

# April Marie Wright

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## Education

**2009-2015** PhD; University of Texas at Austin, Ecology, Evolution and Behavior

**2005-2009** BA; St. Olaf College, Biology

## Current Appointment

### **Shafer Associate Professor, Department of Biological Sciences**

Southeastern Louisiana University  
2022 - Present

## Past Appointments

### **2017 - 2022: Assistant Professor, Department of Biological Sciences**

Southeastern Louisiana University

### **2016-2017: National Science Foundation Postdoctoral Fellow in Biology**

Iowa State University & The Field Museum

### **2015 - 2016: Postdoctoral Researcher**

Iowa State University & University of Kansas

### **2014 - 2015: Graduate Research Assistant**

University of Texas at Austin

### **2009 - 2014: Graduate Teaching Assistant**

University of Texas at Austin

## Publications

*Italics* indicate undergraduate author

Khakurel B, Nikolakis ZL, Crother BI, and **Wright AM**. In review. Species delimitation in Eastern Pine Snakes (*Pituophis melanolucus*).

Khakurel B, *Grigsby C, Zariwala J, Tran TD, Höhna S, & Wright AM*. In review. The fundamental role of character coding in Bayesian morphological phylogenetics.

Simões TR, Vernygora OV, de Medeiros BA, & **Wright AM**. 2023. Handling Character Dependency in Phylogenetic Inference: Extensive Performance Testing of Assumptions and Solutions Using Simulated Data. *Systematic Biology*: <https://doi.org/10.1093/sysbio/syad006>

**Wright AM**, Barido-Sottani J, Warnock RCM and Bapst DW. 2022. The Fossilized Birth-Death: A Fossil Record View. *Annual Reviews in Ecology, Evolution and Systematics*. 53:12.1–12.2. <http://doi/10.1146/annurev-ecolsys-102220-030855>

Barido-Sottani J, Justison JA, Borges R, Brown JM, Dismukes W, do Rosario Petrucci B, Fabreti G, Höhna S, Landis MJ, Lewis PO, May MR, Mendes FK, Pett W, Redelings BD, Tribble CM, **Wright AM**, Zenil-Ferguson R, Heath TA. 2022. Lessons learned from organizing and teaching virtual phylogenetics workshops. *Bulletin of the Society of Systematic Biologists*: 1:2. <https://doi.org/10.18061/bssb.v1i2.8425>

Charpentier CP, **Wright AM**. 2022. RevTiculate: An R framework for interaction with RevBayes. *Methods in Ecology and Evolution*: <https://doi.org/10.1111/2041-210X.13852>

Ward SJ, McMahan CD, *Khakurel B*, **Wright AM**, Piller KR. 2022. Next Generation Sequence data supports the taxonomic validity of *Poeciliopsis gracilis* and *Poeciliopsis pleurospilus* (Cyprinodontiformes: Poeciliidae). *PLoS*: 10.1371/journal.pone.0262687

Román Palacios C, **Wright AM**, Uyeda J. 2021. treedata.table: A wrapper for data.table that enables fast manipulation of phylogenetic trees matched to data. *PeerJ* 9:e12450 <https://doi.org/10.7717/peerj.12450>

**Wright AM**, Wagner PJ, and Wright DE. 2021. Testing character-evolution models in phylogenetic paleobiology: a case study with Cambrian echinoderms. Cambridge: Cambridge University Press. doi:10.1017/9781009049016

Warnock RCM, **Wright AM**. 2020. Understanding the tripartite approach to Bayesian divergence time estimation. *Elements of Paleontology*. Cambridge: Cambridge University Press. doi:10.1017/9781108954365

Harris B, McCarthy P, **Wright AM**, Schutz H, Boersma K, Shepherd S, Manning L, Malisch J, Ellington R. 2020. From panic to pedagogy: Using online active learning to promote inclusive instruction in ecology and evolutionary biology courses. *Ecology and Evolution* 10: 12581-12593. doi:10.1002/ece3.6915

Barido-Sottani J, Saupe E, Smiley TM, Soul LC, **Wright AM**, Warnock RCM. 2020. Seven rules for simulations in paleobiology. *Paleobiology*, 1-10. doi:10.1017/pab.2020.30

**Wright AM**, Lloyd, GT. 2020. Bayesian analyses in phylogenetic paleontology: Interpreting the posterior sample. *Palaeontology*. doi:10.1111/pala.12500

Barido-Sottani J, Justison J, **Wright AM**, Warnock RCM, Pett WC, Heath TA. 2020. Estimating a time-calibrated phylogeny of fossil and extant taxa using RevBayes. Eds: C. Scornavacca, F. Delsuc, N. Galtier. *Phylogenetics in the Genomic Era*. No commercial publisher 5.2:1–5.2:23.

**Wright AM**, Schwartz RS, Oaks JM, Newman CM, and Flanagan SP. 2020. The Why, When, and How of Computing in Biology Classrooms. *F1000Research* 2020, 8:1854. doi:10.12688/f1000research.20873.1

**Wright AM**. 2019. A systematist's guide to estimating Bayesian phylogenies from morphological data. *Insect Systematics and Diversity* 3. doi:10.1093/isd/ixz006.

**Wright AM**. 2019. treesiftr: An R package and server for viewing phylogenetic trees and data *Journal of Open Source Education*, 2(11), 35, doi:10.21105/jose.00035

Devitt TJ, **Wright AM**, Cannatella DC, Hillis, DM. 2019. Species delimitation in endangered groundwater salamanders: Implications for aquifer management and biodiversity conservation. *Proceedings of the National Academy of Sciences* 116: 2624-2633. doi.org:10.1073/pnas.1815014116.

Mueller UG, Kardish MR, Ishak HD, **Wright AM**, Solomon SE, Bruschi SM, Carlson AL, Bacci M. 2018. Phylogenetic patterns of ant-fungus associations indicate that farming strategies, not only a superior fungal cultivar, explain the ecological success of leafcutter ants. *Molecular Ecology* 27: 2414-2434. doi: 10.1111/mec.14588.

Lanfear R, **Wright AM**, Fransden PB, Senfeld T, Calcott B. 2017. PartitionFinder 2: new methods for selecting partitioned models of evolution for molecular and morphological phylogenetic analyses. *Mol. Biol. and Evol.* 34: 772-773. doi: 10.1093/molbev/msw260.

Matzke NJ, **Wright AM**. 2016. Inferring node dates from tip dates in fossil Canidae: the importance of tree priors. *Biol. Lett.* 12: 8. doi.org:10.1098/rsbl.2016.0328

Bapst DW, **Wright AM** Lloyd GT, Matzke NJ. 2016. Topology, divergence dates, and macroevolutionary inferences vary between different tip-dating approaches applied to fossil theropods (Dinosauria). *Biol. Lett.* 12: 7. doi:10.1098/rsbl.2016.0237

**Wright AM**, Lloyd GT, Hillis DM. 2016. Modeling character change heterogeneity in phylogenetic analyses of morphology through the use of priors. *Syst. Biol.* 65: 602-611. doi:10.1093/sysbio/syv122

Meirelles L, Solomon S, Bacci M, **Wright AM**, Mueller, U, Rodrigues, A. 2015. Shared Escovopsis infections destabilize the tripartite co-evolution hypothesis in the higher-attine fungus-growing ant symbiosis. *R. Soc. Open Sci.* 2:9. doi: 10.1098/rsos.150257

**Wright AM**, Lyons KM, Brandley MB, Hillis DM. 2015. Which Came First? Robustness in Phylogenetic Reconstruction of Ancestral States. *J Exp Zool B* 324: 504-516. doi:10.1002/jez.b.22642

**Wright AM** and Hillis DM. 2014. Bayesian Analysis Using a Simple Likelihood Model Outperforms Parsimony for Estimation of Phylogeny from Discrete Morphological Data. *PLoS One* 9:10. doi:10.1371/journal.pone.0109210

Li T, Hua J, **Wright AM**, Cui Y, Xie Q, Bu W, Hillis DM. 2014. Long-branch attraction and the phylogeny of true water bugs (Hemiptera: Nepomorpha) as estimated from mitochondrial genomes. *BMC Evol Biol* 14:99. doi: 10.1186/1471-2148-14-99.

## Technical Reports

Hillis DM, Devitt TJ, **Wright AM**, Cannatella DC. 2015. Genomic Assessment of Taxonomic Status of Central Texas Eurycea Salamanders. City of Austin Report.

## Grants

**2023 - 2025:** Linux Servers for Scientific Computing: Promoting Computational Literacy. Louisiana Board of Regents. \$66,873

**2021-2026:** CAREER: Quantitative assessment of models for phylogenetic data. National Science Foundation. \$1,150,905.

**2021-2024:** Collaborative Research: phyloregion, computational infrastructure for biogeographic regionalization and macroecology in the R computing environment. National Science Foundation. \$193,747.

**Supplement:** Research Experience for Post-Baccalaureate Students in the Biological Sciences. \$52,570

**2019-2022:** Louisiana Biomedical Research Network Full Project: Integrating heterogeneous data sources to estimate phylogeny. Louisiana Biomedical Research Network. \$294,000.

**2018-2019:** Louisiana Biomedical Research Network Pilot Project: Implementing a Dirichlet process for modeling complex biological data. Louisiana Biomedical Research Network. \$50,000.

**2016-2017:** Postdoctoral Research Fellowship in Biology, Interdisciplinary Research Using Biological Collections: Estimating a Time-Scaled Phylogenetic Tree of Ants from Combined Molecular-Morphological Data. National Science Foundation. \$136,000.

**2013-2014:** Doctoral Dissertation Improvement Grant: Utilizing maximum likelihood estimation for phylogenetic estimation from morphological data. National Science Foundation. \$6,820.

## Awards

**2018:** Louisiana Biomedical Research Network Outstanding New PI Award.

**2014:** Jackson School of Geosciences: Student Travel Award. \$600.

**2013:** University of Texas College of Natural Sciences Outstanding Teaching Assistant. \$500

## Curriculum Development

### Southeastern Louisiana University

**Spring 2020:** Introductory Biology II

**Fall 2019:** Biological Data Analysis [↗](#)

**Fall 2018:** Computational Biology [↗](#)

**Spring 2018:** Applied Systematics [↗](#)

**Fall 2017:** Genetics

### Short Courses and Other Teaching

**2019:** Nantucket developoR Course [↗](#)

**2019:** Geological Society of America Short Course: Quantitative Methods in Phylogenetic Paleobiology [↗](#)

**2019:** Analytical Paleobiology Workshop [↗](#)

**2018:** Analytical Paleobiology Workshop [↗](#)

**2016 - 2019:** Data Carpentry Python Ecology lesson maintainer [↗](#)

**2016:** Nantucket developoR Course [↗](#)

**2014:** Society of Vertebrate Paleontology Annual Meeting. Workshop: Using fossils as tips in phylogenetic analyses.

**2014:** Center for Computational Biology and Bioinformatics, University of Texas at Austin. Course: Introduction to Biological Computing

**2014:** Center for Computational Biology and Bioinformatics Big Data in Biology Summer School, University of Texas at Austin. Course: Introduction to Python for Biologists

**2014:** Statistics and Data Science Department, University of Texas at Austin. Workshop: Intermediate Python.

**2013:** Center for Computational Biology and Bioinformatics, University of Texas at Austin. Course: Introduction to Computing with Python

## Students Mentored

Anisha Neupane, Southeastern Louisiana University  
Simran Baruwal, Southeastern Louisiana University  
Amere Roussel, Southeastern Louisiana University  
Caleb Charpentier, Southeastern Louisiana University  
Basanta Khakurel, Southeastern Louisiana University  
Christina Kolbmann, Southeastern Louisiana University  
Courtney Grigsby, Southeastern Louisiana University  
Tyler Tran, Southeastern Louisiana University  
Rachael Johnson, Southeastern Louisiana University  
Katherine Jenkins, Southeastern Louisiana University  
Pedro Jimenez-Antenucci, Southeastern Louisiana University  
Bradley Freeman, Southeastern Louisiana University  
Patrick Mendoza, Iowa State University  
Andre Flores, Iowa State University  
Kelly Schiro, Iowa State University  
Krishna Gandikota, Iowa State University

## Software

RevTiculate - An R package for accessing RevBayes from an R session. Charpentier CP, **Wright AM**. (developer - <https://paleontology.github.io/RevTiculate/index.html>)  
tree.datatable - An R package for linking data with tips in phylogenetic trees. Roman Palacios C, **Wright AM**, Uyeda J. (developer - <https://github.com/uyedaj/treedata.table>)  
treeStartR - An R package for making starting trees from combined molecular, morphological and stratigraphic data. **Wright AM**. (developer - <https://github.com/ropensci/treeStartR>)  
PartitionFinder2 - Dataset partitioning selection for likelihood and Bayesian phylogenetics. Lanfear R, Frandsen PB, **Wright AM** and Calcott BC. (developer - <https://github.com/brettc/partitionfinder>)

## Invited Talks

**2022**      **Wright AM**. Models, Meaning and the Middle Cambrian. Yale University.

**2021**      **Wright AM**. Finding confidence among infinite possibilities: Lessons from paleontological phylogenetics. Southeastern Louisiana University.

**2021**      **Wright AM**. The fossilized birth-death process: An overview. Phyloseminar.

**2021**      **Wright AM**. Paleontological Phylogenetics and Deep Time Evolution. Mississippi University for Women.

**2021**      **Wright AM**. Finding confidence among infinite possibilities: Lessons from paleontological phylogenetics. University of California, Berkeley.

**2021**      Breanna Harris, **Wright AM**, and Shepherd SL. From Panic to Pedagogy – tips and resources for making online teaching more active and inclusive.

**2021**      **Wright AM**. Finding confidence among infinite possibilities: Lessons from paleontological phylogenetics. University of Idaho.

**2020**      **Wright AM**. Bayesian analyses in phylogenetic palaeontology: Interpreting the posterior sample. Systematics, Biogeography and Evolution meeting.

**2019**      **Wright AM**. Co-estimation of Phylogeny, Divergence Time, and Macroevolutionary Parameters In Formicidae. Geological Society of America Annual Meetings.

**2019**      **Wright AM**. Estimating phylogenetic trees from discrete morphological data: Modeling evolution to understand the past. Louisiana Louisiana State University Computational Biology Seminar Series.

**2019**      **Wright AM**. Modeling deep-time evolutionary processes from heterogeneous data sources. Louisiana Biomedical Research Network Annual Meeting.

**2018**      **Wright AM**. Applying a flexible model of discrete trait evolution to estimate a phylogeny of the Formicidae. Entomological Society Annual Meetings.

- 2017**      **Wright AM.** Flexible Modeling of Morphology for Phylogenetic Inference. Louisiana State University Museum of Natural History.
- 2017**      **Wright AM.** How did I get here: Lessons from the first in my family to go to college. BEACON Center Undergraduate Diversity Event, Evolution Meetings. Portland, OR.
- 2016**      **Wright AM.** Using Phylogenetic Trees to Study Evolutionary History. Texas Women's University. Denton, TX.
- 2016**      **Wright AM.** Model Misspecification: Lessons From Empirical Data. Iowa State University. Ames, IA. February 2016.
- 2014**      **Wright AM,** Lyons KM, Hillis DM and Brandley M. Estimating models of character evolution with phylogenetic uncertainty. Evolution Meetings. Raleigh, NC.
- 2013**      **Wright, AM** and Hillis, DM. Utilizing model-based methods for estimating phylogenetic trees from discrete morphological data with rate heterogeneity. University of Texas at Tyler.

## Presentations at Scientific Meetings

\* = Denotes undergraduate author

- 2023.**      **Wright, AM.** The burst of divergence-time estimation methods: a conversation on the how and why. Society of Systematic Biologists Meeting. Ciudad Mèxico, MX.
- 2023**      Khakurel, B, **Wright, AM.** Data-based PPS to compare Mk and SHDM models for morphological data. Society of Systematic Biologists Meeting. Ciudad Mèxico, MX.
- 2022**      Wagner, PJ, **Wright, AM.** The importance of considering punctuated change when assessing macroevolutionary scenarios in the context of phylogenies. Geological Society of America Meetings. Denver, CO.
- 2022**      Schwery, O, Khakurel, B, **Wright, AM.** Adequacy of Fossilised Birth-Death models: a test case in ants. Evolution Meetings. Cleveland, OH.
- 2022**      Khakurel, B, **Wright, AM.** Species delimitation on Eastern Pine snakes. Evolution Meetings. Cleveland, OH.
- 2019**      Khakurel, B\*, Grigsby, C\*, **Wright, AM.** Modeling morphological state space. Society of Systematic Biologists Meeting. Gainesville, FL.
- 2019**      Kolbmann, CM, Tran, TD\*, Grigsby, C\*, **Wright, AM.** Time heterogeneous Fossilized Birth-Death Modeling in Formicidae. Evolution Meetings. Providence, RI.
- 2019**      Tran, TD\*, Kolbmann, CM, Grigsby, C\*, **Wright, AM.** Unifying Phenotypic and Molecular Data for Phylogenetic Estimation. Evolution Meetings. Providence, RI.
- 2019**      Kolbmann, CM, Tran, TD\*, Grigsby, C\*, **Wright, AM.** Mechanistic Modeling of Evolution for Phylogenetic Inference. Louisiana Biomedical Research Network Bioinformatics Meeting. Baton Rouge, LA.
- 2019**      Tran, TD\*, Kolbmann, CM, Grigsby, C\*, **Wright, AM.** Unifying Phenotypic and Molecular Data for Phylogenetic Estimation. Louisiana Biomedical Research Network Bioinformatics Meeting. Baton Rouge, LA.
- 2018**      Jenkins, KM\*, Johnson, R.\* and **Wright, AM.** Site-heterogeneous models for morphology. South-eastern Student Research Showcase. Hammond, LA.
- 2017**      **Wright AM,** Pett WC, Heath TA. Flexible Modeling of Morphological Characters for Phylogenetic Inference. Evolution Meetings. Portland, OR.
- 2016**      **Wright AM** and Heath, TA. Innappropriate parameterization causes inaccurate estimation of node ages. Geological Society of America Meetings. Denver, CO.
- 2016**      **Wright AM** and Heath, TA. Innappropriate parameterization causes inaccurate estimation of node ages. Evolution Meetings. Austin, TX.
- 2014**      **Wright AM,** Lloyd GT, Matzke NJ, and Bapst DW. Fossils-only tip-dating of deinonychosaurian theropods: a comparison of methods and models. Society of Vertebrate Paleontology Annual Meeting. Berlin, Germany.
- 2013**      **Wright AM** and Hillis DM. Utilizing model-based methods for estimating phylogenetic trees from discrete morphological data with rate heterogeneity. Evolution Meetings. Snowbird, UT.
- 2012**      **Wright AM,** Brown JP, Slater GJ, and Hillis DM. On the utility of likelihood-based methods for phylogenetic estimation from binary data. Society of Vertebrate Paleontologists Annual Meeting. Raleigh, NC.
- 2011**      **Wright AM,** Brown JP, Harmon LJ, and Hillis, DM. Model-based methods for paleontological phylogenetics. Annual BEACON Meeting. East Lansing, Michigan.
- 2011**      **Wright AM** and Hillis DM. Effects of gene conversion on phylogenetic reconstruction. Evolution Meetings. Norman, Oklahoma.

**2010**      **Wright, AM** and Hillis, DM. Effects of gene conversion on phylogenetic reconstruction. Annual BEACON Meeting. East Lansing, Michigan.

## Symposia Organized

**2019:**      Enabling the next generation of computational biologists. iEvoBio Meeting. Moderator: **Wright AM**.

**2016:**      New Approaches to Phylogenetic Paleobiology. Geological Society of America Annual Meetings. Moderators: Bapst DW, Hopkins M, **Wright AM**, and Wright DF

**2014:**      Putting Fossils in Trees. Society of Vertebrate Paleontology Annual Meeting. Berlin, Germany. November 2014. Moderators: **Wright AM**, Matzke NJ, Lloyd GT and Bapst, DW.

## Professional Service

Evolution Meetings, Assistant Meeting Organizer, 2022-Present

Systematic Biology, Associate Editor, 2019-Present.

iEvoBio; Organization Head, 2019-Present.

Society of Systematic Biologists; Council Member, 2017-2020.

SciPy 2015 Conference Diversity Committee: Committee Member, SciPy Conference 2015

Software Carpentry Diversity Committee: Committee Member, 2014-2016

NESCent Phylotastic! Hackathon: Participant, 2013

Macroevolution Journal Club: Contributor and Organizer, 2012 - 2015

**Journal reviewer for:** *American Naturalist*, *BMC Evolutionary Biology*, *Ecology Letters*, *Molecular Biology & Evolution*, *Systematic Biology*, *Botany*, *Biology Letters*, *Proceedings of the Royal Society B*, *PLoS One*.

**Award reviewer for:** Systematic Biology Mini-ARTS Awards; SciPy Conference (2015) Diversity Travel Awards.

**Society Membership:** Society of Systematic Biologists, Entomological Society of America, Geological Society of America, NumFocus Foundation

## Outreach

STEMFest. Southeastern Louisiana University. Activity, 2021. Science in the Pub: "Fungal Farmers Under Our Feet." Contributed talk, 2018.

Girls In STEM at Abby Sawyer Elementary School: Activity Leader, 2016

Girl Scouts TechGirls: Activity Leader, 2012

GirlStart Girl Congress, Activity Leader, 2011

Travis County High School Science Fair: Judge, 2010

Blog Owner: Paleontology