BRIELLE (KWARTA) THOMPSON

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EDUCATION

PhD. **University of Washington**, Quantitative Ecology and Resource Management
September 2019- June 2024
Dissertation: *Improving quantitative modeling tools for combating invasive species*
Advisors: Dr. Sarah Converse, Dr. Julian Olden

B.A. **Houghton College**, Mathematics
September 2015- December 2018
Capstone: *Using p-adic numbers to understand DNA sequencing*
Minor in Biology, Minor in Education, Science Honors Program, *summa cum laude*

RESEARCH EXPERIENCE

Postdoctoral Fellow, Missouri Cooperative Fish and Wildlife Research Unit, University of Missouri *[July 2024 – Present]*
Supervisors: Craig Paukert, Mike Colvin, Columbia, MO,

- Using population models and decision analysis tools to inform invasive carp management in North America
- Working through Structured Decision Making processes with decision makers on invasive carp management

Graduate Research Assistant, Washington Cooperative Fish and Wildlife Research Unit, University of Washington *[September 2019- June 2024]*
Supervisors: Sarah Converse, Julian Olden, Seattle, WA,

- Developing a review of mechanistic models that can be applied to invasive species management
- Building a quantitative framework for adaptive management of two aquatic invasive species using forward simulation/ Management Strategy Evaluation
- Applying game theory to understand the effect of management cooperation between public and private natural resource managers on invasive species control

Science Undergraduate Laboratory Intern Environmental Sciences Division, Oak Ridge National Laboratory *[January 2019-August 2019]*
Supervisor: Christopher DeRolph

- Applied geospatial techniques to identify the most "natural" corridors between protected areas in eastern Tennessee

Summer Research Experience Intern National Institute for Mathematical and Biological Synthesis (NIMBioS) *[May 2018-August 2018]*

- Built a discrete-time bioeconomic model for urban free-roaming cat management and implemented societal opinions on control strategies

Summer Research Experience Intern, Houghton College *[May 2017- August 2017]*

- Studied optimal resource allocation (carnivory versus photosynthetic features) of the northern pitcher plant using optimal control theory

PUBLICATIONS

Thompson, BK, Olden, JD, Converse, SJ. Evaluating spatially explicit management alternatives for an invasive species in a riverine network. *In review*. 2024

Thompson, B. K., Sims, C., Fisher, T., Brock, S., Dai, Y., & Lenhart, S. (2022). A discrete-time bioeconomic model of free-roaming cat management: A case study in Knox County, Tennessee. Ecological Economics, 201, 107583.

Thompson, B. K., Olden, J. D., & Converse, S. J. (2021). Mechanistic invasive species management models and their application in conservation. Conservation Science and Practice, 3(11), e533.

PRESENTATIONS

Conferences - Invited

Thompson, B.K., Colvin, M, Paukert, C, Reynolds, S (2025), Developing a framework to inform early detection efforts of the next carp invasion in the Missouri River Basin. Midwest Fish and Wildlife Conference, St. Louis, MO

Thompson, B.K., Olden, J.D., Converse, S.J. (2022), Developing monitoring targets to better inform management of invasive rusty crayfish. Joint Aquatic Sciences Meeting, Virtual

Conferences – Contributed

Thompson, B.K, Olden, J.D., Converse, S.J. (2023), Prioritizing control and monitoring efforts in adaptive management of invasive species. The Wildlife Society Annual Conference, Louisville, KY

Thompson, B.K., Olden, J.D., Converse, S.J. (2023), Prioritization of management resources for invasive flowering rush adaptive management. Washington Cooperative Fish and Wildlife Research Unit Student Symposium, Seattle, WA

Thompson, B.K., Olden, J.D., Converse, S.J. (2023) Allocating control and monitoring efforts in adaptive management of invasive species. Ecological Society of America Conference, Portland, OR

Thompson, B.K., Olden, J.D., Converse, S.J, Theresa Thom. (2023) Developing monitoring targets to better inform adaptive management of an aquatic invasive species. Science of the Service Conference: Pacific Region of the U.S. Fish and Wildlife Service, Virtual

Thompson, B.K., Olden, J.D., Converse, S.J. (2022), Towards building a framework for adaptive management of an invasive species. The Wildlife Society Annual Conference, Spokane, WA

Thompson, B.K., Olden, J.D., Converse, S.J. (2022), A whole new ball game: using game theory for invasive species management problems. Washington Cooperative Fish and Wildlife Research Unit Student Symposium, Virtual.

Thompson, B.K., Olden, J.D., Converse, S.J. (2022), Building a framework for adaptive management of an invasive species. The International Statistical Ecology Conference, Virtual

Thompson, B.K., Olden, J.D., Converse, S.J. (2021), Breaking the status quo: building a dynamic framework for invasive species management. Washington Cooperative Fish and Wildlife Research Unit Student Symposium, Virtual

Thompson, B.K., Olden, J.D., Converse, S.J. (2020) Invasive species management: picking the right model for the occasion. Washington Cooperative Fish and Wildlife Research Unit Student Symposium, Virtual

Thompson, B.K., Sims, C., Fisher, T., Brock, S., Dai, Y., Lenhart, S. (2018), A bioeconomic model to manage free-roaming cats in Knox County, Tennessee, NIMBioS Conference, Knoxville, TN

Thompson, B.K., Reber, B. (2018), Using optimal control theory to determine nitrogen allocation in the northern pitcher plant, Mathematical Association of America Seaway Conference, Rochester, NY

Thompson, B.K., Reber, B. (2017), Using optimal control theory to determine nitrogen allocation in the northern pitcher plant, NIMBioS Conference, Knoxville, TN

Conferences – Poster

Thompson, B.K., Reber, B. (2018), Using optimal control theory to determine nitrogen allocation in the northern pitcher plant, Joint Math Meetings Conference, San Diego, CA

Seminars

Thompson, B.K. (2024), Using decision analysis tools to guide invasive species management decisions. Columbia Environmental Research Center, USGS. CERC Seminar Series. Columbia, MO

Thompson, B.K., (2021), Making smarter decisions: an adaptive management approach to rusty crayfish control. University of Washington School of Aquatic and Fishery Sciences Quantitative Seminar Series. Seattle, WA

Thompson, B.K., Derolph R.C. (2019), Using geospatial techniques to identify potential natural corridors in eastern Tennessee. Oak Ridge National Laboratory Student Internship Seminar Series, Oak Ridge, TN

Guest Lectures

Thompson, B.K. (2023). Towards building a framework for adaptive management of an invasive species. FISH 507: Introduction to Structured Decision Making. University of Washington. Seattle, WA.

Thompson, B.K., McGill, L., Henry, J., Lin, Y. (2022). Introduction to spatial data in R. QERM 597: Seminar in Quantitative Ecology. Quantitative Ecology & Resource Management, University of Washington. Seattle, WA.

Thompson, B.K., Miles, J., Best, B., Rand, Z (2021). An introduction to Bayesian methods for ecologists. QERM 597: Seminar in Quantitative Ecology. Quantitative Ecology & Resource Management, University of Washington. Seattle, WA.

Thompson, B.K., Best, B., Rand, Z (2020). Making your research collaborative: an introduction to Git and GitHub. QERM 597: Seminar in Quantitative Ecology. Quantitative Ecology & Resource Management, University of Washington. Seattle, WA.

Buonanduci, M., **Thompson, B.K.** (2020). Making maps: integrating geospatial tools in R. QERM 597: Seminar in Quantitative Ecology. Quantitative Ecology & Resource Management, University of Washington. Seattle, WA.

Outreach Presentations

Thompson, B.K., Derolph R.C. (2019), Mapping Natural Corridors in East Tennessee to Evaluate the Regional Importance of the Oak Ridge Reservation. Oak Ridge National Laboratory Earth Day Symposium. Oak Ridge, TN

TEACHING EXPERIENCE

Teacher's Assistant – University

2023 University of Washington
Course: Calculus Analysis for Biologists II

2016 – 2018 Houghton College
Courses: Calculus I, Calculus II, Calculus for the Life Sciences, Math Explorations: Mathematics and Music, Biodiversity, Science Honors program

Teacher's Assistant – Professional Courses

2022 & 2023 Washington Department of Fish and Wildlife
Course: An Overview of Structured Decision Making: A Primer on Value-Focused Thinking

Workshops

2023 Runge, M.C., Converse S.J., Sells, S.N., **Thompson, B.K.** Fundamentals of Structured Decision Making. The Wildlife Society 2023 Workshop. Louisville, KY.

2021 **Thompson, B.K**., Bratt A.E., Rand, Z. Git and GitHub for the Scientific Programmer. Graduate Student Symposium 2021, School of Aquatic and Fishery Sciences, University of Washington. Seattle, WA.

AWARDS

2024 Journal of Applied Ecology Early Career Reviewer Prize **$650**

2023 The Wildlife Society: Biometrics Working Group Travel Grant **$500**

2019- 2023 Achievement Rewards for College Scientists (ARCS) National Fellowship **$17,500**

2019-2020 University of Washington College of Environment Provost's Excellence Graduate Fellow **$15,000**

2019 University of Washington Hall-Ammerer-WRF Endowed Fellowship Fund in Interdisciplinary Studies **$38,000**

2019 Department of Energy Science Undergraduate Laboratory Internship Ignite talk winner, Oak Ridge National Laboratory **$100**

PROFESSIONAL SERVICE

2024-Present Reviewer for Ecological Solutions and Evidence

2023-Present Reviewer for the Journal of Applied Ecology

2020-Present University of Washington Quantitative Ecology and Resource Management Peer Mentoring Group, co-founder and mentor (**total of 7 graduate mentees)**

2021-2022 University of Washington College of Environment Student Advisory Committee

2020-2023 University of Washington College of Environment Mentoring Program for Undergraduate Students, mentor (**total of 3 undergraduate mentees**)

2017-2018 NCAA Division III Student-Athlete Advisory Committee, representative for Houghton College women's soccer program

SCIENCE OUTREACH AND VOLUNTEERING

2021-2024 *Students Explore Aquatic Science – University of Washington.* Roles: Student board member, classroom lesson developer, community event volunteer, annual open house volunteer and organizer

2022 *National Ocean Sciences Bowl – Washington Sea Grant*. Roles: Competition official

2019 *NIMBioS Middle School STEM Camp for Girls – University of Tennessee*. Role: Counselor

2019 *YWCA and YMCA – Knoxville, TN*. Role: STEM tutor

2016-2018 *Houghton Academy International High School – Houghton, NY.* Role: STEM tutor and English as a second language (ESL) tutor

2016 *YMCA Camp Arrowhead – Pittsford, NY.* Role: STEM camp counselor and middle school lesson development lead

TECHNICAL SKILLS AND PROFESSIONAL DEVELOPMENT

Software: Proficient in R, Rmarkdown, Git/GitHub, ArcGIS, LaTeX, and statistical packages such as JAGS and Nimble. Practiced in MATLAB, Python, Scala**,** STAN, TMB, and the optimization software CPLEX

Statistical Modeling: Experience with Bayesian methods for ecological applications

Professional Development

2023 Decision Analysis: Tools Course, National Conservation Training Center. Online
2022 Fundamentals of Structured Decision Making. The Wildlife Society 2022 Annual Conference. Spokane, Washington
2020 Adaptive Management Tutorial, National Institute for Mathematical and Biological Synthesis. Online

CORE RESEARCH INTERESTS

Quantitative ecology, invasive species management, decision analysis, adaptive management, bioeconomic analysis, Bayesian statistics, data visualization

REFERENCES

Dr. Sarah J. Converse, U.S. Geological Survey, Washington Cooperative Fish and Wildlife Research Unit, Unit Leader. University of Washington, Seattle, Washington. Email: sconver@uw.edu, Phone: 206-221-5791, Relation: PhD advisor (2019-2024)

Dr. Julian D. Olden, School of Aquatic and Fishery Sciences, Professor. University of Washington, Seattle, Washington. Email: olden@uw.edu, Phone: 206-616-3112, Relation: PhD advisor (2019-2024)

Dr. Suzanne Lenhart, Department of Mathematics, Professor. University of Tennessee, Knoxville, Tennessee. Email: slenhart@tennessee.edu, Phone: 865-974-6576, Relation: Research advisor at the National Institute for Mathematical and Biological Synthesis undergraduate summer internship (2018)