

## **Dr. Matthew Grisnik**

Assistant Professor  
Department of Biology  
Coastal Carolina University  
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### **EDUCATION**

- Ph.D. 2018–2021**      **Middle Tennessee State University**, Murfreesboro, TN. Department of Biology  
*Dissertation*: Bat microbiome resistance and resilience through functional redundancy in response to a fungal pathogen  
*Major advisor*: Dr. Donald M. Walker
- Ph.D. 2017–2018**      **Tennessee Technological University**, Cookeville, TN. Department of Biology. Began dissertation work. Moved to MTSU with major advisor.  
*Major advisor*: Dr. Donald M. Walker
- M.S. 2014–2016**      **Marshall University**, Huntington, WV. Department of Biology  
*Thesis title*: Testing the efficacy of call-back surveys for Anuran monitoring  
*Major advisor*: Dr. Jayme Waldron
- B.S. 2010–2014**      **The University of Findlay**, Findlay, OH. Department of Biology  
*Major*: Biology  
*Minor*: Chemistry

### **PROFESSIONAL EXPERIENCE**

- 2023-Present **Assistant Professor**, Biology Department, Coastal Carolina University
- 2021–2023    **Post-Doctoral Researcher**, Wildlife Ecology Laboratory, Department of Agricultural and Environmental Sciences, Tennessee State University

### **PEER-REVIEWED PUBLICATIONS**

- (20) Hill J, **Grisnik M**, Hanscom RJ, Sukumaran J, Highman TE, Clark RW. The Past Present, and Future of Predator-Prey Interactions in a Warming World: Using Species Distribution Modeling to Forecast Ectotherm-Endotherm Niche Overlap. *In review for Ecology and Evolution*
- (19) Strebler M, **Grisnik M**, White M, Hanscom RJ. Herpetofauna of the Cumberland Plateau in Tennessee with an Emphasis on Catoosa Wildlife Management Area. *In revision for Herpetological Conservation and Biology*
- (18) Godwin CD, Walker DM, Romer AS, Grajal-Puche A, **Grisnik M**, Moore AJ, Plylar HB, Murray CM. Physiological ramifications of SFD infection: shifts in endocrine allocation *In revision for General and Comparative Endocrinology*

- (17) Godwin CD, Walker DM, Pylar HB, Moore AJ, Romer AS, Grajal-Puche A, **Grisnik M**, Murray CM. Leukocyte profiles of snakes infected with *Ophidiomyces ophidiicola*. In revision for *Veterinary Research Communications*
- (16) **Grisnik M**, Waldron J, Morgan T, Welch S. Testing the efficacy of Anuran callback surveys. In revision at *Journal of Herpetology*.
- (15) **Grisnik M**, Gray MJ, Piovio-Scott J, Carter ED, Sutton WB. Incorporating species susceptibilities and climate change into models of *Batrachochytrium salamandrivorans* risk in the United States of America. *Biological Conservation* DOI: 10.1016/j.biocon.2023.110181
- (14) Sutton WB, **Grisnik M**, Williams LA, Groves JD. Climatic and Landscape Vulnerability of the Eastern Hellbender (*Cryptobranchus alleganiensis*). *Global Ecology and Conservation*. DOI: 101016/j.gecco.2023.e02554
- (13) Hill AJ, **Grisnik M**, Walker DM. Bacterial skin assemblages of sympatric salamanders are primarily shaped by host genus. 2022. *Microbial Ecology*. DOI: 10.1007/s00248-022-02127-0
- (12) **Grisnik M**, Grinath JB, Munafo JP, Walker DM. Bat microbial assemblage functional redundancy in the presence of the white nose pathogen. 2022. *Microbial Ecology*. DOI: 10.1007/s00248-022-02098-2
- (11) Godwin CD, Walker DM, Romer AS, Grajal-Puche A, **Grisnik M**, Goessling JM, Perkin JS, Murray CM. 2021. Testing the Febrile Response of Snakes Inoculated with *Ophidiomyces ophiodiicola*, The Causative Agent of Snake Fungal Disease. *Journal of Thermal Biology*. DOI: 10.1016/j.jtherbio.2021.103065
- (10) **Grisnik M**, Grinath JB, Walker DM. 2021. The presence of a fungal pathogen correlates with a change in microbial metacommunity structure. *Scientific Reports*. 11. DOI: 10.1038/s41598-021-91118-1
- (9) Hill AJ, Hardman R, Sutton WB, **Grisnik M**, Gunderson JH, Walker DM. 2021. Absence of *Batrachochytrium salamandrivorans* in a Global Hotspot for Salamander Biodiversity. *Journal of Wildlife Diseases*. 57. DOI:10.7589/JWD-D-20-00218
- (8) **Grisnik M**, Hanscom R. 2020. New county records for reptiles and amphibians from Middle Tennessee's Cumberland plateau. *Herpetological Review*. 51(2): 282–284.
- (7) **Grisnik M**, Bowers O, Moore AJ, Jones B, Campbell JR, Walker DM. 2020. The cutaneous bat microbiome has antifungal activity against the white nose pathogen. *FEMS Microbiology Ecology*. 96(2). DOI: 10.1093/femsec/fiz193
- (6) Walker DM, Hill AJ, Albecker M, McCoy MW, **Grisnik M**, Romer A, Grajal-Puche A, Camp C, Kelehear C, Wooten J, Rheubert J, Graham, S. 2019. Variation in the slimy salamander (*Plethodon* spp.) skin and gut microbial assemblages is explained by geographic distance. *Microbial Ecology*. DOI: 10.1007/s00248-019-01456-x.
- (5) Murray C, Litmer A, **Grisnik M**, Stevenson M, Guyer C. 2019. Head shape variation among cryptic populations of Ground Skink (*Scincella lateralis*). *Journal of Zoological Systematics and Evolutionary Research*. 57(4). DOI: 10.1111/jzs.12314

- (4) Walker DM, Leys JE, **Grisnik M**, Grajal-Puche A, Allender M. 2019. Variability in snake skin microbial assemblages across spatial scales and disease states. *ISME Nature*. DOI: 10.1038/s41396-019-0416-x
- (3) **Grisnik M**, Leys JE, Bryan D, Hardman RH, Miller DL, Cobb V, Ogle C, Simpson C, Campbell JR, Applegate RD, Allender MC, Nordberg EJ, Hoeksstra AA, Walker DM. 2018. Host and geographic range of snake fungal disease in Tennessee, USA. *Herpetological Review*. 49(4): 682–690.
- (2) Hayes DH, **Grisnik M**, Stone SA, Tater ZW, Ritter K, Yancello LM, Oatman LE, Myers LE, Pellegrino CC, Camp CD, Walker DM, Wooten JA. 2017. The culturable skin microbiome of the Ocoee Salamander, *Desmognathus ocoee*. *The Tennessee Journal of Herpetology*. 1(1):4–10.
- (1) Combs J, **Grisnik M**, Bauldauf K, Sigg M, Swanson T, Amos R, White C, Walker DM, Schwaner TD, Brown AD, Blincoe T, Wooten JA. 2015. A report of *Ranavirus* infecting Midland Painted Turtles with novel localities for frog infection in Northwest Ohio. *Herpetological Review*. 46(3):361–363.

### **BOOK CHAPTERS**

- (2) Sutton WB, **Grisnik M**. *Hemidactylum scutatum*; in preparation for Reptiles and Amphibians of West Virginia, TK Pauley (ed).
- (1) **Grisnik M**, Sutton WB. *Ambystoma texanum*; in preparation for Reptiles and Amphibians of West Virginia, TK Pauley (ed).

### **NATURAL HISTORY NOTES**

- (3) Hanscom R, White M, Cranwell C, **Grisnik M**. 2023 *Regina septemvittata* county record. *Herpetological Review* 54(1):76
- (2) Hanscom R, **Grisnik M**. 2023. *Aneides aeneus* county record. *Herpetological Review* 54(1):66
- (1) **Grisnik M**, Hanscom R, Bowers O. 2019. *Desmognathus conanti* (Spotted Dusky Salamander) parental care. *Herpetological Review*. 50(2):334-335.

### **TECHNICAL REPORTS**

- (2) Walker DM, **Grisnik M**. 2020. Report: White-nose syndrome disease monitoring of bats in Tennessee, spatiotemporal patterns of the bat host microbiome and biocontrol of *Pseudogymnoascus destructans*.
- (1) Walker DM, Murray C, Sutton W, Bryan D, Blanchard T, Oogle C, Simpson C, Campbell J, Colvin R, Godwin C, **Grisnik M**, Romer A, Snyder S. 2020. Report: Current status of snake fungal disease in Tennessee.

### **SELECTED CONFERENCE PROCEEDINGS**

\*\* Undergraduate presenters

- 2022 Hill JL, **Grisnik M**, Hanscom R, Sukumaran J, Higham T, Clark R. Describing a predator-prey system using ecological niche models: Rattlesnakes and Kangaroo rats. Oral Presentation: Society for Integrative and Comparative Biology

- 2022 **Grisnik M**, Gray MJ, Piovio-Scott J, Carter ED, Sutton WB. Incorporating species susceptibilities and climate change into models of *Batrachochytrium salamandivorans* risk in the United States. Oral Presentation: Global Amphibian and Reptile Disease Conference
- 2022 Hill JL, **Grisnik M**, Hanscom R, Sukumaran J, Higham T, Clark R. Describing a predator-prey system using ecological niche models: Rattlesnakes and Kangaroo rats. Oral Presentation: Biology of Pitvipers 4
- 2022 **Grisnik M**, Gray MJ, Piovio-Scott J, Carter ED, Sutton WB. Incorporating species susceptibilities and climate change into models of *Batrachochytrium salamandivorans* risk in the United States. Oral Presentation: Joint Meeting of Ichthyologists and Herpetologists
- 2021 **Grisnik M**, Sutton WB. Climate Change Impact on Climatic Suitability for Tennessee Reptiles and Amphibians. Oral Presentation: Tennessee Herpetological Society
- 2021 Hill AJ, Hardman R, Sutton WB, **Grisnik M**, Gunderson J, and Walker DM. Survey for Salamander Chytrid Fungus in Plethodontid Populations of Tennessee. Oral Presentation: Tennessee Herpetological Society
- 2021 **Grisnik M**. The cutaneous microbiota of bats has *in vitro* antifungal activity against the white nose pathogen. Oral Presentation: MTSU CBAS Graduate Research Showcase
- 2020 **Grisnik M**, Godwin C, Moe K, Phipps E, Murray CM, Walker DM. Snake-associated microbial assemblages across scale and snake fungal disease states. Poster Presentation: Joint Meeting of Ichthyologists and Herpetologists \*Cancelled due to COVID-19 pandemic
- 2019 **Grisnik M**, Bowers O, Jones B, Moore AM, Munafo J, Istvanko D, Campbell J, Simpson C, Thames D, Holliday C, Walker DM. The cutaneous microbiota of bats has *in vitro* antifungal activity against the white nose pathogen. Oral Presentation: Tennessee Bat Working Group annual meeting
- 2019 **Grisnik M**, Walker DM, Hill AJ, Albecker MA, McCoy MW, Romer A, Grajal-Puche A, Camp C, Kelehear C, Wooten J, Rheubert J, Graham SP. Variation in the slimy salamander (*Plethodon* spp.) skin and gut microbial assemblages is explained by geographic distance and host affinity. Oral presentation: Tennessee Herpetological Society
- 2019 Godwin C, Murray CM, Grajal-Puche A, **Grisnik M**, Romer A, Walker DM. Testing the febrile response of snakes inoculated with *Ophidiomyces ophiodiicola* (Oo), the causative agent of snake fungal disease. Oral presentation: Tennessee Herpetological Society 2019 meeting.
- 2019 **Grisnik M**, Walker DM, Leys JE, Grajal-Puche A, Murray CM, Allender MC. Variability in snake microbial assemblages across spatial scales and disease states. Oral presentation: Joint Meeting of Ichthyologists and Herpetologists
- 2019 Godwin C, Murray CM, Grajal-Puche A, **Grisnik M**, Romer A, Walker DM. Testing the febrile response of snakes inoculated with *Ophidiomyces ophiodiicola*

- (Oo), the causative agent of snake fungal disease. Poster Presentation: Joint Meeting of Ichthyologists and Herpetologists 2019.
- 2019 Reece A, Bowe K\*\*, **Grisnik M**, Walker DM. Endosymbiotic bacteria of the causative agent of white nose syndrome (*Pseudogymnoascus destructans*) of bats. Poster presentation: Middle Atlantic States Mycological Conference 2019.
- 2019 Reece A, Moe K\*\*, **Grisnik M**, Walker DM. The Endosymbiotic bacterial community of the causative agent of white nose syndrome (*Pseudogymnoascus destructans*) of bats. Poster Presentation: 2019 MTSU exposition.
- 2018 **Grisnik M**, Bowers O, Jones B, Moore AM, Munafo J, Istvanko D, Campbell J, Simpson C, Thames D, Holliday C, Walker DM. The probiotic cutaneous microbiome of endangered Tennessee bats. Oral Presentation: Tennessee Bat Working Group annual meeting
- 2018 **Grisnik M**, Leys JE, Bryan D, Hardman RH, Miller DL, Cobb VA, Ogle C, Simpson C, Campbell JR, Applegate RD, Allender MC, Nordburg EJ, Hoekstra AA, Walker DM. Host and geographic range of SFD in Tennessee, USA. Oral presentation: Tennessee Herpetological Society
- 2018 **Grisnik M**, Bowers O, Jones B, Moore A, Wharton M, Munafo J, Istvanko D, Campbell J, Simpson C, Thames D, Holliday C, Walker DM. The probiotic cutaneous microbiome of endangered Tennessee bats. Oral Presentation: International Mycological Congress 11
- 2018 Wharton M\*\*, Bowers O\*\*, Jones B\*\*, Moore A\*\*, **Grisnik M**, Munafo J, Walker DM. Bacteria from the cutaneous microbiome of endangered Tennessee bats. Poster Presentation: FASEB conference 2018.
- 2017 Moore A\*\*, **Grisnik M**, Bowers O\*\*, Jones B, \*\*, Wharton M\*\*, Munafo J, Walker DM. Probiotic bacteria from the microbiome of endangered Tennessee bats have antifungal activity against the white nose syndrome pathogen. Poster Presentation: Tennessee Bat Working Group
- 2017 **Grisnik M**, Walker DM, Murray C. New County Records from Tennessee's Cumberland Plateau. Poster Presentation: Tennessee Herpetological Society Meeting.
- 2017 **Grisnik M**, Munafo J, Istvanko D, Campbell J, Simpson C, Thames D, Holliday C, Walker DM. The cutaneous microbiome of endangered Tennessee bats. Oral Presentation: Tennessee Bat Working Group
- 2017 **Grisnik M**, Munafo J, Walker DM. The cutaneous microbiome of Tennessee bats. Oral Presentation: American Society of Microbiologists KY-TN Branch Annual meeting.
- 2017 **Grisnik M**, Munafo J, Walker DM. The cutaneous microbiome of Tennessee bats. Oral Presentation: American Society of Microbiologists KY-TN Branch
- 2017 **Grisnik M**, Walker DM, Murray C. New county records from Tennessee's Cumberland Plateau. Poster Presentation: Tennessee Herpetological Society Meeting

- 2017 **Grisnik M**, Munafó J, Isvanko D, Campbell J, Simpson C, Thames D, Holliday C, Walker DM. The influence of *Pseudogymnoascus destructans* infection on the bat cutaneous microbiome. Poster Presentation: Mycological Society of America Annual Meeting
- 2017 **Grisnik M**, Munafó J, Isvanko D, Campbell J, Simpson C, Thames D, Holliday C, Walker DM. Identification of probiotic bacteria with antifungal activity in the cutaneous microbiome of endangered Tennessee bats. Poster Presentation: The White-Nose Syndrome Workshop
- 2014 **Grisnik M**, Hopey C, Sponsler S, Cross T, Camp CD, Graham S, Wooten JA. Hybridization and population structure in *Plethodon websteri* (Caudata: Plethodontidae) using microsatellites. Poster Presentation: Ohio Academy of Science
- 2014 **Grisnik M**, Sigg M, White C, Schwaner TD. Formation and population growth of amphibians in a man-made wetland: a five-year summary of the Spurgat wetland project. Oral Presentation: The University of Findlay, Symposium for scholarship and creativity
- 2013 Dulka E, Godfrey I, Burwinkel ME, McKinnon M, **Grisnik M**, Prigge G, Sablotny L, Wooten JA, Edelbrock M. The establishment of a cell line from *Ambystoma* (Caudata: Ambystomidae) Salamanders. Poster Presentation: Sigma Xi showcase and The University of Findlay, Symposium for scholarship and creativity
- 2012 **Grisnik M**, Combs J, Baldauf K, Sigg M, Krynac T, White C, Schwaner TD, Wooten JA. The discovery and prevalence of a *Ranavirus* in a natural reserve and a restored wetland in Northern Ohio. Poster Presentation: Ohio Academy of Science
- 2011 Hornacek O, **Grisnik M**, White C, Schwaner TD. Skeletochronological Study of age and growth in Green Frogs, *Lithobates clamitans*. Poster Presentation: The University of Findlay, Symposium for scholarship and creativity

### **RESEARCH EXPERIENCE**

- 2021–2023 **Post-Doctoral Research Associate**, Department of Agricultural and Environmental Sciences, Tennessee State University
- 2017–2018 **Graduate Research Fellow**, Department of Biology, Tennessee Technological University
- 2015 **Rattlesnake Telemetry Field Tech**, Department of Biology, Marshall University
- 2014 **Undergraduate Research Assistant**, Department of Biology, The University of Findlay

### **Graduate Mentoring**

Committee Member:

- 2023- Present Schutte, M. MS student in Biology, TSU. Thesis topic: Influence of Mountain Laurel on Hardwood Regeneration through Plant-Soil Feedback

### **TEACHING EXPERIENCE**

- April 2023 **Guest Lecturer**, Applied Multivariate Statistics, *Tennessee State University* (AGSC7590)
- Instructed weekly lecture on community analyses, specifically PERMANOVA and multivariate dispersion analyses.
  - Instructed modeling community analyses in R
- December 2021 **Guest Lecturer**, Ecosystem Science and Management, *Tennessee State University* (AGSC 5510/7510)
- Instructed weekly lecture on the basics of Landscape Ecology/Species Distribution Modeling in R
  - Provided an introduction to GIS and modeling in R
- September 2021 **Guest Lecturer**, Ecosystem Science and Management, *Tennessee State University* (AGSC 5510/7510)
- Instructed weekly lecture on the basics of Disease Ecology as well as current research trends
  - Assisted in facilitating discussion of a current disease ecology manuscript
- August 2019 – May 2021 **Head Graduate Teaching Assistant**, *Department of Biology, Middle Tennessee State University*, Courses: Introduction to Biology I and II labs
- Coordinated with faculty to organize all BIOL1111 and 1121 laboratory sections
  - Assisted with the development of online laboratories during the COVID-19 pandemic lockdown
  - Assisted with the transition, and training of all BIOL1111 and 1121 TAs to online teaching during the COVID-19 pandemic lockdown
  - Instructed Introductory Biology Labs for majors II, topics included, but were not limited to, organismal biology, evolution, biodiversity, introductory anatomy
- August 2019 – May 2021 **Graduate Teaching Assistant**, *Department of Biology, Middle Tennessee State University*, Courses: Introduction to Biology I labs (BIOL1121)
- Instructed Introductory Biology Labs for majors II, provided instruction and assistance to students completing laboratory assignments
  - Topics included, but were not limited to, organismal biology, evolution, biodiversity, introductory anatomy
- August 2018 – May 2019 **Graduate Teaching Assistant**, *Department of Biology, Middle Tennessee State University*, Courses: Introduction to Biology II labs (BIOL1111)
- Instructed Introductory Biology Labs for majors I, provided instruction and assistance to students completing laboratory assignments
  - Topics included, but were not limited to, introductory genetics, evolution, biodiversity, basic statistics
- August 2015 – December 2016 **Graduate Teaching Assistant**, *Department of Biology, Marshall University*, Courses: Introduction to Biology II labs (BSC 121)
- Instructed Introductory Biology Labs for majors II, provided instruction and assistance to students completing laboratory assignments
  - Topics included, but were not limited to, biodiversity, organismal biology, introductory anatomy
- August 2014 – May 2015 **Graduate Teaching Assistant**, *Department of Biology, Marshall University*, Courses: Introduction to Biology I labs (BSC 120)

- Instructed Introductory Biology Labs for majors I, provided instruction and assistance to students completing laboratory assignments
- Topics included, but were not limited to, introduction to hypothesis testing, photosynthesis, and introductory genetics

### **UNDERGRADUATE RESEARCH MENTORING**

- Andrew Moore – Project identifying antifungal bacteria isolated from bat cutaneous swabs  
 – Resulted in Publication (Grisnik et al. 2020)  
 – Graduated with an MS from University of Tennessee Knoxville
- Benjamin Jones – Project identifying antifungal bacteria isolated from bat cutaneous swabs  
 – Resulted in Publication (Grisnik et al. 2020)  
 – Graduated from Dental school at University of Tennessee Memphis
- Kelly Dunham – Antagonistic and Synergistic Co-Culture Activity of Bat Microbiome  
 – Currently a PhD student at University of Virginia
- Megan Wharton – Project identifying antifungal bacteria isolated from bat cutaneous swabs  
 – Graduated with an MS from Tennessee Technological University
- Olivia Bowers – Project identifying antifungal bacteria isolated from bat cutaneous swabs  
 – Resulted in Publication (Grisnik et al. 2020)  
 – Currently a Medical Lab Technologist for Sanesco International, Asheville, NC

### **PROFESSIONAL SERVICE**

- 2023 Provided Expert opinion on conservation status of Tennessee Reptiles for TNSWAP species
- 2022–Present Co-Chief Editor Tennessee Journal of Herpetology
- 2019–Present Middle Tennessee Representative, Tennessee Herpetological Society
- 2020–2021 President Middle Tennessee State University Biology Graduate Student Association
- 2017–2019 Skype a Scientist Presenter
- 2016 Meeting Volunteer West Virginia Academy of Science
- 2014–2016 Conservation Outreach, Marshall University

### **REVIEWER**

- 2021-Present Peer Reviewer:  
 Journals: *Microorganisms* (1), *Journal of Wildlife Diseases* (1), *Southeastern Naturalist* (1), *BMC Ecology and Evolution* (1), *Peerj Life and Environment* (1), *Animal Microbiome* (1), *Tennessee Journal of Herpetology* (1)
- 2019–2021 Ad-Hoc Peer Reviewer  
 Journals: *ISME nature* (1), *Microbiome* (1), *Journal of Fungi* (1)

### **AWARDS and HONORS**



- 2017 Best student presentation, Tennessee Bat Working Group meeting.
- 2014 The University of Findlay - Deans List
- 2013 Ohio Foundation of Independent Colleges - Nordson Scholar Award
- 2010 University of Findlay - Competitors Award
- 2010 University of Findlay - President's Scholar Award
- 2010 University of Findlay - Institutional Award
- 2009 William and Shirley Snider Family Scholarship
- 2009 Lake Erie Nature and Science Center Volunteer of the Year Award

**SOCIETY MEMBERSHIPS:**

Herpetologists League, Society for the Study of Amphibians and Reptiles, Tennessee  
Herpetological Society

**ART and OUTREACH**

- 2018–Present Photo Contributor to Tennessee Herpetological Society Meetings
- 2018 Photo Contributor to Tennessee Biodiversity Project: The Horror of Snake Fungal Disease for Tennessee Snakes and How You Can Help
- 2017–2021 Photo Contributor to Herpetologist League Graduate Student Calendar