.2. Universidad de Magallanes. Occurrence dataset available at <https://doi.org/10.15468/2cfwd7> accessed via GBIF.org on 2020-09-20.

Holbrook, D.L., Schad, A. N., Dick, G.O. Dodd, L.L. and Kennedy, J.H. (2020) Invasive bivalve establishment as a secondary effect of eradication-focused nuisance aquatic plant management. *Lake and Reservoir Management Journal*. Published online: 01 Jun 2020. DOI: 10.1080/10402381.2020.1756008.

Jacobs-Sera, D., Abad, L. A., Alvey, R. M., Anders, K. R., Aull, H. G., Bhalla, S. S., Blumer, L. S., Bollivar, D. W., Bonilla, J. A., Butela, K. A., Coomans, R. J., Cresawn, S. G., D'Elia, T., Diaz, A., Divens, A. M., Edgington, N. P., Frederick, G. D., Gainey, M. D., Garland, R. A., Grant, K. W., Gurney SMR, Hendrickson, H. L., Hughes, L., Kenna, M. A., Klyczek, K. K., Kotturi, H., Mavrich, T. N., McKinney, A. L., Merkhofer, E. C., Moberg Parker, J., Molloy, S. D., Monti, D. L., Pape-Zambito, D. A., Pollenz, R. S., Pope, W. H., Reyna, N. S., Rinehart, C. A., Russell, D. A., Shaffer, C. D., Sivanathan, V., Stoner, T.H., Stuke, J., Sunnen, C. N., Tolsma, S. S., Tsourkas, P. K., Wallen, J. R., Ware, V. C., Warner, M. H., Washington, J. M., Westover, K. M., Whitefleet-Smith, J. L., Wiersma-Koch, H. I., Williams, D. C., Zack, K. M., Hatfull, G. F. (2020) Genomic diversity of bacteriophages infecting *Microbacterium* spp. PLOS One, 15(6), e0234636. <https://dx.plos.org/10.1371/journal.pone.0234636>.

Jara, R.F., Crego, R.D., Samuel, M.D., Rozzi, R., Jiménez, J.E. (2020) Nest-site selection and breeding success of passerines in the world's southernmost forest. PeerJ 8:e9892 DOI: 10.7717/peerj.9892.

Kala, A.K., Atkinson, S.F., Tiwari, C. (2020) Exploring the socio-economic and environmental components of infectious diseases using multivariate geovisualization: West Nile Virus", PeerJ, DOI 10.7717/peerj.9577, 25 pgs. <https://peerj.com/articles/9577/>.

Knutson, K. A., Deng, Y., Pan, W. (2020). Implicating causal brain imaging endophenotypes in Alzheimer's disease using multivariate Iwas and GWAS Summary Data. *NeuroImage*. <https://doi.org/10.1016/j.neuroimage.2020.117347>.

McGarry R.C., Rao X., Li Q., van der Knaap E., Ayre B.G. (2020) SINGLE FLOWER TRUSS and SELF-PRUNING signal developmental and metabolic networks to guide cotton architectures. *Journal of Experimental Botany*. Published on-line ahead of print. <https://academic.oup.com/jxb/advance-article/doi/10.1093/jxb/eraa338/5879959>.

Moretti, A., Arias, C.L., Mozzoni, L.A., Chen, P., McNeece, B.T., Rouf Mian, M.A., McHale, L.K., and Alonso, A.P. (2020) Workflow for the quantification of soluble and insoluble carbohydrates in soybean seed. *Molecules* 25(17), 3806. <https://doi.org/10.3390/molecules25173806>.

Regmi K.C., Yogendra K., Farias J.G., Li L., Kandel R., Yadav U.P., Sha S., Trittermann C., Short L., George J., Evers J., Plett D., Ayre B.G., Roy S.J., and Gaxiola R.A. (2020) Improved yield and photosynthate partitioning in *AVP1* expressing wheat (*Triticum aestivum*) plants. *Frontiers in Plant Science* 11. <https://www.frontiersin.org/articles/10.3389/fpls.2020.00273/full>.

Rendoll, J., Contador, T., Convey, P., and Kennedy, J. (2020) Sub-Antarctic freshwater invertebrate thermal tolerances: an assessment of critical thermal limits and behavioral responses. *Polar Entomology. Insects* (ISSN 2075-4450). <https://doi.org/10.3390/insects11020102>  
Reynolds Kirby, A., Crossley, D. and Mager, E. (2020) the metabolism and swimming performance of sheepshead minnows (*Cyprinodon variegatus*) following thermal acclimation or acute thermal exposure. *Journal of Comparative Physiology B*. 190(5):557-568. <https://doi.org/10.1007/s00360-020-01293-2>.

Schad, A.N., Kennedy, J.H., Dick, G.O. and Dodd, L. (2020) Aquatic macroinvertebrate richness and diversity associated with native submerged aquatic vegetation plantings increases in longer-managed and wetland-channeled effluent constructed urban wetlands. *Wetlands Ecological Management* 28, 461– 477. <https://doi.org/10.1007/s11273-020-09724-1>

Shiva, S., Samarakoon, T., Lowe, K.A., Roach, C., Vu, H.S., Colter, M.; Porras, H., Hwang, C., Roth, M.R., Tamura, P., Li, M.; Schrick, K., Shah, J., Wang, X., Wang, H., Welti, R. (2020) Leaf lipid alterations in response to heat stress of *Arabidopsis thaliana*. *Plants* 9: 845. <https://doi.org/10.3390/plants9070845>

Wisner, E., Bortz, B., Anders, K., Davis, W., Hughes, L. (2020) Understanding Gene Prediction Programs. <https://qubeshub.org/publications/2029/1>.

## Conference Presentations

Adolfo, L., Alvarez-Hernandez, A., Dixon, R. (2020) Molecular Analysis of the Route for C-glycosylation in the Biosynthesis of Puerarin. *Plant Biology 2020, American Society of Plant Biologists Annual Meeting, Virtual Worldwide Summit*

Atkinson, S.F. (2020) Selecting reasonable alternatives in NEPA analyses using the paired comparison technique, *Strategic Environmental Planning for DoD Environmental Professionals Virtual Workshop, July 16-August 11*.

Atkinson, S.F. (2020) Principles of considering future environmental conditions in NEPA analyses, *Advanced Environmental Law for DoD Environmental Professionals Virtual Workshop, August 20-September 15*.

Barros, J., Zhang, J., Tuskan, G.A. Dixon, R.A., and Muchero, W. (2020). Natural variation of lignin metabolism in the *Populus trichocarpa* GWAS population. *Plant Biology Worldwide Summit 2020, American Society of Plant Biologists annual meeting, Washington, DC*.

Barros, J., Shrestha, H., Serrani-Yarce, J.C., Abraham, P.E., Hettich, R.L., and Dixon, R.A. (2020). Understanding grass lignin metabolism from *Brachypodium* proteomics data. *Plant Biology Worldwide Summit 2020, American Society of Plant Biologists annual meeting, Washington, DC*.

Castro-Moretti, F.R\*, Gonzalez, H.C, Slot, J.C, Chaverri, P, and Alonso, A.P (2020). Secondary metabolism diversity associated with coffee management practices. *BioDiscovey Institute Annual Retreat, Denton, TX. \*1st Place Best Postdoctoral Lightning Presentation*.

Gilbert, Z.A., Nick, C.D., Baxter-Slye, J.L. (2020) Biodiversity of the Pecan Creek Pollinative Prairie: a classification of observational data (2016-2020) of a reconstructed native prairie on the urban University of North Texas campus as an undergraduate educational resource. *Texas Plant Conservation Conference hosted by the Botanical Research Institute of Texas, Floristics Session, Virtual meeting Fort Worth, Texas, August 13 -14, 2020*.

Hannappel, M\*, Chumchal, M., Drenner, R., Kennedy, J. and Nolan A. 2020 AAS Virtual Summer Symposium. Effect of spider taxa and body size on MeHg concentrations in shoreline spiders: Implications for their use as sentinel species. *American Arachnology Society Annual Meeting. \*Awarded the Best Poster runner-up prize*

Johnston, C., Ortiz, E., Yang, F., Arias, C., Garcia-Navarrete, L. T. G., Grotewold, E., Alonso, A.P (2020). Comparative omics as a strategy for identifying biomarkers associated with oil production in pennycress. 2020 American Society of Plant Biology Worldwide Summit. doi: 10.46678/PB.20.1332361.

Kala, A.K., Atkinson, S.F., Tiwari, C. (2020) Uncovering the hidden patterns in complex epidemiological datasets" Oklahoma South Central Arc User Group Virtual Conference, September 18.

Kala, A.K., Atkinson, S.F., and Tiwari, C. (2020) Air pollution in Texas: locked down by COVID-19", Oklahoma South Central Arc User Group Virtual Conference, September 18.

Kala A.K. and Atkinson, S.F. (2020) Air quality monitoring using open source geospatial solutions, Society for Conservation Virtual 2020 GIS Conference, August 27-September 3.

Liu, C, Yu, H., Dixon, R.A. (2020). Identifying receptors for defense signaling in Arabidopsis stems with reduced lignin content. Plant Biology Worldwide Summit 2020.

Molina, C.M., Thomas, S.M., and Baxter-Slye, J. 2020. Overview of the University of North Texas Pecan Creek Pollinative Prairie: an undergraduate education experience aiming to reconstruct a native, north central Texas prairie in an urban setting. Texas Plant Conservation Conference hosted by the Botanical Research Institute of Texas, Restoration Session, Virtual meeting Fort Worth, Texas, August 14. **Won the Best Undergraduate Presentation Award.**

Zhuo, C., Docampo-Palacios, M.L., Chen, F., Dixon R.A. (2020) Monolignol biosynthesis and utilization during the switch from G- to C-lignin accumulation in *Cleome hassleriana*. Plant Biology 2020 Worldwide Summit by ASPB. Virtual poster presentation.

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