

Troy Neptune

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Education

PhD in Biology, Case Western Reserve University (CWRU) **May 2024**

Dissertation: Effects of photoperiod on amphibians and their communities
in the context of temperature

Advisor: Michael Benard, PhD

BS in Zoo and Conservation Science with Honors, Otterbein University **2017**

Thesis: Nutritional plasticity in gray treefrogs: interactions between competition
and predation threat

BA in Studio Art with Drawing Concentration with Honors, Otterbein University **2017**

Current Appointments

Visiting Assistant Professor, Department of Biology **July 2026 – Current**

Oberlin College and Conservatory

Past Appointments

Fulbright Postdoctoral Scholar **January 2026 – May 2026**

Investigating Amphibian Responses to Artificial Light at Night

Doñana Biological Station [Estación Biológica de Doñana (EBD)], Seville, Spain

Collaborators: Drs. Katharina Ruthsatz and Pablo Burraco

Professor of Practice, Liberal Arts **July 2025 – June 2026**

Cleveland Institute of Art (CIA)

Courses in Natural Science and Quantitative Reasoning

Faculty Fellow, Artificial Intelligence at AICAD Schools **August 2025 – December 2025**

Jane B. Nord Center for Teaching and Learning, CIA

Postdoctoral Scholar, Benard Lab **July 2024 – June 2025**

Case Western Reserve University (CWRU)

Salamander monitoring project with the Northeast Ohio Regional Sewer District

Adjunct Faculty, Liberal Arts **August 2024 – May 2025**

Cleveland Institute of Art (CIA)

Teaching Experience

Instructor of Record

Fall 2026

BIOL 100: *Organismal Biology*, Oberlin

One lecture and one lab section; the first class for biology majors.

BIOL 240: *The Spectrum of Sex*, Oberlin

Upper-level biology course emphasizing variation in sex determination.

Fall 2025

NSQR 270: *Visualizing Global Change*, CIA

Elective course fulfilling natural sciences/quantitative reasoning (NS/QR) requirements (two sections; 11 students in one and 8 students in the other)

Spring 2025

NSQR 285: Topics in NSQR: *The Spectrum of Sex*, CIA

Elective course with 19 students fulfilling NS/QR requirements

Fall 2024

BIOL 351: *Principles of Ecology*, CWRU

Upper-level biology course with 30 students emphasizing climate change

NS 285: *Topics in Natural Sciences: Visualizing Global Change*, CIA

Elective course with 10 students fulfilling natural sciences requirement

Joanne Westin Distinguished Graduate Teaching Award, *Honorable Mention*

2023

Graduate Teaching Assistant, CWRU

BIOL 214: Genes, Evolution, and Ecology

Fall 2019, 2021

BIOL 216L: Development and Physiology Laboratory

Fall 2023

BIOL 305L: Herpetology Laboratory

Fall 2022

BIOL 343: Microbiology

Spring 2020

BIOL 351: Principles of Ecology

Fall 2020

Advanced Teaching Training

Neuro-Inclusive Course Design Workshop, CIA

March 2025

Restructuring lessons/assignments to better support students who are neurodiverse.

Teaching Summit (*Connecting Across the Curriculum*), CIA

October 2024

All-day workshop focused on curriculum design and collaboration.

Transformative Teaching: Embodied Pedagogy, CIA

October 2024

Workshop on how to incorporate embodied practices into classroom design.

Transformative Teaching: Trauma-informed Pedagogy, CIA

December 2024

Workshop on how to approach teaching from a trauma-informed perspective.

UNIV 401: Advanced Professional Development for University Teaching **Fall 2023**
Training in Understanding by Design (UbD), assessing student learning, and active teaching strategies.

Inclusive Teaching in Higher Ed Workshop with Tracie Addy **April 2023**
Two-day workshop on inclusive teaching; applied techniques to case studies with peers.

Mellon Teaching Fellowship, CWRU **Jan 2023 – May 2023**
Prepared and taught one unit of content in Microbiology,
Cuyahoga Community College (West)
Conducted weekly teaching observations of instructor of record.

HUMN 422: Humanities Teaching Careers at Community Colleges **Fall 2022**
Semester-long course in curriculum design, assessment, and inclusive teaching.

Undergraduate Mentees

Cameron Ward, oSTEM, CWRU	2023-2024
Alyssa Forbes, research, CWRU	2022-2023
Elliot Witscher, oSTEM, CWRU	2021-2022
Ei Mon Thura, research, CWRU	2022
Natasha Anderson, research, CWRU	2022
Daniel Popp, research, CWRU	2022
Shruti Narayan, research, CWRU	2021

Publications

Neptune, T.C., Koester, D.C., & Benard, M.F. (2025). Freeze-tolerant frogs accumulate cryoprotectants using photoperiod: A potential ecological trap. *Journal of Animal Ecology*. doi: 10.1111/1365-2656.70125 (Press coverage here: [*India Today*](#), [*Mundiaro*](#), and [*The Wildlife Society*](#))

Neptune, T.C., & Benard, M.F. (2024). Longer days, larger grays: carryover effects of photoperiod and temperature in gray treefrogs, *Hyla versicolor*. *Proc. R. Soc. B.*, 291: 202413362. doi: 10.1098/rspb.2024.1336

Neptune, T.C., & Benard, M.F. (2023). Photoperiod effects in a freshwater community: Amphibian larvae develop faster and zooplankton abundance increases under an early-season photoperiod. *Ecology and Evolution*, e10400. doi: 10.1002/ece3.10400

Neptune, T.C., & Bouchard, S.S. (2020). Predation and competition induce variable organ size trade-offs in larval anurans. *Journal of Zoology*, 1–12. doi: 10.1111/jzo.12824

Manuscripts in Progress

Neptune, T.C., Burraco, P., Petrović, T.G., Gavrić-Čampar, J.P., Gavrilović, B.R., Despotović, S. G., Radovanović, T. B., Radmilović, A., Mirč, M., Kolarov, N. T., Prokić, M. D. In review at *Journal of Experimental Biology*. Artificial light at night disrupts diel antioxidant regulation and activity in European treefrog larvae.

Neptune, T.C., Solis-Sotelo, M.E., Basilico, F., de Paula, W., Burraco, P., Ruthsatz, K. In prep. Ecologically relevant exposure to artificial light at night has lasting effects on a European toad.

Neptune, T.C. In review at *Herpetological Review*. *Kinosternon scorpioides scorpioides* (Scorpion Mud Turtle). Predation by Spider.

Neptune, T.C., Rollins, H.B., & Benard, M.F. In revision. Carryover effects of temperature on growth rates across ontogeny in wood frogs, *Rana sylvatica*.

Grants/Funding

Ecological Society of America (Great Lakes Chapter) Early-Career Travel Award for Conference travel	(\$580)	2025
CWRU, Oglebay Fund Small Grants Program, <i>Conference Travel</i>	(\$1,500)	2025
CWRU, Oglebay Fund Small Grants Program, <i>Conference Travel</i>	(\$1,500)	2024
CWRU, Oglebay Fund Small Grants Program, <i>Publication Costs</i>	(\$2,350)	2023
CWRU, Oglebay Fund Small Grants Program, <i>Research</i>	(\$1,500)	2023
CWRU, Oglebay Fund Small Grants Program, <i>Research</i>	(\$1,500)	2022
CWRU, Oglebay Fund Small Grants Program, <i>Conference Travel</i>	(\$800)	2022
CWRU, School of Graduate Studies Travel Grant	(\$500)	2022
CWRU, Oglebay Fund Small Grants Program, <i>Research</i>	(\$1,280)	2021
CWRU, Oglebay Fund Small Grants Program, <i>Research</i>	(\$1,130)	2020
Carl Gans Travelling Fellowship, Society for the Study of Amphibians and Reptiles	(\$800)	2024
Broadening Participation Award, Society for Integrative and Comparative Biology	(\$500)	2024
Cashner Student Award, American Society of Ichthyologists and Herpetologists	(\$1,000)	2022

Invited Seminars

Seminar series, Neptune, T.C. Effects of photoperiod and light pollution on amphibians in the context of temperature. May 2026. Estación Biológica de Doñana (EBD)], Seville, Spain.

Departmental seminar series, Neptune, T.C. Effects of photoperiod on amphibians and their communities in the context of temperature. April 2025. Moravian University, Bethlehem, PA.

Departmental seminar series, Neptune, T.C. Consequences of shifting phenology: effects of photoperiod and temperature in freshwater communities. November 2023. Otterbein University, Westerville, OH.

Redpath Museum seminar series (virtual), Neptune, T.C. Consequences of shifting phenology: effects of photoperiod and temperature in freshwater communities. February 2023. Redpath Museum, McGill University, Montreal, Quebec.

Departmental seminar series, Neptune, T.C. Consequences of shifting phenology: effects of photoperiod and temperature in freshwater communities. November 2022. John Carroll University, University Heights, OH.

Oral/Poster Presentations

Neptune, T.C., Burraco, P., and Ruthsatz, K. Investigating Responses to Artificial Light at Night in the Iberian Spadefoot Toad. April 2026 (oral). Fulbright “Crossing the Straight” Conference, Tangier, Morocco.

Neptune, T.C., Koester, D.C., and Benard, M.F. Freeze-tolerant frogs accumulate cryoprotectants using photoperiod: A potential ecological trap. August 2025 (oral). Ecological Society of America (ESA), Baltimore, Maryland.

Neptune, T.C., Koester, D.C., and Benard, M.F. Tradeoffs between growth and overwintering preparation in response to photoperiod in gray treefrogs: a potential ecological trap. July 2024 (oral). Joint Meeting of Ichthyologists and Herpetologists, Pittsburgh, Pennsylvania.

***Stoye Presentation Award winner, Ecology and Ethology, ASIH**

Neptune, T.C. and Benard, M.F. Longer days, larger grays: carryover effects of photoperiod and temperature in gray treefrogs, *Hyla versicolor*. February 2024 (oral). Case Western Reserve University Graduate Student Symposium, Cleveland, Ohio.

***Best Oral Presentation Award winner, CWRU**

Neptune, T.C. and Benard, M.F. Longer days, larger grays: lasting effects of photoperiod on eastern gray treefrogs, *Hyla versicolor*. January 2024 (oral). Society of Integrative and Comparative Biology, Seattle, Washington. Finalist for Huey Best Student Presentation award.

Neptune, T.C. and Benard, M.F. Photoperiod effects in a freshwater community: amphibian larvae develop faster and zooplankton abundance increases under an early-season photoperiod. July 2022 (oral). Joint Meeting of Ichthyologists and Herpetologists, Spokane, Washington.

Neptune, T.C. and Benard, M.F. Gray treefrog metamorphs and green frog larvae develop faster under an early-season photoperiod. February 2022 (poster). The Ohio Biological Survey, Powell, Ohio.

Neptune, T.C. and Benard, M.F. Gray treefrog metamorphs develop faster under novel photoperiod. October 2021 (poster). Midwest Partners in Amphibian and Reptile Conservation (virtual).

Neptune, T.C. and Bouchard, S.S. Fed with a silver spoon: nutritional plasticity in larval anurans. March 2018 (poster). Ohio Partners in Amphibian and Reptile Conservation, Columbus, Ohio.

Neptune, T.C. and Bouchard, S.S. Nutritional plasticity in gray treefrogs: interactions between competition and predation threat (oral). April 2017. The Ohio Academy of Science, Cincinnati.

Neptune, T.C., Rahe, C.R., and Bouchard, S.S. Predation risk in the face of limited resources: nutritional plasticity of red-eyed treefrogs. January 2016 (poster). Society for Integrative and Comparative Biology, Portland, Oregon.

Completed Reviews

<i>Conservation Physiology</i>	2025
<i>Journal of Zoology</i>	2025
<i>Functional Ecology</i>	2025
<i>Biological Rhythm Research</i>	2025
<i>Behaviour</i>	2024
<i>Hydrobiologia</i>	2023, 2026
<i>Reptiles and Amphibians</i>	2022, 2023, 2025
<i>Herpetological Review</i>	2020

Professional Experience

Assistant Academic Designer, McGraw-Hill Education **Nov 2017 – Aug 2019**
 Assisted in the planning and development of digital learning content and print materials
 Edited and evaluated manuscript for final publication

Research Assistant, Otterbein University **March 2014 – March 2018**
 Advisor: Dr. Sarah Bouchard, Department of Biology and Earth Sciences
 Completed research on digestive plasticity and nutrition of tropical and temperate amphibians

Smithsonian Tropical Research Institute (STRI) Intern **June 2015 – Aug 2015**
 Completed a research internship on red-eyed treefrogs in Gamboa, Panama
 Performed six weeks of rigorous field research on nutritional ecology

Columbus Zoo & Aquarium, Heart of Africa Intern **Jan 2016 – May 2016**
 Assisted zookeepers in animal husbandry, training, and medical procedures