

MILTON TAN, PHD

Mailing Address:

Illinois Natural History Survey
607 E Peabody Dr
Champaign, IL 61820

Office: 380 Natural Resources Building

E-mail: miltont@illinois.edu

Twitter: [@mtanichthys](https://twitter.com/mtanichthys)

Website: <https://miltontan.github.io/>

ORCID: [0000-0002-9803-0827](https://orcid.org/0000-0002-9803-0827)

AFFILIATIONS

Aug 2018 – **Assistant Research Scientist in Biodiversity Genomics** Illinois Natural History

Survey at University of Illinois at Urbana-Champaign

Visiting Assistant Research Scientist Aug 2018 – Mar 2019

University Affiliations:

Program in Ecology, Evolution & Conservation Biology (June 2019–)

Department of Ecology, Evolution, and Behavior (Sep 2018–)

Informatics PhD Program (Aug 2020–)

2018 Jan– **National Science Foundation Postdoctoral Fellow**

Aug George Washington University Visiting Scholar

Smithsonian Institution Fellow with the National Museum of Natural History

Funded by NSF Postdoctoral Research Fellowship in Research Using Biological Collections

Research Focus: Evolution of Defensive Traits and Diversification in Catfishes

Sponsors: Guillermo Ortí, George Washington University; Carole Baldwin, Smithsonian Institution

2016 – 2017 **Emory University**

Postdoctoral Fellow

Research Focus: Whale shark comparative genomics and bioinformatics

Advisors: Timothy D. Read, Alistair D. M. Dove

EDUCATION

2016 Aug 8 **Auburn University**

Ph.D, Biological Sciences

Dissertation: Evolution of Miniaturization and Paedomorphism in Fishes of the Order Cypriniformes

Major Advisor: Jonathan W. Armbruster

Committee: Jason W. Bond, Eric Peatman, and Scott R. Santos

2009 May 30 **University of Delaware**

Bachelor of Sciences, Biological Sciences with Concentration in Ecology and Organismal Biology, Honors Degree With Distinction

Minors: Marine Studies, Business Administration

Magna Cum Laude (Cumulative GPA: 3.859)

Senior Thesis: The Effect of Alien Plants on the Survival of Larval Lepidoptera.

University of Delaware, Senior Thesis. (Thesis Advisor: Doug Tallamy)

GRANTS & FELLOWSHIPS

- 2024 PI: **National Science Foundation**: “Collaborative Research: Biogeography and Ecology of Diversification After a Transcontinental Freshwater Fish Migration.” (co-PI: Jonathan W Armbruster; \$947,584 for INHS).
- 2022 PI: Illinois Department of Natural Resources Wildlife Preservation Fund: “Evaluating Species Distributions and Population Connectivity of Illinois’ Spring Cavefish (*Forbesichthys* spp.) using Genomics.” (co-PIs: Mark Davis, Matt Niemiller, Joel Corush; \$25,000).
- 2020 Co-PI: Upper Mississippi River Restoration (UMRR) Program Science in Support of Management: “Augmenting the UMRR fish vital rates project with greater species representation for genetics and otolith microchemistry.” (PIs: Andy Bartels, Jim Lamer, co-PIs: Kristen Bouska, Mark Davis, Milton Tan, Greg Whitley; \$228,283 for INHS).
- Co-PI: Illinois Department of Natural Resources Wildlife Preservation Fund: “Evaluating Population Genomic Heterogeneity for the Illinois’ Remnant Mottled Sculpin (*Cottus bairdi*)” (PI: Mark A. Davis, co-PIs: **Milton Tan**, \$17,244).
- PI: 2020 Dovetail Tree of Life Grant Award. (PI: Milton Tan, co-PI: Roberto Cucalon, \$15,000 value). *Declined*.
- PI: 2020 PAG PacBio Single Molecular, Real-Time (SMRT) Contest. (\$2,500 value)
- 2019 PI: Herbert H. Ross Memorial Fund, University of Illinois Urbana-Champaign, School of Integrative Biology: “Preliminary assessment of ddRADseq for comparative biogeography in North American Minnows (Leuciscidae) of Champaign County, Illinois” (PI: **Milton Tan**, \$2,000).
- Co-PI: Illinois Department of Natural Resources Wildlife Preservation Fund: “Predicting post-extirpation colonization potential: Connectivity of Illinois’ relictual Ironcolor Shiner (*Notropis chalybaeus*) via Population Genomics” (PI: Mark A. Davis, co-PIs: Jeff A. Stein, **Milton Tan**, \$6,700).
- 2018 Co-PI: Genome Sciences Center GenoPitch Award, University of Minnesota: “All the better to fight you with? Developmental transcriptomics in the facial weaponry of Neotropical electric fishes” (PI: Kory Evans, co-PI: **Milton Tan**, \$2,500).
- 2017 PI: National Science Foundation: Postdoctoral Research Fellowships in Biology in Research Using Biological Collections: “Evolution of Defensive Traits and Diversification in Catfishes” (2 year fellowship: \$138,000 total stipend, \$30,000 research funds; DBI-1711854). *Terminated early*.
- PI: Smithsonian National Museum of Natural History: Global Genome Initiative

Fellowship. (2 year fellowship: \$104,000 = \$96,000 total stipend, \$8,000 research funds). *Declined.*

PUBLICATIONS

Underlined and bold = Graduate student mentees

Underline = Undergraduate research mentees

24. *In press.* Jemimi Elsherbini, Alexis J Alvey, Corinthia R Black, Ling-Ling S Menez, **Milton Tan**. Dynamic adaptive evolution and evolutionary modularity and integration in catfishes of the superfamily Doradoidea. *Ichthyology & Herpetology*.
23. *In press.* **Roberto V Cucalón**, Joel B Corush, Matthew L Niemiller, Amanda N Curtis, Pamela B Hart, Bernard R Kuhajda, Matthew R Thomas, Brian Metzke, Mark A Davis, **Milton Tan**. Population Genomics and Mitochondrial DNA Reveal Cryptic Diversity in North American Spring Cavefishes (Amblyopsidae, *Forbesichthys*). *Conservation Genetics*. doi: 10.1007/s10592-024-01640-8
22. 2023. Fernanda A.S. Cassemiro, James S. Albert, Alexandre Antonneli, André Menegetto, Rafael O. Wüest, Felipe Cerezer, Marco Túlio P. Coelho, Roberto E. Reis, **Milton Tan**, Victor Tagliacollo, Dayani Billy, Valéria F.B. da Silva, Augusto Frota, Weferson J. da Graça, Reginaldo Ré, Telton Ramos, Anielly G. Oliveira, Murilo S. Dias, Robert K. Colwell, Thiago F. Ragel, Catherine H. Graham. Landscape dynamics and diversification of the megadiverse South American freshwater fish fauna. *Proceedings of the National Academy of Sciences* 120 (2): e2211974120. doi: 10.1073/pnas.2211974120
21. 2022. **Roberto V. Cucalón**, **Milton Tan**. Divergence times of the group Rhoadsiinae (Characiformes: Characidae). *Neotropical Ichthyology* 20 (04): e220054. doi: 10.1590/1982-0224-2022-0054
20. 2022. Osamu Nishimura, John Rozewicki, Kazuaki Yamaguchi, Kaori Tatsumi, Yuta Ohishi, Tazro Ohta, Masaru Yagura, Taiki Niwa, Chiharu Tanegashima, Akinori Teramura, Shotaro Hirase, Akane Kawaguchi, **Milton Tan**, Salvatore D'Aniello, Filipe Castro, André Machado, Mitsumasa Koyanagi, Akihisa Terakita, Ryo Misawa, Masayuki Horie, Junna Kawasaki, Takashi Asahida, Atsuko Yamaguchi, Kiyomi Murakumo, Rui Matsumoto, Iker Irisarri, Norio Miyamoto, Atsushi Toyoda, Sho Tanaka, Tatsuya Sakamoto, Yasuko Semba, Shinya Yamauchi, Kazuyuki Yamada, Kiyonori Nishida, Itsuki Kiyatake, Keiichi Sato, Susumu Hyodo, Mitsutaka Kadota, Yoshinobu Uno, Shigehiro Kuraku. Squalomix: shark and ray genome analysis consortium and its data sharing platform. *F1000Research* 2022, 11: 1077. doi: 10.12688/f1000research.123591.1.
19. 2022. Matthew L. Niemiller, Mark A. Davis, **Milton Tan**, J.J. Apodaca, Katherine E. Dooley, **Robert V. Cucalón**, Joseph B. Benito, K. Denise Kendall Niemiller, Rebecca H. Hardman, Daniel Istvanko, Dustin Thames. Mitochondrial DNA and population genomics reveal additional cryptic diversity in the Green Salamander (subgenus *Castaneides*) species complex. *Frontiers in Conservation Science* 3: 890859. doi: 10.3389/fcosc.2022.890859.

18. 2021. **Milton Tan**, Anthony K. Redmond, Helen Dooley, Ryo Nozu, Keiichi Sato, Shigehiro Kuraku, Sergey Koren, Adam M. Phillippy, Alistair D.M. Dove, Timothy D. Read. The whale shark genome reveals patterns of vertebrate gene family evolution. *eLife* 10:e65394. doi: 10.7554/eLife.65394. bioRxiv doi: 10.1101/685743v2.
17. 2021. Trevor J. Krabbenhoft, Daniel J. MacGuigan, Nathan J.C. Backenstose, Hannah Waterman, Tianying Lan, Jessie A. Pelosi, **Milton Tan**, Simen R. Sandve. Chromosome-level genome assembly of Chinese sucker (*Myxocyprinus asiaticus*) reveals strongly-conserved synteny following a catostomid-specific whole genome duplication. *Genome Biology and Evolution*. doi: 10.1093/gbe/evab190.
16. 2021. Brett R. Aiello, **Milton Tan**, Usama Bin Sikandar, Alexis J. Alvey, Burhanuddin Bhinderwala, Katalina C. Kimball, Jesse R. Barber, Chris A. Hamilton, Akito Y. Kawahara, Simon Sponberg. Adaptive shifts underlie the divergence in wing morphology in bombycoid moths. *Proceedings of the Royal Society B* 288: 20210677. doi: 10.1098/rspb.2021.0677 bioRxiv doi: 10.1101/2021.06.23.449655.
15. 2021. Gayle K McEwen, David E Alquezar-Planas, Anisha Dayaram, Amber Gillett, Rachael Tarlinton, Nigel Mongan, Keith J Chappell, Joerg Henning, **Milton Tan**, Peter Timms, Paul R Young, Alfred L Roca, Alex D Greenwood. Frequent retroviral integrations contribute to elevated host cancer rates during germline invasion. *Nature Communications* 12: 1316. doi: 10.1038/s41467-021-21612-7.
14. 2021. Andrew D Sweet, Kevin P Johnson, Yanghui Cao, Robert S de Moya, Rachel K Skinner, **Milton Tan**, Stephany Virrueta Herrera, Stephen L Cameron. Structure, gene order, and nucleotide composition of mitochondrial genomes in parasitic lice from Amblycera. *Gene*. doi: 10.1016/j.gene.2020.145312.
13. Co-equal collaborator after lead author (co-authors ordered alphabetically): 2020. Sara E Miller, Lisa N Barrow, Sean M Ehlman, Jessica A Goodheart, Stephen E Greiman, Holly L Lutz, Tracy M Misiewicz, Stephanie M Smith, **Milton Tan**, Christopher J Thawley, Joseph A Cook, Jessica E Light. Building natural history collections for the 21st century and beyond. *BioScience* 70(8): 674-687. doi: 10.1093/biosci/biaa069.
12. 2019. Edward D Burrell, **Milton Tan**, Peter C Wainwright. Head shape modulates diversification of a classic cichlid pharyngeal jaw innovation. *American Naturalist* 194 (5): 693-706. doi: 10.1086/705392.
11. 2018. **Milton Tan**, Jonathan W Armbruster. Phylogenetic classification of extant genera of fishes of the order Cypriniformes (Teleostei: Ostariophysi). *Zootaxa* 4476(1): 006–039. doi: 10.11646/zootaxa.4476.1.4.
10. 2018. Edward D Burrell, Lubomír Piálek, Jorge R Casciotta, Adriana Almirón, **Milton Tan**, Jonathan W Armbruster, Oldřich Řičan. Island- and lake-like parallel adaptive radiations

- replicated in rivers. *Proceedings of the Royal Society B* 285: 20171762. doi: 10.1098/rspb.2017.1762.
9. 2017. Edward D Burress, **M Tan**. Ecological opportunity alters the timing and shape of adaptive radiation. *Evolution* 71(11): 2650–2660. doi: 10.1111/evo.13362.
 8. Corresponding (co-lead) author: 2017. Timothy D Read, Robert A Petit III, Sandeep J Joseph, Md Tauqeer Alam, M Ryan Weil, Maida Ahmad, Ravila Bhimani, Jocelyn S Vuong, Chad P Haase, D Harry Webb, **Milton Tan**, Alistair DM Dove. Draft sequencing and assembly of the genome of the world's largest fish, the whale shark: *Rhincodon typus* Smith 1828. *BMC Genomics* 18: 532. doi: 10.1186/s12864-017-3926-9.
 7. 2017. Edward D Burress, Jordan M Holcomb, **Milton Tan**, Jonathan W Armbruster. Ecological diversification associated with the benthic-to-pelagic transition by North American minnows. *Journal of Evolutionary Biology* 30(3): 549–560. doi: 10.1111/jeb.13024.
 6. 2016. Carla C Stout, **M Tan (co-first author)**, Alan R Lemmon, Emily M Lemmon, Jonathan W Armbruster. Resolving Cypriniformes relationships using an Anchored Hybrid Enrichment approach. *BMC Evolutionary Biology* 16: 244. doi: 10.1186/s12862-016-0819-5.
Media features:
Auburn University Featured Story [http://ocm.auburn.edu/featured_story/minnows.html]
 5. 2016. **Milton Tan**, Lesley S de Souza, Jonathan W Armbruster. A new species of *Panaqolus* (Siluriformes: Loricariidae) from the rio Branco. *Neotropical Ichthyology* 14(2): e150033. doi: 10.1590/1982-0224-20150033.
Selected media features:
Amazonas Magazine Nov/Dec 2016: [<http://www.reef2rainforest.com/2016/09/20/amazonas-magazine-table-of-contents-nov-dec-2016/>]
 4. 2016. **Milton Tan**, Jonathan W Armbruster. Two new species of spotted *Hypancistrus* from the Rio Negro Drainage (Loricariidae, Hypostominae). *ZooKeys* 552: 123–135. doi: 10.3897/zookeys.552.5956.
Selected media features:
Amazonas Magazine Nov/Dec 2016: [<http://www.reef2rainforest.com/2016/09/20/amazonas-magazine-table-of-contents-nov-dec-2016/>]
 3. 2015. Jonathan W Armbruster, David C Werneke, **Milton Tan**. Three new species of saddled loricariid catfishes, and a review of *Hemiancistrus*, *Peckoltia*, and allied genera (Siluriformes). *ZooKeys* 480: 97–123. doi: 10.3897/zookeys.480.6540.
Selected media features:
CNN [<http://www.cnn.com/2015/03/17/us/feat-greedo-catfish-species/>]
Auburn University Newsroom [http://ocm.auburn.edu/newsroom/news_articles/2015/03/auburn-universitys-armbruster-discovers-catfish-species-names-it-for-star-wars-character.htm]
Nerdist [<http://www.nerdist.com/2015/02/the-closest-thing-to-star-wars-greedo-is-now-a-catfish/>]

2. 2014. C Keith Ray, **Milton Tan**, Jonathan W Armbruster. First record of *Chrosomus erythrogaster* (Cypriniformes: Cyprinidae) in the Mobile Basin. *Southeastern Naturalist* 13(4): N33–N36. doi: 10.1656/058.013.0402.
1. 2012. **Milton Tan**, Jonathan W Armbruster. *Cordylancistrus santarosensis* (Siluriformes: Loricariidae), a new species with unique snout deplation from the Río Santa Rosa, Ecuador. *Zootaxa* 3243:52–58.
Selected media features:
National Geographic Daily News
[<http://news.nationalgeographic.com/news/2012/04/pictures/120410-new-armored-suckermouth-catfish-discovery-animals-science/>]
Zootaxa Top 10 most accessed papers 2012 (8th in March)
[<http://www.mapress.com/zootaxa/collections/mostaccess/2012.html>]
Auburn University Graduate School Magazine Fall 2012/Winter 2013
[<http://issuu.com/augraduateschool/docs/fall2012-winter2013>]

Non-Peer Reviewed Reports

4. 2023. **Roberto V Cucalón**, Joel B Corush, Matthew L Niemiller, Mark A Davis, **Milton Tan**. Distinct genetic variation in the state-listed Mottled Sculpins (*Cottus bairdii*) reveals genetic divergence in Illinois glaciated versus unglaciated regions. Illinois Department of Natural Resources. 19 pp.
3. 2023. Joel B Corush, **Roberto V Cucalón**, Brian A Metzke, **Milton Tan**, Mark A Davis, Species Distributions and Population Structure of Illinois' Spring Cavefish (*Forbesichthys* spp.) using Genomics. Illinois Department of Natural Resources. 27 pp.
2. 2023. Joel B Corush, **Roberto V Cucalón**, Haruma Kurita, Brian A Metzke, **Milton Tan**, Jeffrey Stein, Mark A Davis. Biogeographical Patterns of the Ironcolor Shiner (*Alburnops chalybaeus*) in North America. Illinois Department of Natural Resources. 19 pp.
1. 2020. Matthew L Niemiller, R Hardman, D Thames, D Istvanko, C Ogle, Mark A Davis, **Milton Tan**, JJ Apodaca, J Benito, J Campbell, T Clark, K Dooley, D Miller, KDK Niemiller, C Simpson, P Upchurch. Assessment of geographic range, habitat, and population genetics of the Green Salamander (*Aneides aeneus*) in Tennessee. Southeastern Association of Fish & Wildlife Agencies. 86 pp.

Submitted (First-author manuscripts available upon request)

Major co-author: *Submitted*. Victor A Tagliacollo, Milton Tan, Roberto E Reis, Ronielson Gaia, Virgilio Carrijo, Marcelo Ranuzzi, Jack M Craig, James S Albert. Time-calibrated phylogeny of Neotropical freshwater fishes. *Frontiers in Bioinformatics*.

Major co-author: *Submitted*. Joel B Corush, **Roberto V Cucalón**, Brian A Metzke, **Milton Tan**, Mark A Davis. Pleistocene glaciation and Anthropocene fragmentation influence genetic variation in the Illinois state-listed Mottled Sculpin (*Cottus bairdii*). *Environmental Biology of Fishes*.

Minor co-author: *Submitted*. James S. Albert, Daniel R. Akin, Vitor Abrahão, Marcelo L. F. Andrade, Mariangeles H. Arce, Jonathan W. Armbruster, Ricardo C. Benine, Maxwell J. Bernt, Maria E. Bichuette, José L. O. Birindelli, Pedro H. N. Bragança, Marcelo R. Britto, Paulo A. Buckup, Michael D. Burns, Barbara B. Calegari, Tiago P. Carvalho, Lilian Casatti, Wilson J. E. M. Costa, William G. R. Crampton, Fernando C. P. Dagosta, Joshua P. Egan, Luis Fernández, Daniel B. Fitzgerald, João P. Fontenelle, Matthew A. Kolmann, Francisco Langeani, Pablo Lehmann, Rafael P. Leitão, Flávio C. T. Lima, Marina V. Loeb, Carlos A. S. Lucena, Paulo H. F. Lucinda, Nathan K. Lujan, Luiz R. Malabarba, Wilfredo A. Matamoros, Bruno F. Melo, Andre L. Netto-Ferreira, Carla S. Pavanelli, Fernando M. Pelicice, Edson H. L. Pereira, Robson C. T. Ramos, Roberto E. Reis, Marcelo M. Rocha, Fábio F. Roxo, Vivianne B. Sant'Anna, Oscar A. Shibatta, Veronica Slobodian, Madlen Stange, Victor A. Tagliacollo, **Milton Tan**, Kevin T. Torgersen, Kirk O. Winemiller. An ecological trait matrix of Neotropical freshwater fishes, the most diverse continental vertebrate fauna. *Scientific Data*.

Minor co-author. Elijah Davis, Kasey Brockelsby, **Milton Tan**, Rebecca C Fuller. Sexual Dimorphism in Fin Size and Shape in North American Killifish (Fundulidae). *Ichthyology & Herpetology*.

OTHER PRODUCTS

Bioinformatic tools (Available on GitHub: <https://github.com/miltontan>)

Stages analysis – Scripts for testing for differences in timing of diversification in two uni- or multivariate traits.

PRESENTATIONS

Presentations are oral presentations unless indicated. Undergraduate mentees are underlined.

Invited Talks and Symposia

- 2024 “Biodiversity Genomics”. Let the Research Talk – Climate and Entomology. University of West Indies Mona. March 20. Virtual.
- 2022 “Historical biogeography of Neotropical Freshwater Fishes” XXIV Encontro Brasileiro de Ictiologia Symposium: Historical Ecology of Neotropical Freshwater Fishes, Gramado, Brazil.
- 2021 “Why are there so many kinds of Neotropical Fishes? Ecological Evolution and Diversification of Neotropical Freshwater Fishes.” American Society of Ichthyologists & Herpetologists Symposium: Why are there so many kinds of fishes? A showcase of early-career ichthyologists, Phoenix, AZ.
- 2019 “Solving the World’s Challenges” Panel, Funk ACES Library, Urbana-Champaign, IL.
- “Evolution of Defenses and Diversification in Catfishes” National Science Foundation Postdoctoral Research Fellowship in Biology for Research Using Biological Collections Mini-Symposium, University of New Mexico Sevilleta Field Station, La Joya, NM.

- 2017 “Diagnosing Effects of Systematic Error and Phylogenetic Signal in Phylogenomics: A Case Study on the Order Cypriniformes.” **Ernst Mayr Symposium Student Award Competition Finalist**, Society of Systematic Biologists, Evolution 2017, Portland, OR. [Watch online: <https://youtu.be/nSNyejRKdW0>]
- 2015 “The All Cypriniformes Tree of Life: a resource for comparative studies applied to diversification and evolution of body size.” American Society of Ichthyologists and Herpetologists, Joint Meeting of Ichthyologists and Herpetologists, Reno, NV.

Invited Institutional Seminars

- 2023 Feb 21 Illinois Natural History Survey, University of Illinois at Urbana-Champaign.
- 2021 May 7 Department of Biological Sciences, Cal Poly Pomona.
- 2020 Feb 14 Darwin Day, Department of Biological Sciences, DePaul University.
- 2018 Aug 29 Program in Ecology, Evolution, and Conservation Biology, University of Illinois at Urbana-Champaign.
- Feb 2 Illinois Natural History Survey, University of Illinois at Urbana-Champaign.
- 2017 Feb 17 Florida Museum of Natural History, University of Florida.
- Feb 3 Program in Population Biology, Ecology & Evolution, Emory University.

Presentation Honors and Awards

- 2017 Society of Systematic Biologists Ernst Mayr Student Award Symposium Finalist at Evolution 2017 [Title: Diagnosing Effects of Systematic Error and Phylogenetic Signal in Phylogenomics: A Case Study on the Order Cypriniformes]
- 2013 American Society of Ichthyologists & Herpetologists Stoye Award for Best Student Oral Presentation in General Ichthyology at JMIH [Title: What is Miniaturization?: Lack of Miniaturization in the Evolution of Body Size in a Group Including Some of the Smallest Fishes in the World (Danioninae: Cyprinidae)]
- 2011 Neotropical Ichthyological Association Best Student Poster Award winner at JMIH [Title: Molecular phylogenetics of *Hypancistrus* (Loricariidae: Siluriformes) using cytochrome *b*]

Contributed Presentations

I was presenter only on first-author presentations and presentations indicated with *.

Underlined bold authors indicate graduate mentees.

Underlined authors indicate undergraduate mentees.

Presentations were oral presentations unless indicated.

2024

76. Joel Corush, **Milton Tan**. Reassessing The Relationship of Spawning Mode to Conservation Status of North American Minnows (Leuciscidae). American Fisheries Society 2024, Honolulu, HI, September 15–19.
75. Joel Corush, **Milton Tan**. Reassessing The Relationship of Spawning Mode to Conservation Status of North American Minnows (Leuciscidae). Joint Meeting of Ichthyologists & Herpetologists, Pittsburgh, PA, July 10–14. Poster.
74. **Milton Tan**. An Update on Comparative Genomic Approaches Applied to Cartilaginous Fish Genome Evolution. Joint Meeting of Ichthyologists & Herpetologists, Pittsburgh, PA, July 10–14.
73. **Roberto V Cucalón**, Joel B Corush, Matthew L Niemiller, Amanda N Curtis, Pamela B Hart, Bernard R Kuhajda, Matthew R Thomas, Brian Metzke, Mark A Davis, **Milton Tan**. Species Distributions and Population Structure of Illinois' Spring Cavefish (*Forbesichthys* spp.) using Genomics. Joint Meeting of Ichthyologists & Herpetologists, Pittsburgh, PA, July 10–14. Poster.
72. **Roberto V Cucalón**, Joel B Corush, Mark A Davis, **Milton Tan**. Distribution and Genomic Diversity of Mimic and Channel Shiners in the Upper Mississippi River. Joint Meeting of Ichthyologists & Herpetologists, Pittsburgh, PA, July 10–14.
71. Varenya Jain, **Milton Tan**. Low-coverage Whole Genome Sequence Data in Fishes. Undergraduate Research Symposium, UIUC, Champaign, IL, April 25. Poster.
70. **Milton Tan**. Biodiversity Genomics. Let the Research Talk – Climate and Entomology. University of West Indies Mona. March 20. Virtual.
69. ***Roberto Cucalón**, Joel B Corush, Robert Hrabik, Konrad Schmidt, John Lyons, Mark Davis, **Milton Tan**. A Tale of Two Shiners: Distribution and Genomic Diversity of Mimic and Channel Shiners in the Upper Mississippi River. Illinois Chapter of the American Fisheries Society, Bloomington-Normal, IL, February 27–29.
68. **Roberto Cucalón**, **Milton Tan**. Species Distributions and Population Structure of Illinois' Spring Cavefish (*Forbesichthys* spp.) using Genomics. Graduates in Ecology and Evolutionary Biology, Champaign, IL, February 2.

67. **Milton Tan**. RAD Sequencing case studies: Inexpensive genomics for studying populations and beyond. Prairie Research Institute Symposium, Champaign, IL, January 24. Poster.
66. **Milton Tan**. Biodiversity Genomics. Prairie Research Institute Symposium, Champaign, IL, January 24. Lightning Talk.
65. Brett Aiello, Simon Sponberg, Usama Sikandar, Akito Kawahara, Chris Hamilton, Joanna Natalie Baker, Leo Wood, Ethan Wold, **Milton Tan**, Sarah G Maccaralli, Katie E Pfulh, Nicole P Mason. The evolution of distinct flight strategies in bombycoid moths and the development of a model clade. Society of Integrative & Comparative Biology, Seattle, WA, January 2–6.

2023

64. **Milton Tan**, Jonathan W Armbruster. Ecology and Biogeography of the Diversification of Minnows (Cypriniformes: Leuciscidae) of the Holarctic. Joint Meeting of Ichthyologists & Herpetologists, Norfolk, VA, July 12–16.
63. Daniel J MacGuigan, Hannah Waterman, Nathan JC Backenstose, **Milton Tan**, Jessie A Pelosi, TJ Krabbenhoft. Sequences versus synteny: a phylogenomic exploration of Cypriniformes. Evolution, Albuquerque, NM, June 21–25.
62. Joel B Corush, **Robert Cucalón**, **Milton Tan**, Mark A Davis. Comparative population genomics of fishes of the upper Mississippi River basin. Evolution, Albuquerque, NM, June 21–25.
61. Cameron Fisher, M Tan. Morphological Diversity Among Neotropical Catfishes of the Superfamily Pimelodoidea. Undergraduate Research Symposium, UIUC, Champaign, IL, April 27. Poster.

2022

60. **Milton Tan**, Victor A Tagliacollo, Fernando Dagosta, Jack M Craig, Roberto E Reis, James S Albert. “Historical biogeography of Neotropical Freshwater Fishes” XXIV Encontro Brasileiro de Ictiologia Symposium: Historical Ecology of Neotropical Freshwater Fishes, Gramado, Brazil, Sep 19–23.
59. **Milton Tan**, Mark H Sabaj, Dahiana Arcila, Lily C Hughes, Claudio de Oliveira, Nathan K Lujan, Roberto Betancur-R, Guillermo Ortí. Higher-Level Relationships of Catfishes (Siluriformes) from Phylogenomic Data. Joint Meeting of Ichthyologists & Herpetologists, Spokane, WA, July 27–31.
58. Joel B Corush, **Roberto Cucalón**, Haruma Kurita, Jeffrey Stein, Brian Metzke, **Milton Tan**, Mark A Davis. Biogeographical patterns of the Ironcolor shiner (*Notropis chalybaeus*) in North America. Evolution 2022, Cleveland, OH, June 21–22, 24–28.
57. **Roberto Cucalón**, Joel B Corush, Robert Hrabik, Konrad Schmidt, John Lyons, Mark Davis, **Milton Tan**. Distribution and genetic diversity of *Notropis volucellus* and *Notropis wickliffi* (Leuciscidae: Pogonichthyinae) in the Mississippi River. Evolution 2022, Cleveland, OH, June 21–22, 24–28. Poster.

56. **Milton Tan**, Jonathan W Armbruster. Ecology and Biogeography of the Diversification of Minnows (Cypriniformes: Leuciscidae) of the Holarctic. Evolution 2022, Cleveland, OH, June 21–22, 24–28.
55. Emma J Grassi, **M Tan**. A novel implementation of digital unbending of arched fish specimen artifacts for analyzing fish body shape. Undergraduate Research Symposium, UIUC, Champaign, IL, April 28.
54. Alexis J Alvey, **Milton Tan**. How to Be a Catfish: An exploration of the diverse morphologies and ecologies of Neotropical catfishes (Superfamily Aspredinoidea). School of Integrative Biology Distinction Symposium, April 7.
53. Megan R Ray, **Milton Tan**. Current Progress on Improving Automated Phylogenetics Pipelines. School of Integrative Biology Distinction Symposium, April 7.

2021

52. **Milton Tan**, Victor A Tagliacollo, James S Albert. Ecological Evolution and Diversification of Neotropical Freshwater Fishes. American Society of Ichthyologists & Herpetologists Symposium: Why are there so many kinds of fishes? A showcase of early-career ichthyologists, Joint Meeting of Ichthyologists & Herpetologists, Phoenix, AZ, July 21–23, 26–27.
51. Alexis J Alvey, **Milton Tan**. Body shape diversity and evolution of South American catfishes of the superfamily Aspredinoidea using 2D and 3D geometric morphometrics. 2021 Virtual Undergraduate Research Symposium, Apr 25–May 1.
50. Jacob R Norbot, **Milton Tan**. Automated collection of type locality data for catfishes of the superfamily Aspredinoidea. School of Integrative Biology Undergraduate Distinction Symposium, April 8.

2020

49. Niemiller Matthew L, Mark A Davis, **M Tan**, JJ Apodaca, Katherine E Dooley, Joseph Benito, K Denise Kendall Niemiller, Rebecca Hardman, Daniel Istvanko, Chris Ogle, Dustin Thames, Debra Miller, Josh Campbell, Chris Simpson, Pandey Upchurch. Two for one? Phylogenomics and population genetic analyses of the Green Salamander (*Aneides aeneus*) reveal two lineages in Tennessee. 2020 Annual Southeast Partners in Amphibian and Reptile Conservation Meeting, Nauvoo, AL, February 27–29 [oral 5 min].

2019

47. **Milton Tan**, Jonathan W Armbruster. Shape Evolution and Diversification in North American Leuciscidae (Cypriniformes). Joint Meeting of Ichthyologists and Herpetologists, Snowbird, UT.
46. **Milton Tan**, Jonathan W Armbruster. Shape Evolution and Diversification in North American Leuciscidae (Cypriniformes). Evolution 2019, Providence, RI.
45. **Milton Tan**, Jonathan W Armbruster. Body Shape Diversification Varies by Clade but not Habitat in North American Minnows (Leuciscidae: Cyprinoidei). Society for the Preservation of Natural History Collections, Chicago, IL.
44. **Milton Tan**, Anthony K Redmond, Helen Dooley, Ryo Nozu, Keiichi Sato, Shigehiro Kuraku, Sergey Koren, Adam M Phillippy, Alistair DM Dove, Timothy D Read. Vertebrate gene family evolution and the whale shark genome. University of Illinois Institute for Genomic Biology Fellows Symposium, Champaign, IL.

43. Jemima Elsherbini, **Milton Tan**. Shape variation among catfishes of the superfamily Aspredinoidea (Siluriformes). University of Illinois Undergraduate Research Symposium, Champaign, IL.
42. Isabella Sadler, **Milton Tan**. Body shape variation among catfishes of the superfamily Pimelodoidea (Siluriformes). University of Illinois Undergraduate Research Symposium, Champaign, IL. Poster.
41. **Milton Tan**. Minnows on the EDGE: Conservation prioritization incorporating evolutionary distinctiveness. Illinois chapter of the American Fisheries Society, Champaign, IL.

2018

40. **Milton Tan**, Guillermo Ortí. Identification of Putative Venom Genes in Catfishes. Gordon Research Conference: Venom Evolution, Function and Biomedical Applications, West Dover, VT. Poster.
39. **Milton Tan**, Alistair DM Dove, Timothy D Read. Comparative genomics of the whale shark and the evolution of vertebrate gigantism. Joint Meeting of Ichthyologists and Herpetologists, Rochester, NY.
38. Edward D Burress, **Milton Tan**. Ecological opportunity alters the timing and shape of adaptive radiation. Society of Integrative and Comparative Biology, San Francisco, CA.

2017

37. **Milton Tan**. A New and Improved Genome Assembly of the Whale Shark (*Rhincodon typus*). Emory University Postdoc Research Symposium. Poster.
36. **Milton Tan**, Alistair DM Dove, Timothy D Read. A New and Improved Genome Assembly of the Whale Shark (*Rhincodon typus*). Joint Meeting of Ichthyologists and Herpetologists, Austin, TX.
35. **Milton Tan**, Jonathan W Armbruster. Phylogenomic Interrogation of Deep Relationships in the Cypriniformes: Diagnosing the Effects of Error, Signal, and Noise. Joint Meeting of Ichthyologists and Herpetologists, Austin, TX. Poster.
34. Edward D Burress, **Milton Tan**, Jonathan W Armbruster. Evolution of pharyngeal jaw shape, size, and associated musculature across the Neotropical cichlid phylogeny. Society for Comparative and Integrative Biologists, New Orleans, LA.

2016

33. **Milton Tan**, Jonathan W Armbruster. Functional genomic evolution of paedomorphic Cypriniformes. Joint Meeting of Ichthyologists and Herpetologists, New Orleans, LA.
32. Edward D Burress, Oldřich Říčan, Lubomír Piálek, Jorge Casciotta, **Milton Tan**, Jonathan W Armbruster. Parallel phenotypic diversification and rapid speciation of *Crenicichla* species flocks: riverine analogs to the East African Great Lake cichlids. Joint Meeting of Ichthyologists and Herpetologists, New Orleans, LA.
31. Edward D Burress, Oldřich Říčan, Lubomír Piálek, Jorge Casciotta, **Milton Tan**, Jonathan W Armbruster. Parallel phenotypic diversification and rapid speciation of *Crenicichla* species flocks: riverine analogs to the East African Great Lake cichlids. Evolution 2016, Austin, TX.
30. **Milton Tan**, Jonathan W Armbruster. Functional genomic evolution of paedomorphic Cypriniformes. Evolution, Austin, TX.

2015

29. **Milton Tan**, Jonathan W Armbruster. Minnows on the EDGE: Incorporating phylogeny into conservation biology. Southeastern Fishes Council, Gainesville, FL.
28. Jonathan W Armbruster, Edward D Burrell, Shobnom Ferdous, **Milton Tan**. The evolutionary ecology of cyprinids. Southeastern Fishes Council, Gainesville, FL.
27. Kasey C Benesh, **Milton Tan**, Jonathan W Armbruster. Range Stability of *Etheostoma tallapoosae* and *Etheostoma stigmaeum*. Southeastern Fishes Council, Gainesville, FL. Poster.
26. **Milton Tan**, Jonathan W Armbruster. Transcriptome Evolution of Paedomorphic Cyprinidae. Joint Meeting of Ichthyologists and Herpetologists, Reno, NV. Poster.
25. Jonathan W Armbruster, **Milton Tan**, Malorie Hayes, Carla C Stout. The Cypriniform African Invasion. Joint Meeting of Ichthyologists and Herpetologists, Reno, NV.
24. Carla C Stout, **Milton Tan**, Jonathan W Armbruster. Phylogeography of Leuciscinae. Joint Meeting of Ichthyologists and Herpetologists, Reno, NV.
23. Kasey C Benesh, **Milton Tan**, Jonathan W Armbruster. Shape variation and evolution of the genus *Phenacobius*. Joint Meeting of Ichthyologists and Herpetologists, Reno, NV. Poster.
22. Edward D Burrell, **Milton Tan**, Jonathan W Armbruster. Craniofacial diversification across the cichlid fish adaptive radiation. Joint Meeting of Ichthyologists and Herpetologists, Reno, NV.
21. **Milton Tan**, Jonathan W Armbruster. Building the All Cypriniformes Tree of Life. Auburn University "This Is Research!" Symposium.
20. Kasey C Benesh, **Milton Tan**, Jonathan W Armbruster. Investigation of the Correlation Between Shape Variation of Species in *Phenacobius* and Their Evolutionary Relationships. Auburn University "This Is Research!" Symposium.
19. Audrey A Boggio, **M Tan**, JW Armbruster. Shape evolution in genus *Luxilus*. Auburn University "This Is Research!" Symposium.
18. Kristen E Wright, **Milton Tan**, Jonathan W Armbruster. Geometric morphometrics and shape evolution of *Hybognathus*. Auburn University "This Is Research!" Symposium. Poster.
17. **Milton Tan**, Jonathan W Armbruster. Building the All Cypriniformes Tree of Life. Southeastern Ecology & Evolution Conference, University of Georgia, GA.
16. **Milton Tan**, Carla C Stout, Alan R Lemmon, Emily M Lemmon, Jonathan W Armbruster. Phylogeny of paedomorphic fishes of Cypriniformes using anchored phylogenomics. Society of Integrative and Comparative Biology, West Palm Beach, FL.

2014

15. Carla C Stout, **Milton Tan**, Adam R Lemmon, Emily M Lemmon, Jonathan W Armbruster. Preliminary phylogeny of Cypriniformes Based on Anchored Hybrid Enrichment with a Focus on Leuciscinae. Joint Meeting of Ichthyologists and Herpetologists, Chattanooga, TN.
14. **Milton Tan**, Carla C Stout, Alan R Lemmon, Emily M Lemmon, Jonathan W Armbruster. Phylogenomics and the evolution of paedomorphism in Cyprinidae. Joint Meeting of Ichthyologists and Herpetologists, Chattanooga, TN.
13. Edward D Burrell, **Milton Tan**, Jonathan W Armbruster. Ecological diversification among adaptive radiations of Neotropical cichlids. Joint Meeting of Ichthyologists and Herpetologists, Chattanooga, TN.

12. **Milton Tan**, Carla C Stout, Alan R Lemmon, Emily M Lemmon, Jonathan W Armbruster. Phylogenomics and the evolution of pedomorphism in Cyprinidae. *Evolution* 2014, Raleigh, NC.
11. **Milton Tan**, Carla C Stout, Alan R Lemmon, Jonathan W Armbruster. Many Trees for Mini Fishes: Phylogenomic analysis and gene tree discordance in pedomorphic cyprinid fishes. Southeastern Ecology and Evolution Conference, Georgia Southern University, GA.
10. Carla C Stout, **Milton Tan**, Alan R Lemmon, Jonathan W Armbruster. Preliminary phylogeny of Cypriniformes based on anchored hybrid enrichment with a focus on Leuciscinae (true minnows). Southeastern Ecology and Evolution Conference, Georgia Southern University, GA.
9. **Milton Tan** & Jonathan W Armbruster. What is Miniaturization? Evolution of body size in diminutive southeast Asian minnows of the subfamily Danioninae. Auburn University Graduate Scholars Forum.

2013

8. **Milton Tan** & Jonathan W Armbruster. What is Miniaturization?: Lack of Miniaturization in the Evolution of Body Size in a Group Including Some of the Smallest Fishes in the World (Danioninae: Cyprinidae). Joint Meeting of Ichthyologists and Herpetologists, Albuquerque, NM. **ASIH Stoye Award for best student oral presentation in General Ichthyology.**
7. **Milton Tan**. Little Fish, Big Questions: In Search of the Genomic Basis of Pedomorphism in Miniature Fishes (Cyprinidae). Auburn University 3 Minute Thesis competition.
6. **Milton Tan** & JW Armbruster. Body size evolution of the Danioninae. Southeastern Ecology and Evolution Conference, University of Central Florida, FL.

2012

5. **Milton Tan** & Jonathan W Armbruster. Molecular phylogenetics of *Hypancistrus* (Loricariidae: Siluriformes) using cytochrome *b*. *Evolution* 2012, Montreal, Canada. Poster.
4. **Milton Tan** & Jonathan W Armbruster. Phylogenetics of Venezuelan *Hypancistrus* (Loricariidae: Siluriformes): a recent radiation of catfishes? Southeastern Ecology and Evolution Conference, Clemson University, SC.

2011

3. **Milton Tan**, E Claire Wheeler, Jonathan W Armbruster. Geometric morphometric analysis of the genus *Hybopsis* (Cyprinidae: Ostariophysi). Southeastern Fishes Council, Chattanooga, TN.
2. **Milton Tan** & Jonathan W Armbruster. Molecular phylogenetics of *Hypancistrus* (Loricariidae: Siluriformes) using cytochrome *b*. Joint Meeting of Ichthyologists and Herpetologists, Minneapolis, MN. Poster. **Neotropical Ichthyological Association Best Student Poster Award winner.**
1. **Milton Tan**. Three new species of suckermouth armored catfishes (Siluriformes: Loricariidae: Ancistrini). Southeastern Ecology and Evolution Conference, Auburn University, AL. Poster.

RESEARCH MENTORSHIP AND ADVISING

As Graduate Advisor

Current:

Roberto Cucalón Tamayo (PhD). University of Illinois, PEEC. Summer 2020 –

As Graduate Student Committee Member

Current:

Avalon Feiler (MS), University of Illinois, EEB. Spring 2024 –

Yuqiao Li (PhD), University of Illinois, PEEC. Spring 2024 –

Evan London (PhD), University of Illinois, Animal Science. Fall 2023 –

Akila Abesinghe (PhD), Auburn University, Biological Sciences. Fall 2022 –

Shriram Baht (PhD), University of Illinois, EEB. Fall 2022 –

Phillip Hogan (PhD). University of Illinois, Entomology. Spring 2022 –

Jordyn Chace (PhD). University of Illinois, NRES. Spring 2021 –

Wesley Au (PhD). University of Illinois, Informatics. Fall 2020 –

Jules Chabain (PhD). University of Illinois, EEB. Spring 2020 –

Previous:

Marc-Elie Adaime (PhD). University of Illinois, Plant Biology. Spring 2021 – Fall 2024.

Kasey Brockelsby (MS), University of Illinois, EEB. Spring 2022 – Spring 2024.

Kathleen Quebedeaux (MS). University of Illinois, NRES. Fall 2019 – Spring 2021

Robert de Moya (PhD). University of Illinois, Entomology. Spring 2020 – Spring 2021

Loralee Wilson (MS). University of Illinois, EEB. Summer 2020 – Summer 2020

Current Undergraduate Research Mentees

Irith Chaturvedi (2023–), Jonathan Johnson, (2022, 2023–), Varenya Jain (2024–), Mia Possin (2024–).

Past Graduate Research Mentees

Genna Hilbing (Fall 2021).

Past Undergraduate Research Mentees

UIUC graduated with Distinction for Excellence in Research:

High Distinction: Alexis Alvey (2019–2022), Megan Ray (2021–2022), Jacob Norbot (2019–2021).

Highest Distinction: Shianglin Menez (2019–20, 2023–24)

UIUC: Tyler Weszt (Spring 2024), Cameron Fisher, Angeli Gargoles (2021–2023), Jordan Alwan, Isis Johnson, Marie Keating, Dylan Kolak, Alekhya Nathella, Taesok Kang, Bryan Valencia (2022), Max Adams, Joe Franke (now pursuing Master's), Emma Grassi, David Moreno-Hirsch (2021–2022), Abu Syed (2021), Jemima Elsherbini (2019–20, pursued Ph.D.), Emily Davis (2018–2019, pursued Ph.D.); Caeley Bryan, Abby Knipp, Isabella Sadler, Ryan Hill, Gracie Jasper, Sydney Koelper, Karlana Livengood, Bridget Smith (2019); Roqayah Mohammed, Hana Ostrander, Alyssa Petko, Hien Than (UIUC, 2018).

GWU: Tyler Cholankeril, Hadeel Saad (GWU, 2018).

AUM: Kasey Benesh (2014–16), Nicholas Chaffin, Robin Lloyd, Jessica McCarthy, Danielle Sander (2015–2016), Travia Johnson (2016), Audrey A Boggio, Akaash Singh, Hunter Turner, Kristen E. Wright (2014–15); Erin Hartsfield, E. Claire Wheeler (2011).

TEACHING EXPERIENCE

Courses

- Fall 2023 Co-Instructor for Current Topics in Systematics IB 526 seminar
 Spring 2021 Co-Instructor for Current Topics in Systematics IB 526 seminar
 Co-Instructor for Innovations in Conservation and Evolutionary Genetics (IB 546/NRES 512)
 Fall 2020 Co-Instructor for Principles of Systematics IB 467

Guest Lecture

- Fall 2021 Virtual guest lecturer for Phylogenetics and Systematics (BIO 404V/504V, Arkansas State University, Instructor of Record: Andrew Sweet)
 Spring 2018 Guest lecturer for Molecular Phylogenetics (GWU, Instructor of Record: Guillermo Orti)
 Summer 2016 Guest lecturer for Human Anatomy & Physiology II (Auburn, Instructor of Record: Jonathan W. Armbruster)
 Fall 2015 Guest lecturer for Evolution & Systematics undergraduate class (Auburn, Instructor of Record: Jonathan W. Armbruster)
 Fall 2012 Guest lecturer for Evolution & Systematics undergraduate class (Auburn)
 Spring 2011 Graduate student lecturer for Developmental Molecular Biology (Auburn)
 I prepared and gave four lectures for a graduate level class on topics in developmental molecular biology, such as axis specification, homeobox genes, and reproductive strategies.

Training in Teaching

- 2013–2014 Auburn University Preparing Future Faculty program
 This program developed my skills in teaching through seminars, discussion groups, workshops, and microteaching with teaching critique.

Graduate Teaching Assistant

- 2016 Comparative Anatomy – 1 semester at Auburn University, AL
 Tasks included assisting students with active learning through various laboratory activities based on specimens and dissections
 2009–2015 Human Anatomy & Physiology lab – 15 semesters (Auburn)
 Tasks included teaching anatomical terminology and leading laboratory activities (including cat dissection), and use of virtual laboratory experiments (simulated on computers), to diverse undergraduate students

Outside the Classroom

- 2016 R workshop, Joint Meeting of Ichthyologists and Herpetologists 2016
 I helped design and give a one-day workshop to teach basics in data manipulation, analysis, basic programming, and graphics in R
 2015–2016 Biology Tutor for Office of Diversity and Multicultural Affairs

Served as a tutor at drop-in center for minority students to receive free tutoring

SERVICE

Organizational Service

- 2023–2027 ASIH Board of Governors Class of 2027
- 2022– ASIH Twitter account ichthyology moderator
- 2022–2025 PEEC Steering Committee
- 2024 INHS Summer Research Opportunities Program *ad hoc* committee
- 2022 SSB Graduate Student Research Award proposal reviewer
- 2021 Neotropical Ichthyological Association student presentation judge
- 2021 SSB Ernst Mayr Student Symposium abstract reviewer
- 2021 SSB Graduate Student Research Award proposal reviewer
- 2019 ASIH Genetics, Development, and Morphology student oral presentation judge
- 2019 ASIH Ichthyology Best Paper in Copeia Committee
- 2019 Graduates in Ecology and Evolutionary Biology Symposium judge
- 2017 Emory-LGS STEM Research and Career Symposium volunteer: abstract reviewer
- 2017 Neotropical Ichthyological Association student presentation judge
- 2016 JMIH 2016 R workshop planning and instructing
- 2014–2015 Auburn University Biological Sciences Graduate Student Association Biolunch Coordinator
- 2015 Session moderator, Oral presentation judge: Southeastern Ecology & Evolution Conference
- 2015 Session Co-Chair: Society of Integrative and Comparative Biology
- 2013–2014 Auburn University Biological Sciences Graduate Student Association President

Editorship

- 2016 Check List – Quality Editor

Grant Review

- 2023 National Science Foundation Systematics and Biodiversity Sciences cluster
- 2019 National Science Foundation *ad hoc* reviewer

Peer Review

- 2024 Cell Genomics, Scientific Reports, US Fish and Wildlife Species Status Assessment
- 2023 Molecular Phylogenetics and Evolution, ZooKeys, Zootaxa
- 2022 Molecular Phylogenetics and Evolution, Neotropical Ichthyology, Transactions of the American Fisheries Society
- 2021 Biological Journal of the Linnean Society, Journal of Fish Biology, Molecular Phylogenetics & Evolution, Proceedings of the National Academy of Sciences
- 2020 Copeia, Ecology and Evolution, Frontiers in Genetics, Molecular Phylogenetics & Evolution (4), Journal of Biogeography (2), Journal of Fish Biology, Journal of Genomics, Zoological Journal of the Linnean Society
- 2019 Molecular Phylogenetics & Evolution (2), North American Journal of Fisheries Management, PeerJ, SAGE Evolutionary Bioinformatics, Systematic Biology, Zoological Journal of the Linnean Society, Zoological Research

- 2018 Cogent Biology, Genome Biology & Evolution, Genomics (2), Hydrobiologia, Molecular Ecology, Molecular Phylogenetics & Evolution
- 2017 Molecular Phylogenetics & Evolution (2), Reviews in Fish Biology and Evolution, Royal Society Open Science, Scientific Reports, Systematics & Biodiversity, Zootaxa (2)
- 2016 Biological Journal of the Linnean Society, Hydrobiologia, Journal of Fish Biology, ZooKeys
- 2015 Journal of Fish Biology, Zoological Scripta
- 2014 Biodiversity Data Journal, ZooKeys

Organizations

- 2010– American Society of Ichthyologists and Herpetologists (skipped 2012)
- 2016– Society of Systematic Biologists (skipped 2023–2024)
- 2019 Society for the Preservation of Natural History Collections
- 2019 American Fisheries Society Illinois Chapter
- 2010–2015 Southeastern Fishes Council
- 2009–2016 Auburn University Biological Sciences Graduate Student Association
- 2015 Society of Integrative and Comparative Biology
- 2012, 2014 Society for Study of Evolution
- 2012 Canadian Society for Ecology and Evolution
- 2009 University of Delaware chapter Phi Beta Kappa – honors society
- 2006 University of Delaware chapter Alpha Lambda Delta – first years honors society

PROFESSIONAL DEVELOPMENT

- 2022 iEvoBio – I attended this workshop/conference that meets with the Evolution meeting. This year’s topics focused on covering how best to teach informatics for undergraduates and how new researchers using computational biology have started their labs for people in the field of evolutionary biology.
- 2020 SSB 2020 Systematics in the Swamp workshops – I attended workshops at this conference provided training with RevBayes, georeferencing, and species distribution modeling
- 2016 SciPhD: The Business of Science for Scientists program – This four-day certificate program provides hands-on preparation for academic scientists for professional positions.
- 2016 Larval Fish Workshop – This two-week workshop provided practical training in identification, curation, and photography of larval fishes
- 2013–2014 Preparing Future Faculty – This year-long certification program developed my skills in teaching through seminars, discussion groups, workshops, and microteaching with teaching critique.
- 2014 NESCent Academy Summer 2014 Course: Next-generation sequencing for phylogenetics and phylogeography – A one week workshop offered providing tools for analysis of next-generating sequencing data for assembling the Tree of Life, delimiting species, and understanding speciation.

OUTREACH

Research Features

- 2017 Georgia Aquarium Research & Conservation Newsletter Winter 2017
[<http://www.georgiaaquarium.org/docs/default-source/pdfs/georgia-aquarium-research-and-conservation-newsletter-winter-2017.pdf>]
- 2013 Auburn University's Graduate School Magazine cover story in Fall 2012/Winter 2013 [<http://issuu.com/augraduateschool/docs/gradmagvolume6>].

Public Outreach

- 2024 Illinois Natural History Survey Open House
Prepared posters and displays of fishes to feature genomics and fish biodiversity research performed in the Biodiversity Genomics Lab
- 2018 George Washington University Earth Day Symposium
Helped prepare information flyers on fishes featured in an art exhibition of *gyotaku* Japanese-style fish prints created by Guillermo Ortí and Josie B. Vosoba.
- 2013–2016 Auburn University Biodiversity Learning Center open house events
Showcase fish research and specimens in the fish collection to educate on fish diversity and the importance of museum collections in research several times a year
- 2010–2016 AU Explore
Set up and run hands-on exhibits for middle-school children to showcase fish research as part of the Auburn University College of Sciences & Mathematics annual, spring outreach event.
- 2007–2009 Wikipedia
Extensive editing and addition of pages, especially about catfishes, on Wikipedia.
- October 2007 Coast Day
Helped run fish biology exhibit as part of the University of Delaware's College of Marine and Earth Studies annual outreach event open to the public.

FIELD EXPERIENCE

- 2024 Fish collection by seine in Kansas, Mississippi, Pennsylvania, Ohio, Arkansas
- 2021– Fish collection by seine in Illinois.
- Dec 2018 Fish collection by trawling in the Amazon and tributaries in Iquitos, Peru.
- 2011–2016 Fish collection by seine/electrofishing in various rivers in the Southeastern US.
- January 2016 Fish collection by seine and dip-net across northern Thailand in collaboration with Florida Museum of Natural History.
- June 2012 Lead organizer on collecting trips in Delaware.
- Jan 2012 Fish collection by seine/electrofishing in Ubon Ratchathani province, Thailand.
- July 2011 Fish collection by seine/electrofishing in Michigan, Minnesota, and Wisconsin.
- Dec 2010 Suriname: Contract work with ERM and Suralco involving fish collection by seine and identification of fishes on Nassau plateau.
- Summer 2008 Performed fieldwork as part of senior thesis work in Dr. Douglas Tallamy's entomology lab at the University of Delaware. Tasks included experimental garden maintenance, data collection, and sample sorting.

Fall 2007 Trained in various field collection techniques such as seining, coring sediments, and trawling in a number of coastal habitats of the Delaware Bay.

SKILLS

Bioinformatics

Familiar with using command line interface and submitting jobs for various cluster computing environments (SLURM, LSF, SGE)

Computing languages: bash, R, python

Phylogenetic analysis (IQ-TREE, mrBayes, BEAUTi/BEAST, ASTRAL, PAML, PAUP*/SVDQuartets, RAxML/ExaML, etc.)

Next-generation DNA sequence assembly and analysis (e.g. FastQC, Trimmomatic, BBTools, BWA, samtools, Bowtie, Tuxedo pipeline, Trinity, DESeq2, etc.)

Statistical analysis in various R packages and basic R scripting skill focusing on comparative phylogenetic methods (eg. ape, phytools, geiger, geomorph, etc.)

Molecular laboratory techniques (DNA extraction, RNA extraction, PCR, gel electrophoresis)

Fish collection by seine, backpack electrofishing, dip net, international fieldwork

Fish specimen preservation/curation, clearing and staining

Fish husbandry

Web design with HTML, CSS, Google Sites, WordPress

Experience with Word, Excel, Powerpoint/Keynote

Graphic design in Adobe Photoshop, Illustrator, Flash

Designed t-shirts for AU Biological Sciences Graduate Student Association

Training

Mental Health First Aid training (2024)

Prevention of Workplace Harassment Course (2018)

Red Cross CPR Training (2011, 2013)

National Safety Council Defensive Driving Course Online 9th Edition (2011-2016)

Coaching Systems LLC Coaching the Van Driver – 15 passenger program (2011-2016)