

ELISE D. SNYDER

100 Galvin Life Sciences Center, Notre Dame, IN 46556

Email: esnnyder4@nd.edu

Phone: (217) 714-8606

Dissertation Focus: Exploring the fate of environmental DNA (eDNA) in rivers and streams

EDUCATION

PhD Student | Biology | University of Notre Dame *In Progress*

- Advisors: Drs. Jennifer Tank & Gary Lamberti
- Department of Biological Sciences

BS | Integrative Biology | University of Illinois at Urbana-Champaign *May 2018*

- College of Liberal Arts and Sciences
- *Magna cum laude*

APPOINTMENTS & PROFESSIONAL EXPERIENCE

Graduate Research Assistant | University of Notre Dame *Jan. 2020 – Present*

- Advisors: Drs. Jennifer Tank & Gary Lamberti

Graduate Teaching Assistant | University of Notre Dame *Fall 2019, Fall 2021*

- Course: Biological Investigations Laboratory
 - Course coordinator: Dr. T. Mark Olsen
- Course: Aquatic Insects Laboratory
 - Course instructor: Dr. Ronald Hellenthal

eDNA Technician | Illinois Natural History Survey *June – Aug. 2019*

- Supervisor: Dr. Mark Davis

Stream Ecology Technician | Illinois Natural History Survey *June 2018 – May 2019*

- Supervisors: Lauren Hostert, MS, & Sara Ashcraft, MS

Laboratory Assistant | Illinois Natural History Survey *Aug. 2015 – May 2018*

- Supervisor: Dr. R. Edward DeWalt

PUBLICATIONS

1. Brandão-Dias, P. F. P., Hallack, D. M. C., Snyder, E. D., Tank, J. L., Bolster, D., Volponi, S., Shogren, A. J., Lamberti, G. A., Bibby, K., & Egan, S. P. (2023). Particle size influences decay rates of environmental DNA in aquatic systems. *Molecular Ecology Resources*, 23(4), 756–770. <https://doi.org/10.1111/1755-0998.13751>

2. DeWalt, R.E. & **E.D. Snyder**. 2017. Plecoptera of Crane Hollow Nature Preserve, Ohio, comparison to similar efforts. *Illiesia* 13(6):70-81. <https://doi.org/10.25031/2017/13.06>
3. DeWalt, R. E., Yoder, M., **Snyder, E. D.**, Dmitriev, D., & Ower, G. D. (2018). Wet collections accession: A workflow based on a large stonefly (Insecta, Plecoptera) donation. *Biodiversity Data Journal*, 6, e30256. <https://doi.org/10.3897/BDJ.6.e30256>
4. In review: Ginn O., Tank J.L., Badilla-Aguilar A., **E. Snyder**, Brandão-Dias PFP, Thrift E. Bolster D., Bibby K. Persistence of antibiotic resistance genes varies with particle size and substrate conditions in recirculating streams
5. In review: **Snyder, E.D.**, J.L. Tank, P.F.P. Brandao-Dias, K. Bibby, A.J. Shogren, A.W. Bivins, B. Peters, E.M Curtis, D. Bolster, S.P. Egan, G.A Lamberti. Environmental DNA (eDNA) removal rates in streams differ by particle size under varying substrate and light conditions
6. In review: Brandão-Dias, P.F.P, J.L. Tank. **E.D. Snyder**, U.H. Mahl, B. Peters, D. Bolster, A.J. Shogren, G.A. Lamberti, K. Bibby, S.P. Eagan. The effect of suspended materials on the particle size distribution and removal of environmental DNA in flowing waters
7. In prep: Volponi, S.N, D. Bolster, A.E.S. Vincent, **E.D. Snyder**, A.N. Pruitt, J.L. Tank. Living biofilm, decaying biofilm, and time influence hyporheic transport

ORAL PRESENTATIONS

1. **Snyder, E.D.**, J.L. Tank, P.F.P. Brandão Dias, K. Bibby, A.E.S. Vincent, S.L. Speir, A. Pruitt, B. Peters, U.H. Mahl, A.W. Bivins, S.P. Eagan, D. Bolster, A.J. Shogren, G.A. Lamberti. 2023. *Predicting eDNA dynamics in flowing waters using experimental, field, and modeling approaches*. National Military Fish and Wildlife Association Annual Meeting and Workshop.
2. **Snyder, E.D.**, J.L. Tank, P.F.P. Brandão Dias, K. Bibby, A.E.S. Vincent, S.L. Speir, A. Pruitt, B. Peters, U.H. Mahl, A.W. Bivins, S.P. Eagan, D. Bolster, A.J. Shogren, G.A. Lamberti. 2023. *Environmental DNA for Monitoring of Fish Species in Streams and Rivers*. Great Lakes Fish Health Committee Biannual Meeting.
3. **Snyder, E.D.**, J.L. Tank, P.F.P. Brandao-Dias, K. Bibby, A.W. Bivins, A.J. Shogren, D. Bolster, S.P. Egan, Gary Lamberti. 2022 *Environmental DNA (eDNA) removal rates differ by particle size under varying substrate and light conditions*. Joint Aquatic Sciences Meeting.
4. Brandão-Dias, P.F.P, **E.D. Snyder**, D.M. Carvalho-Hallack, D. Bolster, G. Lamberti, K. Bibby, J.L. Tank, S.P. Egan. 2022. *Particle size influences eDNA degradation rates with implications for the spatial resolution of species detection*. Joint Aquatic Sciences Meeting.
5. Pruitt, A.E, J.L. Tank, **E.D. Snyder**, A.E.S. Vincent, E.M. Curtis, E.M. Thrift. 2022. *Using Nutrient Uptake and Metabolism Metrics to Determine if Periodical Cicadas are a Resource Subsidy in Streams*. Joint Aquatic Sciences Meeting.
6. Ginn, O., A. Badilla-Aguilar, **E.D. Snyder**, J.L. Tank, D. Bolster, K. Bibby. 2022. *Effect of Substrate on Removal Rates of Antibiotic Resistance in Controlled Experimental Streams*. American Society for Microbiology.

7. **Snyder, E.D.**, J.L. Tank, P.F.P. Brandão-Dias, A.E.S. Vincent, S.L. Speir, A.N. Pruitt, U.H. Mahl, K. Bibby, A.W. Bivins, A.J. Shogren, D. Bolster, S.P. Egan, G.A. Lamberti. 2022. *Substrate and Biofilm Colonization Influence the Retention and Transport of Environmental DNA (eDNA) in Experimental Streams*. 82nd Midwest Fish and Wildlife Conference.
8. Brandão-Dias, P.F.P., **E.D. Snyder**, DM Carvalho, J.L. Tank, S Volponi, A.J. Shogren, K. Bibby, G.A. Lamberti, D. Bolster, S.P. Egan. 2022. *Particle size influences eDNA degradation rates with implications for the spatial resolution of species detection*. 82nd Midwest Fish and Wildlife Conference.
9. **Snyder, E.D.**, J.L. Tank, K. Bibby, A.W. Bivins, P.F.P. Brandão Dias, A.E.S. Vincent, S.L. Speir, A. Pruitt, A.J. Shogren, G.A. Lamberti. 2021. *Exploring the Role of Biofilm Colonization on the Transport and Fate of Environmental DNA (eDNA)*. Society for Freshwater Science.
10. Vincent, A.E.S., J.L. Tank, S.L. Speir, U.H. Mahl, **E.D. Snyder**, A.N. Pruitt. 2021. *Quantifying the Role of Substrate and Biofilm Colonization in Controlling Nitrification Rates Using Experimental Streams*. Society for Freshwater Science.

POSTER PRESENTATIONS

1. **Snyder, E.D.**, J.L. Tank, P.F.P. Brandão Dias, K. Bibby, A.J. Shogren, D. Bolster, S.P Egan, G.A. Lamberti. *Environmental DNA (eDNA) removal rates and particle size distribution differ between Common Carp (*Cyprinus carpio*) and Steelhead Trout (*Oncorhynchus mykiss*) in streams*. University of Notre Dame College of Science and Engineering-Joint Annual Meeting 2022.
2. **Snyder, E.D.**, P.F.P. Brandão-Dias, E. Curtis, S.P. Egan, D. Bolster, G.A. Lamberti, K. Bibby, A.J. Shogren, J.L. Tank. *Predicting eDNA transport and degradation in flowing waters RC19-1276*. SERDP ESTCP Symposium 2022.
3. **Snyder E.D.**, J.L. Tank, P.F.P. Brandão Dias, K. Bibby, A.W. Bivins, A.J. Shogren, D. Bolster, S.P Egan, G.A. Lamberti. *Velocity and substrate conditions influence the particle size distribution of environmental DNA (eDNA) in recirculating mesocosms*. University of Notre Dame College of Science and Engineering-Joint Annual Meeting 2021.
4. Pruitt, A.N., J.L. Tank, **E.D. Snyder**, A.E.S. Vincent, E. Curtis, E.M. Thrift. 2021. *The role of periodical cicadas as a resource subsidy and their influence on nutrient uptake in stream ecosystems*. University of Notre Dame College of Science and Engineering-Joint Annual Meeting 2021.
5. **Snyder, E.D.**, J. L. Tank, S.P. Egan, D. Bolster, G.A. Lamberti, K. Bibby, A.J. Shogren. 2019. *Predicting eDNA transport and degradation in flowing waters: application of a conservation tool using integrated experimental, field, and modeling approaches*. University of Notre Dame College of Science and Engineering-Joint Annual Meeting 2019.

RESEARCH & TRAVEL GRANTS

April 2023	GLOBES Interdisciplinary Mini Grant (\$600)
Jan 2023	CEST Predoctoral Research Fellowship Annual Competition (One semester stipend)

<i>June 2022</i>	ND Linked Experimental Ecosystem Facility (LEEF) Research Grant (\$500)
<i>April 2022</i>	SFS Board of Directors Travel Award (\$500)
<i>April 2022</i>	GLOBES Interdisciplinary Mini Grant (\$3000)
<i>March 2022</i>	GLOBES Travel Grant (\$100)
<i>June 2021</i>	ND Linked Experimental Ecosystem Facility (LEEF) Research Grant (\$500)
<i>April 2021</i>	Society for Freshwater Science General Endowment Award (\$1000)
<i>June 2020</i>	ND Linked Experimental Ecosystem Facility (LEEF) Research Grant (\$1500)
<i>Feb. 2020</i>	Zahm Research Travel Grant, Notre Dame College of Science (\$1093)
<i>Oct. 2019</i>	Cary Institute Fundamentals of Ecosystem Ecology Course Award (\$500)

WORKSHOPS

<i>Mar. 2021</i>	Effective Student Engagement in Lab Courses, ND Kaneb Center
<i>Feb. 2021</i>	Foundations of Teaching STEM (Sessions 1-4), ND Kaneb Center
<i>Jan. 2021</i>	Inclusive Pedagogy, ND Kaneb Center
<i>Oct. 2020</i>	Active Learning in the (Socially Distant) Classroom, ND Kaneb Center
<i>Aug. 2020</i>	Establishing norms for safety, conversations, and community, ND Kaneb Center
<i>Summer 2020</i>	How to Design Online Courses, ND Kaneb Center
<i>Jan. 2020</i>	Fundamentals of Ecosystem Ecology, Cary Institute of Ecosystem Studies
<i>Oct. 2019</i>	Serving Up Knowledge: Authentic Presentations, ND Graduate School

SERVICE & ACTIVITIES

<i>2023-Present</i>	Biology Graduate Student Organization Vice President
<i>April 2022- '23</i>	College of Science Joint Annual Meeting Live Session, Volunteer Judge
<i>2022-Present</i>	Association of Women in Science STEMentorship Mentor
<i>2022-2023</i>	Biology Graduate Student Organization, DEI Chair
<i>2022-Present</i>	Graduate Students Against Racial Injustice at Notre Dame, Marketing Chair
<i>2022-Present</i>	Society for Freshwater Science SRC Undergraduate Affairs Subcommittee, Member
<i>2021-Present</i>	Graduate Students Against Racial Injustice at Notre Dame, Member
<i>Feb. 2021- '23</i>	Northern Indiana Regional Science and Engineering Fair, Volunteer Judge
<i>April 2022</i>	Girls Ambitious about Learning Science, Volunteer Instructor
<i>Oct. 2021- '22</i>	IN Master Naturalist Program Freshwater Ecology Workshop, Volunteer Instructor
<i>2021-2022</i>	Society for Freshwater Science SRC Auction Subcommittee, Member
<i>2020-2021</i>	Society for Freshwater Science SRC Social Media Subcommittee, Member
<i>Spring 2021</i>	ND Aquatic Ecology Anti-Racism Book Club, Organizer
<i>May 2021</i>	Society for Freshwater Science Student Resources Committee Q&A, Panelist
<i>Spring 2021</i>	Saint Joseph Regional Medical Center Covid-19 Vaccination Clinic, Volunteer
<i>Jan. 2019</i>	Northpoint Elementary School Science Fair, Volunteer Judge
<i>Oct. 2019- '22</i>	University of Notre Dame Environmental Change Initiative Science Sunday, Volunteer
<i>2016-2017</i>	East Central IL Master Naturalist Aquatic Invertebrate Workshop, Volunteer
<i>2016 – 2018</i>	University of Illinois Chapter Beta Psi Omega, Public Relations Officer
<i>2016 – 2017</i>	I.D.E.A. Store, Social Media Intern
<i>2014 – 2018</i>	The Green Observer Environmental Magazine, Writer, Treasurer, and Social Media Chair

AWARDS AND HONORS

2023 Biology Department Graduate Student Leader of the Year
2022 Society for Freshwater Science Presentation Award (1st Place Graduate Student Methods)
2015 – 2018 Merit Fellows Scholarship, University of Illinois at Urbana-Champaign
2014 – 2018 Illinois Achievement Scholarship, University of Illinois at Urbana-Champaign
2014 – 2018 Edmund J. James Scholar, University of Illinois at Urbana-Champaign
2014 – 2018 Dean's List, University of Illinois at Urbana-Champaign

SOCIETY AFFILIATIONS

2019-Present Society for Freshwater Science
2020-Present Association for the Sciences of Limnology and Oceanography
2016-2018 Beta Psi Omega (Alpha Class, University of Illinois Chapter)

ANALYTICAL AND PROFESSIONAL SKILLS

Analytical Skills: digital droplet PCR (ddPCR), DNA extraction, Q-bit DNA analysis, quantitative PCR (qPCR), aquatic insect identification, freshwater fish identification, electrofishing, fish scale aging, extensive field work experience

Professional Skills: scientific writing and presentation, experimental design, R programming, science communication, literature review, grant writing and reporting, collaborative research experience, data management and analysis, ArcGIS mapping, ACME Mapper georeferencing, FileMaker database