

## Matthew Jacob Greenwold

## Curriculum Vitae

Address: Department of Biology  
The University of Texas at Tyler  
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ResearchGate: [https://www.researchgate.net/profile/Matthew\\_Greenwold](https://www.researchgate.net/profile/Matthew_Greenwold)  
Google Scholar: <https://scholar.google.com/citations?user=a--MJ8oAAAAJ&hl=en>

### EDUCATION

- Ph.D. 2007 – 2011 Biological Sciences, Univ. of South Carolina, Columbia.  
*Dissertation:* Molecular evolution of beta ( $\beta$ ) keratins in three bird species and divergence time estimates for the avian  $\beta$ -keratin subfamilies.  
*Advisor:* Roger Sawyer
- B.S. 2002 – 2006 Biology with Chemistry minor; Univ. of South Carolina, Columbia.
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### PROFESSIONAL EMPLOYMENT

- 2020 – Present Assistant Professor, Department of Biology, The University of Texas at Tyler.
- 2015 – 2019 Postdoctoral Fellow, Baruch Institute, Univ. of South Carolina, Columbia.  
*Project:* Reconstruct a species phylogeny of up to 200 strains of Cryptophyta and study the molecular evolution of cryptophyte photosynthetic genes.  
*Advisor:* Jeff Dudycha
- 2014 – 2016 Adjunct Professor, Univ. of South Carolina, Columbia.

- 2013 – 2015 Postdoctoral Research and Education Fellow, Dept. of Biological Sciences, USC.  
*Research:* Molecular evolution of epidermal structural genes in 48 bird genomes and the transcriptome profiling of feather and scale embryonic development in the chicken.  
*Education:* Increase diversity in STEM graduate programs.  
*Advisor:* Roger Sawyer
- 2013 - 2014 Adjunct Professor, Univ. of South Carolina, Sumter.
- 2011 - 2013 Postdoctoral Fellow, Baruch Institute, Univ. of South Carolina, Columbia.  
*Project:* Taxonomic identification of fish eggs collected in the Gulf of Mexico through high-throughput sequencing.  
*Advisor:* Joe Quattro
- 2008 - 2011 Teaching Assistant, Dept. of Biological Sciences, Univ. of South Carolina, Columbia
- 2007 - 2010 NSF Graduate K-12 and Partners in Inquiry Fellow.
- Spring 2007 Research Assistant, Dept. of Biological Sciences, Univ. of South Carolina, Columbia.
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## RESEARCH PROPOSALS AND FUNDING

### Approved Sequencing Proposal

*Unlocking the photosynthetic and genetic diversity of cryptophyte algae through whole-genome sequencing of a diverse assemblage of species.* Community Science Program, Joint Genome Institute (JGI), United States Department of Energy. J Dudycha, **MJ Greenwold**, T Richardson. JGI will sequence, assemble and annotate 12 Cryptophyta species genomes (~180 Gbp). 10/2016-10/2019.

### Competitive Internal Funding

*Resource Partitioning by Freshwater Mussels in a Multispecies Assemblage.* The University of Texas at Tyler, Office of Research and Scholarship New Faculty Grant. MJ Greenwold. \$7,397. 09/2021 – 08/2022.

Rising STARS (Science and Technology Acquisition and Retention). The University of Texas System Board of Regents. **MJ Greenwold**. \$300,000. 11/2020 – 11/2022.

*Flood Mediated Removal of Introduced Black Basses From Select South Carolina Streams.* Office of the Vice President for Research Internal funding initiative South Carolina Resilience to

Extreme Storms: Research on Social, Environmental, and Health Dimensions of the October 2015 Catastrophic Flooding. JM Quattro and **MJ Greenwold**. \$16,355. 09/2015 - 09/2016.

*From Genome to Novel Materials: Developing the Beta Keratin Monomer as a Nanofiber for Fabrication of New Products with New Properties*. ASPIRE II: Integration. RH Sawyer, **MJ Greenwold**, B Ely, M Czako, L Marton, E Jabbari, Q Wang. \$100,000, 5/2014 - 11/2015.

*Expression of a multigene family during development*. SC INBRE Bioinformatics Pilot Program. RH Sawyer, **MJ Greenwold**, W Bao. \$10,000, 9/2012 - 9/2013.

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## PUBLICATIONS

### Peer-reviewed Manuscripts

Beigel K, Matthews A, Kellner K, Pawlik C, **Greenwold MJ**, Seal J. Cophylogenetic analyses of *Trachymyrmex* ant-fungal specificity: One to one with some exceptions. *In review*. *Molecular Ecology*.

Davis AC, **Greenwold MJ**. 2021. Evolution of an epidermal differentiation complex (EDC) gene family in birds. *Genes* 12(5): 767. doi: 10.3390/genes12050767

**Greenwold MJ**, Cunningham BR, Lachenmyer EM, Pullman JM, Richardson TL, Dudycha JL. 2019. Diversification of light capture ability was accompanied by the evolution of phycobiliproteins in cryptophyte algae. *Proc. R. Soc. B* **286**: 20190655. doi: 10.1098/rspb.2019.0655

Davis AC, **Greenwold MJ**, Sawyer RH. 2019. Complex gene loss and duplication events have facilitated the evolution of multiple lorocin genes in diverse bird species. *Genome Biology and Evolution*, **evz054**. doi: 10.1093/gbe/evz054

Cunningham BR, **Greenwold MJ**, Lachenmyer EM, Dudycha JL, Richardson TL. 2018. Light capture and pigment diversity in marine and freshwater cryptophytes. *J. Phycol.* doi: 10.1111/jpy.12816

Bao W, **Greenwold MJ**, Sawyer RH. 2017. Using scale and feather traits for module construction provides a functional approach to chicken epidermal development. *Funct Integr Genomics*, **17**:641-651. doi: 10.1007/s10142-017-0561-0

Brandon CS, **Greenwold MJ**, Dudycha JL. 2017. Ancient and recent duplications support functional diversity of *Daphnia* opsins. *J Mol Evol.*, **84**:12. doi:10.1007/s00239-016-9777-1

Bao W, **Greenwold MJ**, Sawyer RH. 2016. Expressed miRNAs target feather related mRNAs involved in cell signaling, cell adhesion and structure during chicken epidermal development. *Gene*, **591**(2):393-402. doi:10.1016/j.gene.2016.06.027

**Greenwold MJ**, Bao W, Jarvis ED, Hu H, Li C, Gilbert MT, Zhang G, Sawyer RH. 2014. Dynamic evolution of the alpha ( $\alpha$ ) and beta ( $\beta$ ) keratins has accompanied integument diversification and the adaptation of birds into novel lifestyles. *BMC Evolutionary Biology*, **14**:249. doi: 10.1186/s12862-014-0249-1 (Editor's pick).

Li C, Zhang Y, Zhao H, Li J, Kong L, Hu H, Pan H, Xu L, Deng Y, Li Q, Jin L, Yu H, Chen Y, Liu B, Yang L, Liu S, Zhang Y, Lang Y, Xia J, He W, Shi Q, Subramanian S, Millar CD, Meader S, Rands CM, Fujita MK, **Greenwold MJ**, Castoe TA, Pollock D, Gu W, Nam K, Ellegren H, Ho SYW, Burt DW, Ponting CP, Jarvis ED, Gilbert MTP, Lambert DM, Wang J, Zhang J, Zhang G. 2014. Two Antarctic penguin genomes reveal insights into their evolutionary history and molecular changes related to the cold Antarctic environment. *GigaScience*, **3**:27. doi: 10.1186/2047-217X-3-2

Zhang G, Li C, Li Q, Li B, Larkin DM, Lee C, Storz JF, Antunes A, **Greenwold MJ**, Meredith RW, Ödeen A, Cui J, Zhou Q, Xu L, Pan H, Wang Z, Jin L, Zhang P, Hu H, Yang W, Hu J, Xiao J, Yang Z, Liu Y, Xie Q, Yu H, Lian J, Wen P, Zhang F, Li H, Zeng Y, Xiong Z, Liu S, Zhou L, Huang Z, An N, Wang J, Zheng Q, Xiong Y, Wang G, Wang B, Wang J, Fan Y, da Fonseca RR, Alfaro-Núñez A, Campos P, Schubert M, Orlando L, Mourier T, Howard J, Ganapathy G, Pfenning A, Whitney O, Rivas MV, Hara E, Smith J, Farré M, Narayan J, Slavov G, Romanov MN, Borges R, Machado JP, Khan I, Springer MS, Gatesy J, Hoffmann FG, Opazo JC, Håstad O, Sawyer RH, Kim H, Kim K, Kim HJ, Cho S, Li N, Huang Y, Bruford MW, Zhan X, Dixon A, Bertelsen MF, Derryberry E, Warren W, Li S, Ray DA, Green RE, O'Brien SJ, Griffin D, Johnson WE, Haussler D, Ryder OA, Willerslev E, Graves GR, Alström P, Fjeldså J, Mindell D, Edwards SV, Braun EL, Rahbek C, Burt DW, Houde P, Zhang Y, Yang H, Wang J, Jarvis ED, Gilbert MTP, Wang J, Avian Genome Consortium. 2014. Comparative genomics reveals insights into avian genome evolution and adaptation. *Science*, **346** (6215):1311-1320. doi: 10.1126/science.1251385

**Greenwold MJ**, Sawyer RH. 2013. Molecular evolution and expression of archosaurian  $\beta$ -keratins: Diversification and expansion of archosaurian  $\beta$ -keratins and the origin of feather  $\beta$ -keratins. *J. Exp. Zool. (Mol. Dev. Evol.)*, **320B**:393-405. doi:10.1002/jez.b.22514

St. John JA, Braun EL, Isberg SR, Miles LG, Chong AY, Gongora J, Dalzell P, Moran C, Bed'Hom B, Abzhanov A, Burgess SC, Cooksey AM, Castoe TA, Crawford NG, Densmore LD, Drew JC, Edwards SV, Faircloth BC, Fujita MK, **Greenwold MJ**, Hoffmann FG, Howard JM, Iguchi T, Janes DE, Khan SY, Kohno S, Jason de Koning AP, Lance SL, McCarthy FM, McCormack JE, Merchant ME, Peterson DG, Pollock DD, Pourmand N, Raney BJ, Roessler KA, Sanford JR, Sawyer RH, Schmidt CJ, Triplett EW, Tuberville TD, Venegas-Anaya M, Jarvis ED, Guillette Jr. LJ, Glenn TC, Green RE, Ray DA. 2012. Sequencing three crocodylian genomes to illuminate the evolution of archosaurs and amniotes. *Genome Biology*, **13**:415. doi:10.1186/gb-2012-13-1-415

**Greenwold MJ**, Sawyer RH. 2011. Linking the molecular evolution of avian beta ( $\beta$ ) keratins to the evolution of feathers. *J. Exp. Zool. (Mol. Dev. Evol.)*, **316B**:609-616. doi:10.1002/jez.b.21436

**Greenwold MJ**, Sawyer RH. 2010. The Genomic organization and molecular phylogenies of the beta ( $\beta$ ) keratin multigene family in the chicken (*Gallus gallus*) and zebra finch (*Taeniopygia guttata*): implications for feather evolution. *BMC Evolutionary Biology*, **10**:148. doi:10.1186/1471-2148-10-148

### Published Abstracts

Alsudani H, Goshroy S, Quattro J, **Greenwold MJ**, Sawyer R. 2018. Improved Biological Tissue Preparation Procedure for Scanning Electron Microscope Imaging. *Microscopy and Microanalysis* **24**(S1):1308-1309. doi:10.1017/S143192761800702X

Ogilvie R, Sawyer RH, **Greenwold MJ**, Bao W, Thompson J. 2014. Evolution of a cross-institutional asynchronous online 500 level college histology course with interactive lectures and virtual lab component. *The FASEB Journal*, **28**:530.1.

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## TEACHING

### Instructor of Record

Genomics (BIOL 3329), 3 credits. Developed and taught the undergraduate student course at The University of Texas at Tyler (Spring 2021).

Scientific Communication II (BIOL 4115), 1 credit. Developed and taught the undergraduate course at The University of Texas at Tyler (Fall 2020).

Bioinformatics (BIOL 4306 and 4106), 4 credits. Developed and taught the undergraduate student course with required lab at The University of Texas at Tyler (Fall 2020).

Scientific Communication I (BIOL 4114), 1 credit. Developed and taught two sections of the undergraduate course at The University of Texas at Tyler (Fall 2020).

Bioinformatics for Research (BIOL 5342), 3 credits. Developed and taught the graduate student course at The University of Texas at Tyler (Spring 2020).

General Biology (Online; BIOL 110), 4 credits. Developed and taught a fully on-line course (lab and lecture) for non-major students at the University of South Carolina, Columbia. 400+ students distributed over five semesters (Spring 2015, Summer 2015, Fall 2015, Spring 2016, Summer 2016).

General Biology (Hybrid; BIOL 110), 4 credits. Developed and taught an on-line lecture and face-to-face laboratory for non-major students at the University of South Carolina, Columbia (Fall 2014).

Biological Principles II (BIOL 102) and Biological Principles II Lab (BIOL 102L), 4 credits.  
Developed and taught one section during Fall 2013 and two sections during Spring 2014 at the University of South Carolina, Sumter.

### Teaching Assistant

Histology (BIOL J530), 4 credits. Assisted in the organization and taught a fully on-line lecture + lab course. Assisted in the creation of on-line lectures, lab exercises, quizzes and exams at the University of South Carolina, Columbia (Spring 2011 – 2013).

Histology (BIOL 530), 4 credits. Assisted in the organization and taught a pilot on-line lecture course. Created and organized the structure of the face to face laboratory section, created quizzes, lab practicals and hands-on exercises at the University of South Carolina, Columbia (Spring 2010).

Histology Laboratory (BIOL 530L), 1 credit. Created the structure and taught the laboratory section, created quizzes, the lab practical, and enhanced the presentation skills of students at the University of South Carolina, Columbia (Spring 2009, Fall 2009, Fall 2010).

Biological Principles II Laboratory (BIOL 102L), 1 credit. Taught two laboratory sections, created quizzes and the lab practical at the University of South Carolina, Columbia (Fall 2008).

### Graduate Teaching Fellowships

Graduate K-12 and Partners in Inquiry (Pi) Fellowship, National Science Foundation (NSF) funded. Created and taught lesson plans for K-12 science students. Directly taught 6<sup>th</sup> and 7<sup>th</sup> grade science curriculum at three middle schools located in and around the Columbia, S.C. metropolitan area. Presented new strategies to accommodate state education standards to other Graduate K-12 Fellows and The Center for Teaching Excellence at the University of South Carolina, 2007-2010.

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## **PRESENTATIONS**

### Invited Oral Presentations (presenter in italics)

*Greenwold MJ*. Phylogenetic Comparative Methods and Symbiotic Innovation in Cryptophyte Algae. International Society for Computational Biology, Student Regional Group - Southeast USA Computational Biology Symposium, Columbia, SC, December 2017.

*Greenwold MJ*, Sawyer RH. Identification and Phylogenetic Analyses of a Large Array of Feather  $\beta$ -keratin Genes in the Genome of the Chicken, *Gallus gallus*: Evidence for Accelerated Rates of Recombination? Evolution 2010, Finalist for Society of Systematic Biologists (SSB) Symposium: "Ernst Mayr Symposium". Portland State University, Portland, OR, June 2010.

Oral Presentations (presenter in italics; \* denotes an undergraduate presenter)

*Beigel K*, Matthews A, Kellner K, Pawlik C, Greenwold MJ, Seal J. Cophylogenetic analyses of *Trachymyrmex* ant-fungal relationships: 'One-to-one with some exceptions'. *Evolution* 2021, virtual, June 2021.

\**Kattel P*, Greenwold MJ. Comparative Genomic Analysis of Cryptophyte Algae Plastid Genomes. UT Tyler 6<sup>th</sup> Annual Lyceum Research Showcase, Tyler, TX, April 2021.

*Greenwold MJ*, McKenzie PM, Richardson TL, Dudycha JL. The evolutionary history of a unique photosynthetic protein in cryptophyte algae. *Evolution* 2019, Providence, RI, June 2019.

Greenwold MJ, Cunningham BR, Lachenmyer EM, Pullman JM, Richardson TL, *Dudycha JL*. Endosymbiosis and the diversification of light capture across a billion years of Cryptophyte evolution. *Evolution* 2019, Providence, RI, June 2019.

Greenwold MJ, Cunningham BR, Lachenmyer EM, Pullman JM, Richardson TL, *Dudycha JL*. Diversification of light capture across a billion years of Cryptophyte evolution was driven by a novel trait that arose through endosymbiosis. Annual Meeting for the Ecological Society of America, Louisville, KY, August 2019.

*Richardson TL*, Cunningham BR, Greenwold MJ, Heidenreich KM, Schomaker R, Swanson J, Dudycha JL. The Hidden Secrets of Cryptophyte Algae: An Exploration of Phylogenetic and Functional Diversity in Light Capture Ability. Phycological Society of America annual meeting, Vancouver, BC, Canada, July 2018.

*Greenwold MJ*, Cunningham BR, Richardson TL, Dudycha JL. An evolutionary shift in photosynthetic pigment composition facilitated functional diversification in cryptophytes. *Evolution* 2017, Portland, OR, June 2017.

*Leitner J*, Scott M, Kubach K, Rankin D, Greenwold MJ, Quattro J. Hybridization Levels in Steam Populations of SC's Endemic Bartram's Bass. 2017 Annual Meeting of the South Carolina Chapter-American Fisheries Society and the South Carolina Fisheries Worker's Association, Hickory Knob State Park, McCormick, SC, March 2017.

*Scott M*, Leitner J, Kubach K, Rankin D, Greenwold MJ, Quattro J. Establishment of Genetic Baselines for Bartram's Bass *Micropterus Sp. Cf. Coosae* in Tributaries of the Savannah River with an Assessment of Landscape Factors Influencing Hybridization with Introduced Species. 2017 Southern Division American Fisheries Society meeting, Oklahoma City, OK, February 2017.

*Greenwold MJ*, Leitner J, Quattro J. Flood Mediated Removal of Introduced Black Basses from Select South Carolina Streams. South Carolina Floods Conference. Columbia, SC. November 2016.

*Greenwold MJ, Leitner J, Quattro J.* Flood Mediated Removal of Introduced Black Basses from Select South Carolina Streams. Southeastern Population Ecology and Evolutionary Genetics (SEPEEG) annual meeting 2016. Madison, FL, October 2016.

*Greenwold MJ, Bao W, Sawyer RH.* Molecular evolution and expression of alpha ( $\alpha$ ) and beta ( $\beta$ ) keratins in feathers. The Society for Integrative and Comparative Biology (SICB) Annual Meeting. 2014. Austin, TX, January 2014.

*Sawyer RH, Ogilvie RW, Greenwold MJ, Bao W, Clardy K.* Development of an Online Histology Course. Southeast Regional Society for Developmental Biology Meeting 2013. Nashville, TN, May 2013.

*Greenwold MJ, Ogilvie RW, Sawyer RH.* A Distributed Histology Course using Virtual Microscope and Virtual Slides. College of Arts and Sciences Celebration Event. University of South Carolina, Columbia, SC, March 2012.

*Greenwold MJ, Sawyer RH.* Characterization and expression profiles of beta ( $\beta$ )-keratins in the American alligator (*Alligator mississippiensis*) and their molecular evolution in archosaurians. The Society for Integrative and Comparative Biology (SICB) Annual Meeting 2011. Charleston, SC, January 2012.

*Ogilvie RW, Sawyer RH, Greenwold MJ, Adams S.* Implementation of Virtual Lectures and Laboratories in a Histology Course Offered via Distance Education. Oktoberbest: A Celebration of Teaching 2010, University of South Carolina, Columbia, SC. October 2010.

*Glenn TC, Jones KL, Sawyer RH, Greenwold MJ, Crawford NG.* Challenges and opportunities in comparative reptilian genomics. The Society for Integrative and Comparative Biology (SICB) Annual Meeting 2008, Symposium: "Reptile genomics and evolutionary genetics". San Antonio, TX, January 2008.

#### Poster Presentations (presenter/s in italics)

*Swanson J, Greenwold MJ, Dudycha JL.* Are potential photosynthetic trade-offs mediated by evolutionary history in Cryptophyte algae? Evolution 2019, Providence, RI, June 2019.

*Mckenzie P, Greenwold MJ, Dudycha JL.* Evolution of the Cryptophyte Phycobilin Beta Subunit. Evolution 2018, Montpellier, France August, 2018.

*Dudycha JL, Greenwold MJ, Brandon C.* Ancient and modern evolution of opsins in Daphnia. Society of Molecular Biology and Evolution 2018. Yokohama, Japan, July 2018.

*Richardson TL, Heidenreich KM, Greenwold MJ, Schomaker RA, Swanson JA, Dudycha JL.* Tales of the Cryptophytes: Acclimation to Variations in Spectral Irradiance. Ocean Carbon and Biogeochemistry Summer Workshop, Woods Hole, MA, June 2018.



*Greenwold MJ*, Heidenreich KM, Cunningham BR, Richardson TL, Dudyca JL. Unlocking the photosynthetic and genetic diversity of cryptophyte algae through whole-genome sequencing of a diverse assemblage of species. DOE JGI Genomics of Energy & Environment User Meeting, San Francisco, CA, March 2018.

*Davis AC*, Greenwold MJ, Sawyer RH. Evolution of the EDC has Facilitated Development of Novel and Morphologically Diverse Skin Appendages in Sauropsida. International Society for Computational Biology, Student Regional Group - Southeast USA Computational Biology Symposium, Columbia, SC, December 2017.

*Brandon C*, Greenwold MJ, Dudyca J. Ancient and recent duplications support functional diversity of *Daphnia* opsins. Evolution 2017, Portland, OR, June 2017.

*Mckenzie P*, Greenwold MJ, Dudyca J. Evolution of the Cryptophyte Phycobilin Beta Subunit. USC Discovery Day, Columbia, SC, April 2017. Awarded *first place* in Biology and Environmental Sciences.

*Cunningham B*, Greenwold MJ, Lachenmyer E, Heidenreich K, Dudyca J, Richardson T. Pigments, pigments everywhere, but how did they evolve? An investigation into the phylogenetic history and physiological diversity of cryptophytes. USC Discovery Day, Columbia, SC, April 2017.

*Greenwold MJ*, Cunningham BR, Richardson TL, Dudyca JL. Unlocking the photosynthetic and genetic diversity of cryptophyte algae through whole-genome sequencing of a diverse assemblage of species. DOE JGI Genomics of Energy & Environment User Meeting, Walnut Creek, CA, March 2017.

Richardson TL, Dudyca JL, *Greenwold MJ*. Dimensions: Linking Spectral Irradiance and Cryptophyte Biodiversity in Environments from Ponds to Oceans. Evolution 2016, Austin, TX, June 2016.

*Bao W*, Greenwold MJ, Sawyer RH. Gene Co-Expression Network Analysis of Chicken Epidermal Structures. Evolution 2016, Austin, TX, June 2016.

*Richardson TL*, *Dudyca JL*, *Greenwold MJ*. Dimensions: Linking Spectral Irradiance and Cryptophyte Biodiversity in Environments from Ponds to Oceans. NSF Dimensions of Biodiversity PI Meeting, Arlington, VA, March 2016.

*Greenwold MJ*, Roberts MA, Amin S, Quattro JM. Evaluating the application of high throughput sequencing for the identification of fish eggs collected in the Northern Gulf of Mexico. Evolution 2014, Raleigh, NC, July 2014.

*Ogilvie R*, Sawyer RH, Greenwold MJ, Bao W, Thompson J. Evolution of a cross-institutional asynchronous online 500 level college histology course with interactive lectures and virtual lab component. Experimental Biology 2014, San Diego, CA, April 2014.

*Greenwold, MJ, Bao W, Sawyer RH. Molecular Evolution of Beta ( $\beta$ )-Keratins and Their Role in Feather Evolution. Southeast Regional Society for Developmental Biology Meeting 2013. Nashville, TN, May 2013.*

*Greenwold MJ, Ebalunode JO, Sawyer RH. Diversification and Expansion of the beta ( $\beta$ )-keratins in Archosaurs. SC INBRE Scientific Symposium. Columbia, SC, February, 2012.*

*Bricker E, Greenwold MJ, Sawyer RH. The molecular evolution of alpha keratins in birds and reptiles. The Society for Integrative and Comparative Biology (SICB) Annual Meeting 2011. Charleston, SC, January 2012.*

*Greenwold MJ, Ebalunode JO, Sawyer RH. CPU-GPU Optimization of the Bayesian Molecular Dating Method for the Analysis of Archosaurian  $\beta$ -keratins. TN-SC EPSCoR RII Track-2 Workshop: "A Desktop to TeraGrid EcoSystem"; Building Capabilities and Collaborations for Cyber-Enabled Discovery. Knoxville, TN, October 2011.*

*Greenwold MJ, Ebalunode JO, Sawyer RH. Optimization of the Bayesian Molecular Dating Method for the Analysis of Archosaurian  $\beta$ -keratins. Modeling Advanced Materials and Systems Biology: Building Capabilities and Collaborations for Cyber-Enabled Discovery. Clemson University, Clemson, SC, September 2010.*

*Huth TJ, Greenwold MJ, Sawyer RH. Identification and Location of the Beta-keratin Family in *Gallus gallus*. Delivering Value from Avian Genomes. Mississippi State University, Stark, MS, May 2008.*

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## **PROFESSIONAL SERVICE**

- The University of Texas at Tyler Intellectual Property Advisory Committee (IPAC) member. Summer 2021 – Summer 2024.
- The University of Texas at Tyler Biology Seminar Committee member. Fall 2021 – present.
- The University of Texas at Tyler Institutional Animal Care and Use Committee (IACUC) member. Fall 2020 – present.
- The University of Texas at Tyler Biology Space and Facilities Committee member. Fall 2020 – present.
- Chair of Texas Academy of Science (TAS) Systematics & Evolutionary Biology section. 2021 – present.

- The University of Texas at Tyler Biology Physiologist search committee member. Fall 2020 – Summer 2021.
- UT Tyler 6<sup>th</sup> Annual Lyceum Research Showcase poster judge. Spring 2021.
- Vice Chair of Texas Academy of Science (TAS) Systematics & Evolutionary Biology section. 2020 – 2021.
- Co-chair for the Student Recruitment, Retention and Advancement subcommittee for College of Arts and Sciences Diversity Committee during the 2018-2019 academic year. Committee members focus on recruitment, retention, advancement, engagement, and training.
- Graduate student recruiter for the College of Arts and Sciences, University of South Carolina from 2013-2014. Recruiting efforts focused on women and underrepresented minorities with an emphasis on recruiting from HBCUs across the southeastern United States.
- Grant Reviewer for French Polar Institute (3), Magellan Scholar Award (internal undergraduate research at University of South Carolina).
- Manuscript Reviewer for Anatomical Record (3), BMC Developmental Biology (1), Canadian Journal of Zoology (1), European Journal of Cell Biology (1), Evolution (1), Genome (1), Gene (1), Genes (2), Genome Biology and Evolution (2), GigaScience (5), Journal of Developmental Biology (1), Journal of Morphology (8), Journal of Structural Biology (3), Molecular Biology and Evolution (3), Molecular Ecology Resources (1), Nature Communication (2), PLOS ONE (3), Proceedings of the Royal Society B (2), Protoplasma (1), Science Advances (1), Trends in Ecology and Evolution (1), and Zoology (1).

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## **GRADUATE STUDENT MENTORING**

Marissa Netti, UT Tyler, M.S. 2020 – present. Thesis advisor. Freshwater mussel partitioning of food resources.

Chastity Aguilar, UT Tyler, M.S. 2020 – present. Thesis advisor. Phenotypic plasticity of photosynthesis in cryptophyte algae.

Katherine Beigel, UT Tyler, M.S. 2020. MS Committee Member. A cophylogenetic analysis of fungus-gardening ants and their symbiotic fungi.

Weier Bao, USC, PhD. 2017. Supervised his development as a PhD student and research on microRNA-gene interactions and network analysis of avian epidermal differentiation.

Thomas Thigpen, USC, P.S.M. 2009. Supervised his internship requirement for PSM degree program by guiding and instructing him on the identification of promoter regions, using bioinformatic methods in the genomes of the chicken and zebra finch.

### **UNDERGRADUATE STUDENT MENTORING**

Prabhat Kattel, UT Tyler, B.S. Fall 2020 – present. Comparative genomics of algal plastid genomes.

Amanda Odom, UT Tyler, B.S. Fall 2020 – present. Ancestral state reconstruction of  $\beta$ -keratin genes in reptiles and birds.

John Pullman, USC, B.S. Fall 2017 - 2019. Supervised undergraduate research on the amplification, sequencing and phylogenetic inference of cryptophytes using the rubisco large subunit (rbcL) gene.

Patrick Mckenzie, USC, B.S. 2015 - 2019. Supervised undergraduate research (Science Undergraduate Research Fellowship (SURF) 2016 and 2017) on the development and implementation of cryptophyte phycobillin gene amplification, sequencing and molecular evolution.

Ashley Hennings, USC, B.S. Spring 2017. Supervised undergraduate research on the development and implementation of cryptophyte rubisco large subunit (rbcL) gene amplification and sequencing.

Anthony Davis, USC, B.S. 2014 – 2016. Supervised undergraduate research (Independent Study, BIOL 399) on the identification, characterization and genomic orientation of epidermal differentiation complex genes in over 60 bird and reptile genomes.

Howard Mufuka, USC, B.S. 2012, Supervised undergraduate research (Independent Study, BIOL 399) on the identification and characterization of genes involved in the melanogenesis in bird and reptile genomes.

Emily Bricker, USC, BS. 2011. Supervised undergraduate research (Independent Study, BIOL 399) on the molecular evolution of alpha keratins in birds and reptiles. Student received a Magellan Voyager Travel Award to present her work at The Society for Integrative and Comparative Biology (SICB) Annual Meeting 2011.

### **HIGH SCHOOL STUDENT MENTORING**

Kara Majors, White Knoll High School, Spring and Summer 2011. Served as a Work-Based Consultant for high school senior thesis comparing DNA sequences related to disease in mammals

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## **MEDIA**

This Type of Algae Absorbs More Light for Photosynthesis than Other Plants. October 2019.

<https://www.smithsonianmag.com/science-nature/species-algae-has-evolved-absorb-more-light-photosynthesis-other-plants-180973389/>

Fossil feather reveal how dinosaurs took flight. January 2019.

<http://www.sciencemag.org/news/2019/01/fossil-feathers-reveal-how-dinosaurs-took-flight>

International team maps “Big Bang” of bird speciation. December 2014.

[https://www.eurekalert.org/pub\\_releases/2014-12/du-itm112614.php](https://www.eurekalert.org/pub_releases/2014-12/du-itm112614.php)

Scientists Sequence Genomes of 48 Bird Species, Unveil Avian Family Tree. December 2014.

<http://www.sci-news.com/genetics/science-genomes-48-bird-species-avian-family-tree-02340.html>

When did the feather take flight? February 2012.

<https://www.sciencedaily.com/releases/2015/02/150211123608.htm>