

# 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*

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## 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 Prussian carp management in North America
- Working through a Structured Decision Making processes with decision makers on invasive carp management and coordinating management strategies across Canada and midwestern states

**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 (2024) Evaluating spatially explicit management alternatives for an invasive species in a riverine network. *NeoBiota* 96: 151-172. <https://doi.org/10.3897/neobiota.96.132363>
- 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. <https://doi.org/10.1016/j.ecolecon.2022.107583>
- 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. <https://doi.org/10.1111/csp2.533>
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## 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

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## **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

### *Workshop Instructor*

2025 **Thompson, B.K.**, Colvin, ME. An Overview of Structured Decision Making for Natural Resources. Midwest Fish & Wildlife Conference 2025. St Louis, MO.

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.

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### **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**

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### **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

\*Professional membership: The Wildlife Society, Ecological Society of America

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## SCIENCE OUTREACH AND VOLUNTEERING

2024	<i>STEM CUBS – University of Missouri</i> . Role: Volunteer for K-1 <sup>st</sup> grade STEM teaching activities
2021-2024	<i>Students Explore Aquatic Science – University of Washington</i> . Roles: Student board member, classroom lesson developer, community event volunteer, annual open house volunteer and organizer
2022	<i>National Ocean Sciences Bowl – Washington Sea Grant</i> . Roles: Competition official
2019	<i>NIMBioS Middle School STEM Camp for Girls – University of Tennessee</i> . Role: Counselor
2019	<i>YWCA and YMCA – Knoxville, TN</i> . Role: STEM tutor
2016-2018	<i>Houghton Academy International High School – Houghton, NY</i> . Role: STEM tutor and English as a second language (ESL) tutor
2016	<i>YMCA Camp Arrowhead – Pittsford, NY</i> . Role: STEM camp counselor and middle school lesson development lead

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## 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

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## 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](mailto: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](mailto: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](mailto:slenhart@tennessee.edu), Phone: 865-974-6576, Relation: Research advisor at the National Institute for Mathematical and Biological Synthesis undergraduate summer internship (2018)