



Awards and Recognitions



Dr. Richard Dixon

Dr. Richard Dixon, University Distinguished Research Professor was named **Thompson Reuter 2016 Highly Cited Researcher**. Dr. Dixon was also appointed, Immediate Past-President, American Society of Plant Biologists, Chair-ASPB Council and Member of the ASPB Science Policy Committee.

Kudos to **Christopher Kennedy**, undergraduate biology major, who is the recipient of the **UNT Innovation Award**, for his contribution to the discovery of a mutant allele in a wild accession of Pima cotton that leads to high oleic acid seed oil. This provides the opportunity to breed improved seed oil compositions into cotton varieties for enhanced, non-GMO food and feed applications. Chris Kennedy conducts research in Regent's Professor Kent Chapman's laboratory.



Christopher Kennedy

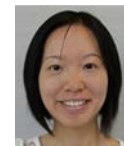
Congratulations to **Monika Patel**, graduate student in the Department of Biological Sciences, who won **1st place at UNT's 'Three Minute Thesis (3MT)'** competition, which was held on November 12, 2016. The title of Monika's presentation was "*Insect Resistant Plants: A Fight against Hunger*". Monika will represent UNT at the national 3MT[®] competition, which will be held in March during the 2017 Conference of Southern Graduate Schools in Annapolis, Maryland. Dr. Jyoti Shah, University Distinguished Research Professor is Monika's PhD advisor. Congratulations also to **Garima Saxena** and **Amrita Pal** who were the other two finalists from the Department of Biological Sciences. The title of Garima's presentation was "*Algae: Nature's Bio factories*", and Amrita's presentation was "*How Does Exercise Benefit Your Brain*". University Distinguished Research Professor Dr. Richard Dixon is Garima's PhD advisor and Associate Professor Dr. Nicoladie Tam is Amrita's PhD advisor. Additional information on UNT's 3MT finals can be found at <https://tsgs.unt.edu/graduate-student-support-services/3mt-three-minute-thesis>, and that of the 3MT[®] competition can be found at <http://threeminutethesis.org/>.



Monika Patel with other finalists and judges at UNT's 3MT competition finals

Promotion and Tenure

Congratulations to **Dr. Xiaolan Rao** on her promotion to the rank of Research Assistant Professor. Dr. Rao works on developing and application of next generation sequencing approaches for gene discovery in natural product biosynthesis, and on comparative co-expression analysis of genes involved in lignin biosynthesis across plant kingdom.



Dr. Xiaolan Rao

Other News

The **Cape Horn Biosphere Reserve** near Puerto Williams in Chile, which is part of the Sub-Antarctic Biocultural Conservation Program, a consortium led by UNT that includes other Chilean universities and institutions was **awarded \$15 million by the Chilean government** for the construction of a new Sub-Antarctic Cape Horn Center. The Cape Horn Sub-Antarctic Center will be a 2,500 square-meter building with an initiative aimed at providing world-class facilities to the Chilean Antarctic Province to promote sustainable development in the area. The building will feature a sector dedicated to scientific research that aims to attract specialists from all over the world. It also includes an interpretive visitor center where tourists can learn about the biodiversity of Cape Horn. **Dr. Ricardo Rozzi**, Professor in the Department of Religion and Philosophy and **Dr. Jim Kennedy**, Regent's Professor in Biology, direct the Sub-Antarctic Biocultural Conservation Program at UNT, which also directs a study abroad program at the Cape Horn Biosphere Reserve. Additional information can be found at <https://news.unt.edu/news-releases/unt-program-granted-millions-chilean-government-new-research-center>



Dr. Ricardo Rozzi with Chilean President Michelle Bachelet on a tour of the Miniature Forests of Cape Horn. Photo Courtesy: Universidad de Magallanes

Associate Professor **Dr. Pamela Padilla**, accepted a part-time position as an Administrative Fellow in the Office of Faculty Success in the Provost's Office. This follows her participation as a UNT Leadership Fellow in 2016.

Dr. Jim Bednarz co-organized and moderated the 2016 Raptor Research Foundation Conference, which was held October 17, 2016 in Cape May, NJ. This conference highlighted the 50 years of advancement in raptor research and conservation.



Dr. Pamela Padilla

The **Biology Graduate Student Association** hosted its annual mixer on October 5, 2016. The goal of this event was to promote communication between graduate students, post docs and faculty, and provide an outlet for them to know each other, discuss their work, exchange ideas and become aware of future opportunities in academia and industries. It also provides an opportunity for new students to meet their colleagues and find out from their peers about graduate life and resources at UNT.



Graduate students at the BGSA annual mixer

Thesis and Dissertations

Marco Vincinio Coronel successfully defended his PhD dissertation in June and graduated in December, 2016. Dr. Coronel's dissertation title is "*Effects of Brain Injury on Glial and Pericyte Primary Cilia*". He was co-advised by UNT professors Dr. Harris Schwark and Jannon Fuchs.



Dr. Marco Coronel



Megan Fitch

Megan Fitch, successfully defended her MS thesis in Environmental Sciences entitled: "*The Effects of Air Pollution on the Intestinal Microbiota: A Novel Approach to Assess how Gut Microbe Interactions with the Environment Affect Human Health*" on October 21, 2016. She has since relocated to Ireland and is planning on applying to the PhD program in the School of Biology & Environmental Science at University College Dublin. Megan's thesis advisor is Dr. Amie Lund, Assistant Professor in the Department of Biological Sciences.

New Faculty and Staff Appointments

Welcome to Assistant Professor **Dr. Edward Mager** who joined the Department of Biological Sciences in Fall 2016. Dr. Mager earned his BS degree in Biology from St. Louis University, MS degree in Biotechnology from Northwestern University and PhD degree in Marine Biology and Fisheries from the University of Miami. Over the past decade, Dr. Mager has conducted research on the effects of various environmental pollutants on freshwater and marine organisms, primarily fish. For his PhD dissertation, Dr. Mager characterized the water quality parameters that influence the waterborne toxicity of lead to two sentinel species frequently employed by the US Environment Protection Agency in setting ambient water quality criteria. More recently, his postdoctoral work focused on assessing the acute and chronic impacts of the Deepwater Horizon oil spill on the early life stages of pelagic fish species such as mahi-mahi and cobia. At UNT, his research will continue along similar lines investigating the effects of both anthropogenic and natural stressors on fish across multiple levels of biological organization from the molecular to the organismal level.



Dr. Edward Mager

The Department of Biological Sciences welcomes our new staff members **Dr. Adrea Bernardino-Schaefer**, **Sarah Wehner** and **Heather Tunnell**.



Dr. Adrea Bernardino-Schaefer

Dr. Bernardino-Schaefer joined the department as Instructional Lab Supervisor III. She will assist faculty in research requiring microscopy and in the instruction of microscopy in the forensic science program. Dr. Bernardino-Schaefer received her PhD in Human Genetics from the University of Sao Paulo in Brazil after which she completed her postdoctoral work at the Tulane National Primate Research Center, studying the role of Toll-like receptors in the pathogenesis of Lyme neuroborreliosis. More recently she worked with the private industry in the field of Forensics and Molecular Oncology Diagnostics.

Sarah Wehner joined the department as Scientific Lab Assistant. In this role, she will be involved in preparing the Introductory Biology Lab's and assisting the Instructional Lab Supervisors. Sarah received her MS in Biology from Texas Woman's University in 2015, where her research focused on the importance of hands-on science learning. She designed, created, and implemented a three-part science field trip at the Trinity River Audubon Center in Dallas. After graduating from Texas Woman's University, she taught Introductory Biology at the Des Moines Area Community College in Ames and Boone, Iowa.



Sarah Wehner

Heather Tunnell joined the department as an Administrative Specialist IV. In her role as a Biology Advising Assistant, Heather will be involved in the management of the department's biannual graduate admissions process, supervision of student progress through the graduate program, and direction of the departmental undergraduate orientations process. Prior to joining UNT, Heather was employed with the Child Protective Services where she as a conservatorship worker was responsible for working with families whose children were removed from their care, toward the goal of reunification. Before that, she worked at Texas Health Presbyterian Hospital as a rehabilitation technician where she assisted physical therapists and occupational therapists with patient care.



Heather Tunnell

Recent Publications

- Ambers, A., Churchill, J.D., King, J.L., Stoljarova, M., Gill-King, H., Assidi, M., Abu-Elmagd, M., Buhmeida, A., Budowle, B. (2016) More comprehensive forensic genetic marker analyses for accurate human remains identification using massively parallel sequencing (MPS). *BMC Genomics* 17 (Suppl 9), 750. doi: 10.1186/s12864-016-3087-2.
- Cai, Y., McClinchie, E., Price, A., Nguyen, T.N., Gidda, S.K., Watt, S.C., Yurchenko, O., Park, S., Sturtevant, D., Mullen, R.T., Dyer, J.M., and Chapman, K.D. (2016) Mouse fat storage-inducing transmembrane protein 2 (FIT2) promotes lipid droplet accumulation in plants. *Plant Biotechnology Journal*, Dec 17. doi: 0.1111/pbi.12678.
- Condini, M.V., Hoeninghaus, D.J., Soulen, B.K., Roberts, A.P., and Garcia, A.M. (2016) Mercury concentrations in Dusky Grouper *Epinephelus marginatus* in littoral and neritic habitats along the southern Brazilian coast. *Marine Pollution Bulletin*, DOI 10.1016/j.marpolbul.2016.12.006
- DeBruyn, J.M., Bevard, D.A., Essington, M.E., McKnight, J.Y., Schaeffer, S.M., Baxter, H.L., Mazarie, M., Mann, D.G.J., Dixon, R.A., Chen, F., Zhou, C., Wang, Z-Y., and Stewart Jr., C.N. (2016) Field grown transgenic switchgrass (*Panicum virgatum* L.) with altered lignin does not affect soil chemistry, microbiology and carbon storage potential. *GCB Bioenergy* doi:10.1111/gcbb.12407.
- Dzialowski, E.M., Sirsat, T.S., Sirsat, S.K.G., and Price, E.R. (2016) Breathing while altricial; the ontogeny of ventilatory chemosensitivity in red-winged blackbird (*Agelaius phoeniceus*) nestlings. *Am. J. Physiol.* 311: R1105-R1112. doi: 10.1152/ajpregu.00273.2016.
- Galli, G.L.J., Crossley, J., Elsey, R.M., Dzialowski, E.M., Shiels, H.A., and Crossley II, D.A. (2016) Developmental plasticity of mitochondrial function in American alligators, *Alligator mississippiensis*. *Am. J. Physiol.* 311: R1164-R1172. doi: 10.1152/ajpregu.00107.2016.
- Jara, R.F., Wydeven, A.P., and Samuel, M.D. (2016) Gray wolf exposure to emerging vector-borne diseases in Wisconsin with comparison to domestic dogs and humans. *PLoS ONE*. 11: e0165836.
- Khan, B.R., Wherriitt, D.J., Huhman, D., Sumner, L.W., Chapman, K.D., and Blancaflor, E.B. (2016) Malonylation of glucosylated N-laurylethanolamine: a new pathway that determines N-acylethanolamine metabolic fate in plants. *Journal of Biological Chemistry*. Nov 17. pii: jbc.M116.751065.
- Ladage, M.L., King, S.D., Burks, D.J., Quan, D.L., Garcia, A.M., Azad, R.K., and Padilla, P.A. (2016), Glucose or altered ceramide biosynthesis mediate oxygen deprivation sensitivity through novel pathways revealed by transcriptome analysis in *Caenorhabditis elegans*. *G3 (Bethesda)*, 6(10):3149-60. <http://www.g3journal.org/content/6/10/3149.long>.
- Liu, C., Wang, X., Shulaev, V. and Dixon, R.A. (2016) A role for leucoanthocyanidin reductase in the extension of proanthocyanidins. *Nature Plants*. doi:10.1038/nplants.2016.182.
- McGarry, R.C., Klocko, A.L., Pang, M., Strauss, S.H., Ayre, B.G. (2017) Virus-induced flowering: An application of reproductive biology to benefit plant research and breeding. *Plant Physiology*. 173: 47-55. doi: <http://dx.doi.org/10.1104/pp.16.01336>.
- Price, E.R. (2016) The physiology of lipid storage and use in reptiles. *Biological Reviews*. DOI: 10.1111/brv.12288.
- Rao, X. and Dixon, R.A. (2016) The differences between NAD-ME and NADP-ME subtypes of C₄ photosynthesis: more than decarboxylating enzymes. *Frontiers in Plant Science* 13 October 2016 | doi: 10.3389/fpls.2016.01525.
- Roussos, S.A. (2016) Geographic Distribution: *Eryx jaculus*. *Herpetological Review* 47(2):262.
- Roussos, S.A. (2016) Geographic Distribution: *Ophisops elegans*. *Herpetological Review* 47(2):259.
- Strachinis, I., and Roussos, S.A. (2016) Terrestrial herpetofauna of Limnos and Agios Efstratios (Northern Aegean, Greece), including new species records for *Malpolon insignitus* (Geoffroy Saint-Hilaire, 1827) and *Pelobates syriacus* Boettger, 1889. *Herpetology Notes* 9:237-248.
- Sturtevant, D., Dueñas, M.E., Lee, Y.J., and Chapman, K.D. (2016) Three-dimensional visualization of membrane phospholipid distributions in *Arabidopsis thaliana* seeds: A spatial perspective of molecular heterogeneity. *Biochimica et Biophysica Acta (BBA)-Molecular Cell Biology of Lipids*. 1862(2):268-281. doi: 0.1016/j.bbalip.2016.11.012.
- Sturtevant, D., Horn, P., Kennedy, C., Hinze, L., Percy, R., and Chapman, K.D. (2016) Lipid metabolites in seeds of diverse *Gossypium* accessions: molecular identification of a high oleic mutant allele. *Planta* Dec 17. DOI: 10.1007/s00425-016-2630-3.
- Vitule, J.R.S., Agostinho, A.A., Azevedo-Santos, V.M., Daga, V.S., Darwall, W.R.T., Fitzgerald, D.B., Frehse, F.A., Hoeninghaus, D.J., Lima Jr., D.P., Magalhães, A.L.B., Orsi, M.L., Padial, A.A., Pelicice, F.M., Petrere Jr., M., Pompeu, P.S., Winemiller, K.O. (2016) We need better understanding about functional diversity and vulnerability of tropical freshwater fishes. *Biodiversity and Conservation*, DOI 10.1007/s10531-016-1258-8.

Books/Chapters Published

- Gould, F., Amasino, R.M., Brossard, D., Buell, C.R., Dixon, R.A., et al. (2016) *Genetically Engineered Crops Experiences and Prospects*, National Academies of Sciences, Engineering, Medicine, The National Academies Press, Washington DC.

Shah, J., Chowdhury, Z., Chaturvedi, R., Venables, B.J., Giri, M.K., Mohanty, D., Nayek, S., Norton, H., Chao, A., Koh, A., Shah, A., Yagnamurthy, A., Patel, E., and Sarowar, S. (2016) Contribution of an abietane diterpenoid in long-distance signaling associated with systemic acquired resistance and transition to flowering in plants. In: Anais da VIII Reunião Brasileira Sobre Indução de Resistência em Plantas a Patógenos. De Filippi, M.C.C., da Rocha, M.R., de and Araujo, L.G. Goiania: Gráfica UFG; Chapter 2, pp 89-105.

Extramural Grants and Contracts

Diversidade taxonômica e funcional da ictiofauna de riachos em microbacias com desmatamento recente (*Taxonomic and functional diversity of the stream fish faunas in newly deforested watersheds*). FAPESP – Fundação de Amparo à Pesquisa do Estado de São Paulo (*São Paulo Research Foundation*); PI: Lilian Casatti, Co-PIs David Hoenighaus et al.; R\$145.000 (approx. US\$ 45,000).

Seminars/Talks

Bioinformatic analysis of Streptomyces Bacteriophage Immanuel3. American Society for Microbiology – Texas Branch Fall Meeting, Richardson, TX, November 11, 2016. Undergraduate Student presentation by Tianeaka Moss. Co-authors, Erica Banks, Richard Hale, and Dr. Lee Hughes.

Contribution of an abietane diterpenoid in long-distance signaling associated with systemic acquired resistance and transition to flowering in plants. Eighth Brazilian Meeting on Induced Resistance in Plants against Pathogens”, Goiânia, Brazil, November 23 – 25, 2016. Invited plenary talk by Dr. Jyoti Shah.

From mimeographed “Raptor Research News” to a vanguard of science and conservation: a history of the Journal of Raptor Research. 50 years of Advancement in Raptor Research and Conservation Symposium. Raptor Research Foundation Conference 2016, Cape May, NJ, October 17, 2016. Presentation by Dr. Jim Bednarz. Co-author C. Dykstra. Jim Bednarz was the symposium co-organizer and moderator.

Functional and genomic analysis of cotton growth habit: Branching architecture is regulated by the Gossypium hirsutum SINGLE FLOWER TRUSS and SELF-PRUNING orthologs. Chinese Academy of Agricultural Sciences, Zhengzhou, Hunan Province, China. November 22, 2016, Invited talk by Dr. Brian G. Ayre; co-authors McGarry, R.C., Prewitt, S.F., Eshed, Y. and Lifschitz, E.

Functional and genomic analysis of cotton growth habit: Branching architecture is regulated by the Gossypium hirsutum SINGLE FLOWER TRUSS and SELF-PRUNING orthologs. Chinese Academy of Agricultural Science, Institute of Cotton Research, Anyang, China; November 25, 2016. Invited talk by Dr. Brian G. Ayre; co-authors McGarry, R.C., Prewitt, S.F., Eshed, Y. and Lifschitz, E.

Future Traits and Techniques. Forum of Society Leaders on Genetically-Engineered (GE) Crops: Experience and Prospects. National Academy of Sciences, Washington DC, December 7, 2016. Invited talk by Dr. Richard Dixon. Co-author C. Neal Stewart.

Glucose fed, oxygen deprived C. elegans— A model for ischemia and diabetes. Oklahoma Christian University, October 3, 2016. Invited talk by Dr. Pamela Padilla.

Moving the ION Torrent S5 massively parallel sequencing system from research to forensic casework. Australian and New Zealand Forensic Science Society (ANZFSS) 23rd International Symposium on the Forensic Sciences, Auckland, New Zealand, October 2016. Invited talk by Dr. Angie Ambers.

N-Acylethanolamine metabolism and the regulation of seedling development in Arabidopsis thaliana. Department of Biochemistry and Biophysics, Texas A&M University, College Station, TX, October 5, 2016. Invited seminar by Dr. Kent Chapman.

New players in the biosynthesis of plant phenolic polymers. Biochemistry Seminar Program, University of Missouri, Columbia, MO, October 7, 2016. Invited talk by Dr. Richard Dixon.

SACNAS Leadership Opportunities, SACNAS National Conference, Long Beach, CA, October 6-9, 2016. Panel Leader and invited talk by Dr. Pamela Padilla.

Testing the ‘membrane pacemaker’ hypothesis during the ontogeny of endothermy in the red-winged blackbird (Agelaius phoeniceus). VIth Integrative Biology Workshop, Toluca, Mexico, October 2016. Oral presentation by Dr. Edwin Price. Co-authors: T.S. Sirsat, S.K.G. Sirsat, and E.M. Dzialowski.

The National Academy of Sciences report on “Genetically Engineered Crops: Experiences and Prospects”: A green light for plant biotechnology? What is Natural 2016 Symposium on the Biology and Chemistry of Natural Food and Natural Food Additives, Jamesburg, New Jersey, December 14, 2016. Invited talk by Dr. Richard Dixon.

Conference Presentations

Alzaid, H. and Hughes, L. *Isolation and Bioinformatics Characterization of Three Novel Bacteriophage from Streptomyces toxytricini*. American Society for Microbiology – Texas Branch Fall Meeting, Richardson, TX. November 2016.

Bando, F.M., Mormul, R.P., Figueiredo, B.R.S., Cunha, E.R., Treviño, J.M., Hoeinghaus, D.J., and Thomaz, S.M. *Effects of habitat heterogeneity provided by macrophytes beds on attributes of Chironomidae assemblage: an experimental analysis*. V Seminário Sobre Estudos Limnológicos em Clima Subtropical; Curitiba, Brazil. October 2016.

Crego, R. D., Jiménez, J.E., and Rozzi R. *Seasonal dynamic habitat use suggests niche expansion of an invasive predator at the southernmost forest of the world*. British Ecological Society Annual Meeting, Liverpool, UK. December 2016.

Khanal, P., Johnson, J. A, and K. S. Reyna. *Identification of bobwhite quail predators in Henrietta Texas by camera trap method*. Sixth integrative biology workshop, Toluca, Mexico. October 2016.

King, S. *Glucose or altered ceramide biosynthesis mediate oxygen deprivation sensitivity through novel pathways revealed by transcriptome analysis in Caenorhabditis elegans*. SACNAS National Conference, Long Beach, CA, October 2016.

Rivera, K. *Genes in the xenobiotic and endobiotic phase I and II detoxification system impact oxygen deprivation responses in C. elegans*. SACNAS National Conference, Long Beach, CA, October 2016.

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