

# Curriculum Vitae

## Contents

Edward Davis Carter	1
Education . . . . .	1
Honors and Awards . . . . .	2
Current Position . . . . .	2
Past Professional Appointments . . . . .	3
Research Experience . . . . .	3
Teaching Experience . . . . .	4
Student Mentorship . . . . .	4
Publications . . . . .	4
Select Presentations and Invited Lectures . . . . .	5
Professional Training . . . . .	6
Professional Affiliations . . . . .	6
Professional Service . . . . .	6
Languages . . . . .	6
Computer Skills . . . . .	7
References . . . . .	7

## Edward Davis Carter

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## Education

**Ph.D.** *The University of Tennessee-Knoxville*, August 2022

Major: Natural Resources (Wildlife Health Concentration)

> Dissertation: “Role of temperature, transmission pathways, and pathogen load in *Batrachochytrium salamandrivorans* epidemiology”

Committee: Matthew J. Gray, Debra L. Miller, Mark Q. Wilber, James Fordyce

**M.S.** *The University of Tennessee-Knoxville*, July 2018

Major: Wildlife and Fisheries Science (Wildlife Health Concentration)

> Thesis: “Implications of Drought and Ranavirus on an Amphibian Community in the Great Smoky Mountains National Park”

Advisor: Matthew J. Gray

**B.S.** *Hampden-Sydney College, Biology*, May 2015

Summa Cum Laude — Minor: German

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## Honors and Awards

- Carolina Wildlands Foundation Research Grant — \$3,500 (2025)
  - SEC Postdoctoral Emerging Scholar Recipient — \$65,000 (2022–2023)
  - Tennessee Fellowship for Graduate Student Excellence — \$108,000 (2018–2022)
  - Gamma Sigma Delta PhD Candidate Research Award (2022)
  - Graduate Student Senate Excellence in Teaching Award (2022)
  - Graduate Student Senate Excellence in Research Award (2022)
  - Dr. Frank-Maschmann Outstanding Publication Award — \$1,100 (2021)
  - Global Catalyst Student International Travel Grant — \$1,500 (2020)
  - Graduate Student Senate Travel Award — \$1,390 (2017, 2019)
  - Graduate Student Senate Excellence in Research Award (2018)
  - Gamma Sigma Delta Graduate Student Research Award (2018)
  - International Symposium of Ranaviruses Travel Award — \$1,000 (2017)
  - R.T. Hewitt Biology Award (2015)
  - Phi Beta Kappa, Sigma Xi, Omicron Delta Kappa, Summa Cum Laude (2015)
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## Current Position

**Visiting Assistant Professor of Biology**

*Queens University, Charlotte, NC* (August 2024–Present)

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## Past Professional Appointments

- **Postdoctoral Teaching and Mentoring Fellow**, *Salisbury University, MD* (Aug 2023 – Jul 2024)
  - **SEC Postdoctoral Teaching Fellow**, *University of Tennessee, Knoxville, TN* (Aug 2022 – Jul 2023)
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## Research Experience

### Postdoctoral Fellow

*University of Tennessee Center for Wildlife Health* (Aug 2022 – Aug 2023)

Supervisor: Matthew J. Gray

- Supported by \$2.75M NSF EEID grant (#2207922).
- Designed laboratory experiments on plant-derived fungicides for *Batrachochytrium salamandrivorans* (Bsal).
- Evaluated toxicity of plant fungicides on *Notophthalmus viridescens*.
- Performed diagnostic testing of amphibian pathogens in the U.S. pet trade.
- Collected microbiome samples to assess population-level microbial variation.

### Ph.D. Candidate

*University of Tennessee Center for Wildlife Health* (2018 – 2022)

Advisors: Matthew J. Gray & Debra L. Miller

- Supported by \$2.5M NSF EEID grant (#1814520).
- Conducted lab challenges on temperature-dependent *Bsal* susceptibility.
- Generated *Bsal* habitat suitability and risk maps using ArcGIS.
- Evaluated transmission probability and life-stage susceptibility.
- Conducted multi-stressor experiments with pathogens, herbicides, and sediment.

### M.S. Research

*University of Tennessee Center for Wildlife Health* (2016 – 2018)

Advisor: Matthew J. Gray

- Evaluated effects of ranavirus mortality events on amphibian populations.
- Coordinated field studies within Great Smoky Mountains National Park.

### Research Technician

*University of Tennessee Institute of Agriculture* (2015 – 2016)

- Performed ranavirus and *Bd* susceptibility challenge experiments.
  - Investigated biosecurity impacts on field disease outbreaks.
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## Teaching Experience

(Abbreviated – see full CV for detailed course list)

### Queens University of Charlotte (2024–Present)

BIO 120 – Microbiology for Health Professions  
BIO 345 – Conservation Biology  
BIO 202 – Foundations of Ecology and Evolution  
BIO 230 – Intro to GIS  
BIO 314 – Topics in Conservation: Wildlife Health  
BIO 300 – Writing for Biologists  
CDA 340 – Analytical Models  
QLC 140 – Sustainability

### Salisbury University (2023–2024)

BIO 101 – Intro to Biology · BIO 310 – Ecology Lab · HONR 111 – Critical Thinking and Writing

### University of Tennessee (2016–2023)

WFS 100 – Intro to Wildlife Science · WFS 101 – Wildlife Health  
WFS 433/533 – Amphibian Ecology and Conservation

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## Student Mentorship

- **Rogers Summer Research Mentor**, Queens University (2024–Present)
- Mentored 11 undergraduates in amphibian disease laboratory work.
- Guided independent and high school research on salamander conservation.

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## Publications

### Full Publication List

#### Journal Publications

- DeMarchi J.A., **Carter E.D.**, Gray M.J. et al. 2026. *Functional Ecology* 00, 1–14.
- Sheley W.C., Wilber M.Q., **Carter E.D.** et al. 2025. *Frontiers in Amphibian and Reptile Science* 3.
- Funk A.T., Keoho C., **Carter E.D.** et al. 2025. *Freshwater Biology* 70(6): e70067.
- Chen L.D., **Carter E.D.**, Urban M.P. 2025. *Communications Biology* 8: 625.
- Chowdhury M.M., Gray M.J., **Carter E.D.**, et al. 2025. *Ecological Modeling*.
- **Carter E.D.**, DeMarchi J.D., Wilber M.Q., Miller D.L., & Gray M.J. 2024. *Frontiers in Amphibian and Reptile Science*.
- Gray M.J., Ossiboff R.J., Berger L., Bletz M.C., **Carter E.D.**, DeMarchi J.A., Grayfer L., Lesbarrères D., Malagon D.A., Martel A., Miller D.L., Pasmans F., Skerratt L.F., Towe A.E., Wilber M.Q. 2023. *Emerging Infectious Disease*.
- Miller D.M., **Carter E.D.**, Hardman R.H., & Gray M.J. 2023. *Wildlife Disease and Health in Conservation*. Johns Hopkins University Press.
- Grisnik M., Gray M.J., Piovia-Scott J., **Carter E.D.**, & Sutton W.B. 2023. *Biological Conservation*.

- Gray M.J., **Carter E.D.**, Piovia-Scott J., Cusaac J.P.W., Peterson A.C., Whetstone R.D., et al. 2023. *Nature Communications*.
- Hardman R.H., Ammar S., Gerhold R., Sutton W., **Carter E.D.**, Synder S., da Silva J.N., Tarkington M., Gray M.J., & Miller D.L. 2022. *Journal of Wildlife Diseases*.
- Sheley W.C., Gray M.J., Wilber M.Q., Cray C., **Carter E.D.**, & Miller D.L. 2022. *Frontiers in Veterinary Science*.
- Tompros A., Wilber M.Q., Fenton A., **Carter E.D.**, & Gray M.J. 2022. *Journal of Fungi*.
- Olson D.H., Gray M.J., Pasmans F., Grayfer L., Wilber M.Q., **Carter E.D.**, & Cunningham A.A. 2022. *Herpetological Review*.
- Towe A.E., Gray M.J., **Carter E.D.**, Wilber M.Q., Ossiboff R.J., Ash K., Bohanon M., Bajo B.A., & Miller D.L. 2021. *Journal of Wildlife Diseases*.
- Goodman R.M., **Carter E.D.**, & Miller D.L. 2021. *Viruses*.
- Wilber M.Q., **Carter E.D.**, Gray M.J., & Briggs C.J. 2021. *Functional Ecology*.
- Cusaac J.P.W., **Carter E.D.**, Woodhams D.C., Robert J., Spatz J.A., Howard J.L., Lillard C., Graham A.W., Hill R.D., Reinsch S., McGinnity D., Reeves B., Bemis D., Wilkes R.P., Sutton W.B., Waltzek T.B., Hardman R.H., Miller D.L., & Gray M.J. 2021. *Journal of Aquatic Animal Health*.
- **Carter E.D.**, Bletz M.C., Le Sage M., LaBumbard B., Rollins-Smith L.A., Woodhams D.C., Miller D.L., & Gray M.J. 2021. *PLoS Pathogens*.
- Tompros A., Dean A.D., Fenton A., Wilber M.Q., **Carter E.D.**, & Gray M.J. 2021. *Transboundary and Emerging Diseases*.
- Robinson K.A., Pereira K.E., Bletz M.C., **Carter E.D.**, Gray M.J., Piovia-Scott J., Romansic J.M., Woodhams D.C., & Fritz-Laylin L. 2020. *Diseases of Aquatic Organisms*.
- Malagon D.A., Melara L.A., Prosper O.F., Lenhart S., **Carter E.D.**, Fordyce J.A., Peterson A.C., Miller D.L., & Gray M.J. 2020. *Scientific Reports*.
- Kumar R., Malagon D.A., **Carter E.D.**, Miller D.L., Bohanon M.L., Cusaac J.P.W., Peterson A.C., & Gray M.J. 2020. *PLoS One*.
- **Carter E.D.**, Miller D.L., Peterson A.C., Sutton W.B., Cusaac J.P.W., Spatz J.A., Rollins-Smith L., Reinert L., Bohanon M., Williams L.A., Upchurch A., & Gray M.J. 2019. *Conservation Letters*.
- Ossiboff R.J., Towe A.E., Brown M.A., Longo A.V., Lips K.R., Miller D.L., **Carter E.D.**, Gray M.J., & Frasca S. 2019. *Frontiers in Veterinary Science*.
- Peace A., O'Regan S.M., Spatz J.A., Reilly P.N., Hill R.D., **Carter E.D.**, Wilkes R.P., Waltzek T.B., Miller D.L., & Gray M.J. 2019. *Ecological Modeling*.
- Casais R., Larrinaga A.R., Dalton K.P., Domínguez Lapido P., Márquez I., Bécares E., **Carter E.D.**, Gray M.J., Miller D.L., & Balseiro A. 2019. *Scientific Reports*.
- Goodman R.M., Hargadon K.M., & **Carter E.D.** 2018. *Northeastern Naturalist* 25, 391–398.
- Gray M.J., Spatz J.A., **Carter E.D.**, Yarber C.M., Wilkes R.P., & Miller D.L. 2018. *PLoS One*.
- Goodman R.M., & **Carter E.D.** 2017. *Journal of the Virginia Herpetological Society*.
- **Carter E.D.**, & Goodman R.M. 2013. *Catesbeiana*.

## Select Presentations and Invited Lectures

- *Amphibian Chytridiomycosis* — Salisbury University, Nov 2023 (**Invited**)
- *Wildlife Disease Ecology: Untangling the Disease Triangle* — ECU, Apr 2023 (**Invited**)
- *Bsal Transmission Probability Through Infection Progression* — GARD Conference, 2022
- *Temperature-Dependent Pathogenicity of Bsal* — Zoological Society of London Symposium, 2019

## Professional Training

- Course ReDesign Workshop — Queens University (2024)
  - CIRTLL-FUEL Teaching Seminar — University of Tennessee (2021)
  - Inclusive Teaching & Assessment Modules — UTK Learning Center (2019-2021)
  - Conservation Medicine One Health Workshop — University of Georgia (2018)
  - Scientific Computing for Biology Workshop — UTK (2018)
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## Professional Affiliations

- Wildlife Disease Association
  - Partners in Amphibian and Reptile Conservation
  - Ecological Society of America
  - The Wildlife Society
  - Gamma Sigma Delta · Sigma Xi
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## Professional Service

- **Queens University** — Campus Connect (2025–Present); Sustainability Committee Member; Sustainability Club Advisor
  - **Salisbury University** — Biological Sciences Committees; Student Research Conference Member; Centennial Steering Committee
  - **UTK Graduate Student Senate** — Treasurer & Fundraising Chair (2021–2022)
  - **Global Amphibian & Reptile Disease Conference** — Student Chair & Field Trip Organizer (2021–2022)
  - Reviewer for *PeerJ*, *EcoHealth*, *Journal of Wildlife Diseases*, *Scientific Reports*
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## Languages

- **English:** Native
  - **German:** Intermediate Listening, Speaking, Reading, Writing
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## Computer Skills

- **Programming:** R
  - **Applications:** ArcGIS, ImageJ, Photoshop, JMP
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## References

**Dr. Matthew J. Gray** — Professor, Univ. of Tennessee  
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**Dr. Mark Q. Wilber** — Assistant Professor, UT Institute of Agriculture  
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