

Caitlin L. Nordheim-Maestas

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Education

- UC Santa Barbara (2021-Present) – Ph.D. Student in Ecology, Evolution & Marine Biology – 4.0 GPA
- University of Tampa B.S. Biology (2015-2019) – 3.85 cumulative GPA, 4.0 Biology GPA
- CIEE Tropical Ecology and Conservation Study Abroad in Costa Rica (Spring 2018) – 4.0 GPA

Publications

- M.P. Heard, **C.L. Nordheim**, C. McKinley, Z.L. Zilz, V.A. Jones, B.A. Vincent, and E.M. Caves. EEMB URS: Stoking the flames of undergraduate involvement in research. *In Press in Oceanography Special Issue: Building Diversity, Equity, and Inclusion in the Ocean Sciences*.
- T.A. McMahon, **C.L. Nordheim**, S.E. Detmering, P.T.J. Johnson, J.R. Rohr, and D. Civitello. 2023. *Pseudacris regilla* metamorphs acquire resistance to a deadly pathogen after exposure to the killed fungus. *Diseases of Aquatic Organisms*: 155:193-198. <https://doi.org/10.3354/dao03753>
- **C.L. Nordheim**, S.E. Detmering, D. Civitello, P.T.J. Johnson, J.R. Rohr, and T.A. McMahon. 2022. Metabolites from the fungal pathogen *Batrachochytrium dendrobatidis* (Bd) reduce Bd load in Cuban treefrog tadpoles. *Journal of Applied Ecology*: 59, 2398–2403. <https://doi.org/10.1111/1365-2664.14242>
- M. Wilber, M. Ohmer, K. Altman, L. Brannelly, V. Saenz-Calderon, E. LeSage, B. LaBumbard, N. McDonnell, Muñiz-Torres, **C.L. Nordheim**, F. Pfab, C.L. Richards-Zawacki, L.A. Rollins-Smith, D. Wetzel, D. Woodhams, and C.J. Briggs. 2022. Once a reservoir, always a reservoir? Seasonality affects the pathogen maintenance potential of amphibian hosts. *Ecology*: 103(9): e3759 <https://doi.org/10.1002/ecy.3759>
- **C.L. Nordheim**, J.M. Grim, and T.A. McMahon. 2021. *Batrachochytrium dendrobatidis* (Bd) Exposure Damages Gill Tissue and Inhibits Crayfish Mass-Specific Metabolic Rate. *Diseases of Aquatic Organisms*: 146: 67–73. <https://doi.org/10.3354/dao03623>
- T.A. McMahon, **C.L. Nordheim**, and D.M. Prokopiak. 2021. Freshwater Snails and the Green Algae *Cladophora* are Likely Not Hosts of *Batrachochytrium dendrobatidis*. *Freshwater Biology*: 66: 582– 586. <https://doi.org/10.1111/fwb.13662>

In Review:

- V. Saenz, A.Q. Byrne, M.E.B. Ohmer T.T. Hammond, L.A. Brannelly, K.A. Altman, M. Kosowsky, **C.L. Nordheim**, E.B. Rosenblum and C.L. Richards-Zawacki. Landscape-scale drivers of spatial dynamics and genetic diversity in an emerging wildlife pathogen. *In Review in Oecologia*.

In Prep:

- K.M. Barnett, T.A., McMahon, A.D. Shepack, H.N. Buelow, Z. Barkley, A. Belsare, M. Risin, O. Milloway, J. Carozza, J. Beasley, B. Hobart, W. Moss, T. Mcdevitt-Galles, S. Detmering, **C.L. Nordheim**, D. Calhoun, C.J. Briggs, J.R. Rohr, P.T.J. Johnson, and D.J. Civitello. Prophylactic treatment for chytridiomycosis increases infection loads in natural amphibian populations: A possible consequence of increased host survival.
- TA. McMahon, **C.L. Nordheim**, S.E. Detmering A.J. Malinias, M. Monsalve, L.C. Muldro, and E. O. Sisson. Refining the production and implementation of the Bd Metabolite Prophylaxis for *Pseudacris regilla* metamorphs.

Research Experience

- Ph.D. Research: Briggs Lab – UC Santa Barbara (2021-Present)
 - Environmental transmission of Bd
 - Investigating the role of macroinvertebrates in amphibian disease resilience
- Laboratory Technician/Manager: Richards-Zawacki Lab – University of Pittsburgh (2019-2021)
 - Test for Bd/Bsal in field-collected samples (eDNA, skin swab) via extraction and qPCR
 - Manage Strawberry Poison Frog (*Oophaga pumilio*) breeding/research colony
 - Oversee lab member training and management/updating of protocols and databases
- Field Technician: Johnson Lab & McMahon Lab – CU Boulder and UTampa (Summer 2019)
 - Field monitoring of Bd and trematode prevalence in East Bay, CA
- Undergraduate Research Assistant: McMahon Lab – UTampa (2015-2019)
 - Vaccine development to induce acquired resistance to Bd
 - Potential invertebrate vectors of Bd
 - Growth and morphological differences among Bd strains
- Undergraduate Research Assistant/Honors Research: Froeschke Lab – UTampa (2018-2019)
 - Correlating urban habitat variables with herpetological richness and diversity
- NSF REU Intern: Bateman Lab/CAP-LTER – Arizona State University (Summer 2018)
 - Comparing lizards across urban and non-urban riparian habitats in central Arizona
- Independent Study: CIEE Tropical Ecology and Conservation in Costa Rica (Spring 2018)
 - Hummingbird-facilitated elevational pollen dispersal in Monteverde, Costa Rica

Mentoring & Teaching Experience

Research Supervisor for 13 students, Undergraduate Teaching Assistant for 5 courses (14 sections total), Grader for 1 course, Designed curricula for Journal club, Ecology course, Environmental camp, and Outreach.

Mentoring Undergraduate & High school researchers:

- Research Mentor (2021 - Present): supervision and mentorship for twelve students in the Briggs Lab conducting research in the field and lab on environmental reservoirs of Bd.
 - Leann Hagen, Nuzha Baksh, Rachel Loewy, Hope Hahn, Kathryn Koo, Sammi Yeung, Elizabeth Bodenhamer, Jasmine Tesoro, Emily Nix, Janna Ellman, Olivia Schroeder, Eva Howell
- UCSB Schmidt Fellows Mentor (2023 - Present): supervising and mentoring two UCSB Schmidt fellows studying the role of macroinvertebrates in amphibian disease resilience in the Sierra Nevada.
- UCSB URCA Fellows Mentor (2022 - 2023): supervising and mentoring two Undergraduate senior thesis projects studying the methodology and efficacy of eDNA detection of Bd in soil and water, respectively.
- UCSB Worster Fellows Mentor (2022 - 2023): supervising and mentoring an Undergraduate Honors Thesis studying predictors of invertebrate Bd shedding rates.
- UCSB Schmidt Fellows Mentor (2021 - 2022): supervising and mentoring UCSB Schmidt fellow studying temperature effects on aquatic invertebrate grazing rates.
- Field Supervisor (Summer 2021): led field season researching invertebrate-Bd dynamics in East Bay, CA.
- Research Supervisor (BIOSC 1903: 4 sections, 2020 - 2021): coordinated and assisted with undergraduate research in color analysis, heritability, and eDNA quantification, including an Undergraduate Senior Thesis project, at The University of Pittsburgh.
- Research Co-Supervisor (AP Capstone Pittsburgh Public Schools, 2020 - 2021): coordinated and assisted

with high school research project on the evolution of tarantula vision at The University of Pittsburgh.

- Intern Supervisor (BIOSC 1901: 1 section, 2020): coordinated and assisted with undergraduate research project in color heritability in *O. pumilio* at The University of Pittsburgh.

Teaching:

- Aquatic Communities Teaching Assistant (EEMB 142A; 4 sections, Fall 2023): led paper discussion groups, graded assignments and exams, led final project paper critiques.
- Biometry Teaching Assistant (EEMB W 146; 1 section, Spring 2023): led computer labs, graded assignments, led final projects on independent data analysis.
- Biometry Teaching Assistant (EEMB 146; 2 sections, Winter 2023): led computer labs, graded assignments, led final projects on independent data analysis.
- Briggs Lab Undergraduate Journal Club Co-Leader (EEMB 194BC: 2 sections, 2021 - 2022): Facilitated and led paper discussions, and designed a module on finding, reading, and presenting journal articles.
- Education Outreach Curriculum Development: developed a teaching module for elementary through secondary school about amphibian disease ecology through the University of Pittsburgh.
- Foundations of Biology II Grader (BIOSC 0160: 1 section, 2020): assisted with grading weekly assignments and preparing remote coursework at The University of Pittsburgh.
- Biology Curriculum Development: developed a capture-mark-recapture laboratory module implemented in Ecology course (BIO 212, 2017) at the University of Tampa.
- Parasitology Lab Undergraduate Teaching Assistant (BIO 317: 2 sections, 2019) assisted course instructor with laboratory and solution preparation, and assisted students with their classwork and independent projects at the University of Tampa.
- Ecology Lab Undergraduate Teaching Assistant (BIO 212: 3 sections, 2017): assisted course instructor with laboratory preparation, field equipment calibration, input and organized data, assisted students with questions at the University of Tampa.
- Scanning Electron Microscopy Lab Undergraduate Teaching Assistant (BIO 390: 1 section, 2018): assisted course instructor with laboratory and solution preparation, ran open laboratory, assisted students with their classwork and independent projects at the University of Tampa.
- Biology II Head Undergraduate Lab Teaching Assistant and Lab Coordinator (BIO 199: 2 sections, 2017 – 2018): assisted and trained new teaching assistants, ran open laboratory, answered student questions, assisted course instructor with laboratory preparation, graded weekly quizzes and exams at the University of Tampa.
- Biology II Lab Undergraduate Teaching Assistant (BIO 199: 2 sections, 2016 - 2017): assisted course instructor with grading, laboratory preparation, and assisted students in open laboratory at the University of Tampa.
- Biology I Lab Undergraduate Teaching Assistant (BIO 198: 2 sections, 2016): assisted the course instructor with grading, laboratory preparation, solution preparation, and assisted students by answering questions at the University of Tampa.
- Environmental Education Camp Counselor (2 summers, 2016 & 2017): designed lesson plans, instructed children aged 4-12 in the field on biology, ecology, and conservation at the Bonnyvale Environmental Education Center.

Research and Travel Grants

18 awarded in total: \$67,000 research fellowships and \$8,650 travel grants

- UC Santa Barbara Schmidt Mentorship Award Fellowship 2023 – \$4,500

- UC Natural Reserve System Valentine Eastern Sierra Graduate Student Grant 2023 – \$1,500
- Resilience Institute Bridging Biological Training and Research Pilot & Exploratory Project 2022 – \$14,675
- UC Santa Barbara Worster Award Fellowship 2022 – \$3,000
- UC Santa Barbara Regents Fellowship 2021-2022 – \$29,000
- ESA SEEDS Partnerships for Undergraduate Research (SPUR) Travel Award 2019 – \$1,400
- University of Tampa Undergraduate Research and Inquiry Travel Award 2017 – \$225, 2019 – \$350
- Rocky Mountain Biological Laboratory REU Travel Grant 2018 – \$1,200
- University of Tampa College of Natural and Health Sciences Student Travel Award 2018 – \$200
- Cross-Site Research Experience for Undergraduates Travel Fellowship 2018 – \$1,700
- University of Tampa Honors Program Honors Research Fellowship 2018 – \$1,000
- National Science Foundation Research Experience for Undergraduates 2018 – \$5,000
- University of Tampa Department of Biology Summer Research Fellowship Awarded 2018 – \$3,000
- University of Tampa Evan Chipouras Biology Student Travel Award: 2017 – \$1,000, 2018 – \$750
- St. Petersburg Audubon Society Student Research Grant 2018 – \$2,000
- CIEE Global Access Initiative Travel Grant 2018 – \$1,000
- University of Tampa Honors Program Student Travel Award 2017 – \$345
- University of Tampa Dana and Delo Grant Stipend 2017 – \$1,000
- Florida Audubon Annual Meeting Conservation Leadership Initiative Travel Award 2017 – \$500

Honors Received

- NSF Graduate Research Fellowship Program Honorable Mention – 2023
- NSF Graduate Research Fellowship Program Honorable Mention – 2021
- University of Tampa Undergraduate Research and Inquiry Researcher of the Year Award – 2019
- University of Tampa Outstanding Senior Award Department of Biology Nominee – 2019
- University of Tampa Honors Program – 2015-2019
- University of Tampa Deans List – 6 Semesters

Outreach and Service

- UC California Ecology and Conservation Course Research and Career Panel Presenter – 2023
- UCSB EEMB Graduate Mentorship Program Mentor – 2022-Present
- UCSB EEMB Undergraduate Research Symposium Planning Committee – 2021-Present
 - President: 2023 Symposium
 - Treasurer: 2022 Symposium
- UCSB EEMB Graduate Student Advisory Council (GSAC) 2021-2023
 - Outreach Subcommittee Member: 2021-2023
- UCSB EEMB Graduate Research Symposium Planning Committee – 2022-2023
 - Treasurer: 2023 Symposium
 - General Member: 2022 Symposium
- UCSB EEMB Undergraduate Lab Open House Volunteer – 2022
- Science by the Pint Presenter: Night Lizard Brewing Company – 2022 & 2023
- UC California Ecology and Conservation Course Research and Career Panel Presenter – 2021
- University of Pittsburgh Survivor Support Network Member – 2020 - 2021
- Pitt Biological Sciences SciTech Volunteer – 2020
- Tampa Middle School Science Fair Volunteer Judge – Spring 2019
- University of Tampa PEACE Community Outreach Committee Member – 2015

Research Presentations

*Designates mentee

- March 2023 Bay Area Ecology and Evolution of Infectious Diseases Conference: “Investigating Aquatic Macroinvertebrates as Potential Bd Reservoirs in East Bay, CA” **C.L. Nordheim**, T.A. McMahon, and C.J. Briggs.
- November 2022 Amphibian Pathogens Annual Meeting: “Bugs and Bd: Aquatic Macroinvertebrates as Potential Bd Reservoirs in East Bay, CA” **C.L. Nordheim**, T.A. McMahon, and C.J. Briggs
- July 2021 American Arachnological Society Meeting: “Eye Size Reflects Habitat and Sex in Tarantulas” L.E. Turri*, **C.L. Nordheim**, S. Foley, and S.A. Echeverri.
- June 2021 Ecology and Evolution of Infectious Diseases Meeting: “Freshwater Snails and the Green Algae *Cladophora* are Likely Not Hosts of *Batrachochytrium dendrobatidis*” T.A. McMahon, **C.L. Nordheim**, and D.M. Prokopiak.
- August 2019 Ecological Society of America Annual Meeting: “Comparing Lizards Across Urban and Non-urban Riparian Habitats in Central Arizona” **C.L. Nordheim**, B.F. Froeschke, and H.L. Bateman.
- August 2019 Ecological Society of America Annual Meeting: “Vaccination as a technique to induce acquired resistance to *Batrachochytrium dendrobatidis* across amphibian developmental stages” A.M. Garcia, S.E. Detmering, **C.L. Nordheim** and T.A. McMahon.
- May 2019 University of Tampa Senior Research Presentation: “Investigating Morphology, Non-Amphibian Hosts, Vectors, and Acquired Resistance to *Batrachochytrium dendrobatidis*” **C.L. Nordheim**, N. Laggan, S.E. Detmering, A.M. Garcia, S.R. Byrne, K.N. White, S.A. Rice J. M. Grim, T.A. McMahon.
- May 2019 University of Tampa College of Natural Health Sciences Undergraduate Research Symposium: “Analyzing Urban Habitat Variables and Lizard Communities in Urban Parks” **C.L. Nordheim**, H.L. Bateman, and B.F. Froeschke.
- May 2019 University of Tampa College of Natural Health Sciences Undergraduate Research Symposium: “Vaccinating Tadpoles Against the Pathogenic Chytrid Fungus” **C.L. Nordheim**, S.E. Detmering, K. Dobrinski and T.A. McMahon.
- May 2019 University of Tampa College of Natural Health Sciences Undergraduate Research Symposium: “The Effects of Bd Metabolites on Freshwater Invertebrates” S.E. Detmering, **C.L. Nordheim** and T.A. McMahon.
- May 2019 University of Tampa College of Natural Health Sciences Undergraduate Research Symposium: “Vaccination as a Technique to Induce Acquired Resistance in *Pseudacris regilla* to *Batrachochytrium dendrobatidis* (Bd)” A. Garcia, S.E. Detmering, **C.L. Nordheim** and T.A. McMahon.
- April 2019 University of Tampa Honors Research Fellows Symposium: “Frog-Feeding Mosquitoes as Potential Vectors for the Chytrid Fungus” **C.L. Nordheim** and T.A. McMahon.
- April 2019 St. Petersburg Audubon Society Student Research Fellows Symposium: “Frog-Feeding Mosquitoes as Potential Vectors for the Chytrid Fungus” **C.L. Nordheim** and T.A. McMahon.
- February 2019 Florida Undergraduate Research Conference: “Vaccination as a Technique to Induce Acquired Resistance to *Batrachochytrium dendrobatidis* (Bd)” **C.L. Nordheim**, S.E. Detmering, and T.A. McMahon.
- February 2019 Florida Undergraduate Research Conference: “The Effects of Bd Metabolites on Freshwater Invertebrates” S.E. Detmering, **C.L. Nordheim**, and T.A. McMahon.
- February 2019 Joint Annual Meeting of the Arizona/New Mexico Chapters of the Wildlife Society and the Arizona/New Mexico Chapter of the American Fisheries Society: “Comparing Lizards Across Urban and Non-Urban Riparian Habitats in Central Arizona” **C.L. Nordheim** and H.L. Bateman.
- January 2019 Society for Integrative and Comparative Biology Annual Meeting: “Growth Rates and

Morphological Differences in Five Strains of *Batrachochytrium dendrobatidis*” **CL. Nordheim**, S.E. Detmering, S.R. Byrne, K.N. White, S.A. Rice, and T.A. McMahon.

- January 2019 Society for Integrative and Comparative Biology Annual Meeting: “Tissue-Specific Changes In Catalase Activity of Amphibian Hosts During the Time Course of Chytridiomycosis” V. Bowen, T.A. McMahon, E.B. Brosnan, **C.L. Nordheim**, S. Fernandez-Denmark, and J.M. Grim.
- October 2018 University of Tampa Science Day: “Acquired Resistance to *Batrachochytrium dendrobatidis* (Bd)” **C.L. Nordheim**, S.E. Detmering, and T.A. McMahon.
- October 2018 Long Term Ecological Research (LTER) All Scientists’ Meeting: “Comparing lizards across urban and non-urban riparian habitats in central Arizona” **C.L. Nordheim** and H.L. Bateman.
- August 2018 Ecological Society of America Annual Meeting: “The Effect of *Batrachochytrium dendrobatidis* (Bd) on Crayfish Respiration and Mortality” **C.L. Nordheim**, J.M. Grim, V.V. Bowen, and T.A. McMahon.
- August 2018 Ecological Society of America Annual Meeting: “The Effects of the Metabolites of *Batrachochytrium Dendrobatidis* on Freshwater Organisms” T.A. McMahon, N.A. Laggan, V.V. Bowen, M. Hill, S.E. Detmering, **C.L. Nordheim**, and J.M. Grim.
- July 2018 Central Arizona–Phoenix Long-Term Ecological Research REU Symposium: “Comparing Lizards Across Urban and Non-Urban Riparian Habitats” **C. L. Nordheim** and H. L. Bateman.
- May 2018 CIEE Tropical Ecology and Conservation Symposium: “Hummingbird-Facilitated Elevational Pollen Dispersal in a Neotropical Cloud Forest” **C.L. Nordheim** and J. Chaves-Campos.
- August 2017 Ecological Society of America Annual Meeting: “Differential growth rates and morphological differences found in two strains of *Batrachochytrium dendrobatidis* isolated from California and Panama” **C.L. Nordheim**, S.A. Rice, and T.A. McMahon.
- April 2017 University of Tampa College of Natural Health Sciences Undergraduate Research Symposium: “Differential growth rates and morphological differences found in two strains of *Batrachochytrium dendrobatidis* isolated from California and Panama” **C.L. Nordheim**, S.A. Rice, and T.A. McMahon.
- April 2017 University of Tampa College of Natural Health Sciences Undergraduate Research Symposium: “Exploring the balance between pro- and antioxidant metabolisms and the accumulation of oxidative damage in amphibian hosts during the time course of the chytrid fungal infection” E.B. Brosnan, **C.L. Nordheim**, T.A. McMahon, and J.M. Grim.
- February 2017 Florida Undergraduate Research Conference: “Morphological differences of *Batrachochytrium dendrobatidis* (Bd) strains from California and Panama” **C.L. Nordheim**, S.A. Rice, and T.A. McMahon.

Certifications

- Wilderness First Aid
- University of Pittsburgh Diversity & Inclusion Certification
- CPR/AED
- PADI Open Water Diver