

EDUCATION

Cornell University

PhD Candidate in Ecology and Evolutionary Biology

Advisor: Dr. Peter B. McIntyre

Non-native Predators and Warming Waters: Trophic and Community Outcomes within Lakes and Across Landscapes

Ithaca, NY

September 2019 - August 2025

Columbia University

M.A. in Ecology, Evolution, and Conservation Biology

Advisor: Dr. Joshua Drew

Invasive lionfish dispersal between shallow- and deep-water habitats within coastal Floridian waters

New York, NY

September 2017 - May 2019

Boston University

B.A. Double Major: Marine Science, Environmental Science

Magna Cum Laude with honors

Seabird foraging ecology through stable isotope analysis

Boston, MA

September 2013 - May 2017

PUBLICATIONS

Published

*indicates co-first authors

1. Detmer, T.M.*, **Airey, M.E.***, Jirka, K.J., Randall, E.A., Zarri, L.J., McIntyre, P.B., Kraft, C.E. (2025). Community-wide transient dynamics of lake fish populations in response to two decades of suppressing an invasive predator. *Journal of Applied Ecology*.
2. Zarri, L.J., Kraft, C.E., McIntyre, P.B., Baetscher, D.S., Jirka, K.J., Randall, E.A., Marcy-Quay, B., St. John, C.A., Sethi, S.A., **Airey, M.E.**, Detmer, T.M., Flecker, A.S., Therkildsen, N.O.. (2025). Rapid evolution impedes eradication of an introduced predator. *Proceedings of the National Academy of Sciences*.
3. Woo, M., **Airey, M.E.**, McIntyre, P.B., Detmer, T.D.. (2025). Lakeshore residential development: A functional comparison of natural and artificial woody habitat at the macroinvertebrate level. *Hydrobiologia*.
4. **Airey, M.E.**, Fogg, A. Q., and Drew, J. A. (2023). Invasive lionfish dispersal between shallow-and deep-water habitats within coastal Floridian waters. *Biological Invasions*, 1-9.
5. Wollmuth EM, Sless TJL, **Airey, M.E.**, France ED, Stump EM, Sundstrom MA, Wilkins RL, and Smith MK. (2022). Is Earth currently undergoing a sixth mass extinction? *CourseSource*.
6. Drew, J., Kahn, B., Locatelli, N., **Airey, M.E.**, and Humphries, A. (2021). Examining stakeholder perceptions of oyster ecosystem services using fuzzy cognitive mapping. *Conservation Science and Practice*, 3(11), e531.

In Prep - manuscript available upon request

1. Detmer, T.D., Dlugos, E.T., Larrick, S.L., Menard, E., Mix, M., Neuman, A., Phelps, M., Ramsey, J.W., Reeve, C., Saxton, R., Woo M., **Airey, M.E.**, McIntyre, P.B., Kraft, C.E.. Hatchery performance and behavior of six strains of brook trout (*Salvelinus fontinalis*). In Review: *Aquaculture, Fish and Fisheries*.

FUNDING

Research Grants (\$34,636)

- o (\$7,000) 2023 Atkinson Sustainable Biodiversity Fund. Cornell University.
- o (\$1,250) Ecology and Evolutionary Biology Departmental Graduate Student Research Fund. Cornell University.
- o (\$10,000) 2022 Kieckhefer Award. Cornell University.
- o (\$1,000) 2022 Sigma Xi Award. Sigma Xi Chapter at Cornell University.
- o (\$1,636) 2021 Betty Miller Francis '47 Fund for Field Research. Cornell University.

- (\$10,000) 2020 Kieckhefer Award. Cornell University.
- (\$1,500) Columbia University Department Grant for Conservation. 2018. Columbia University.
- (\$250) Columbia University Matching Grant. 2018. Columbia University.
- (\$2,000) Undergraduate Research Program. 2015. Boston University.

Travel Grants (\$1,350)

- (\$500) 2023 Student Travel Grant. Cornell University.
- (\$1,000) 2022 Student Travel Grant. Association for the Sciences of Limnology and Oceanography.
- (\$750) Columbia University Earth Institute Travel Grant. 2018. Columbia University.

Fellowships (\$31,380)

- Cornell Fellowship. (\$31,380). 2019. Cornell University.

TEACHING EXPERIENCE

Introduction to R, the tidyverse, and ggplot visualizations: Instructor June 2024

- Co-lead a statistics and R workshop for undergraduates

Stream Ecology: Teaching Assistant Fall 2021 and Fall 2023

- Lead two field- and lab-based lab periods each week
- Taught and organized activities that taught students fundamentals of stream ecology field sampling techniques

Introduction to Ecology and the Environment: Teaching Assistant Fall 2019 and Spring 2021

Introduction to Ecology and the Environment: Writing in the Majors Instructor Spring 2023

- Designed and lead an independently created curriculum centered on scientific writing
- Taught activities and created assignments that instructed students on how to write a scientific paper

PRESENTATIONS

Oral Presentations

- **Society of Freshwater Science.** How Environmental Gradients Shape Macroinvertebrate Assemblages and Trophic Dynamics: An approach combining 13C, 15N, 34S, and 2H. (2025, May)
- **Adirondack Research Forum** How Environmental Gradients Shape Macroinvertebrate Assemblages and Trophic Dynamics (2025, February).
- **Society of Freshwater Science.** Isotopic Perspectives: Trophic Position, Niche Overlap, and Niche Size. (2024, June)
- **Society of Freshwater Science.** Isotopic Perspectives: Trophic Position, Niche Overlap, and Niche Size. (2024, June)
- **Ecological Society of America.** Patchy habitats create patchy responses of native fish communities to the removal of an invasive predator. (2023, August).
- **Adirondack Research Forum** The native-side of an invasive species suppression. (2023, February).
- **Ecology and Evolutionary Biology December Symposium - Cornell.** Patchy habitats create patchy responses of native fish communities to the removal of an invasive predator. (2022, December).
- **Joint Aquatic Science Meeting.** The Varied Roles of Small Fish as Mesopredators in Lake Food Webs. (2022, May).
- **Adirondack Research Forum** Trophic niches, community structure, and niche overlap of mesopredators within Adirondack lakes. (2022, February).
- **Ecology and Evolutionary Biology December Symposium - Cornell.** The Varied Roles of Small Fish as Mesopredators in Lake Food Webs. (2021, December).
- **Student Conference on Conservation Science Annual Meeting** Connecting the Dots: Lionfish Dispersal Between Shallow and Deep Water habitats. (2021, October).

- **Adirondack Research Forum** Understanding the Trophic Webs of Adirondack Lakes with Stable Isotope Analysis and Gut Contents. (2021, February).
- **Ecology and Evolutionary Biology December Symposium - Cornell** Connecting the Dots: Lionfish Dispersal Between Shallow and Deep Water habitats. (2019, December).
- **Ecological Society of America** Ornate Invaders: The movements of invasive lionfish (*Pterois volitans*) in Floridian coastal waters.(2019, August).

Poster Presentations

- **Columbia University Departmental Symposium.** Connecting the Dots: Lionfish Dispersal Between Shallow and Deep Water habitats. (2019, May).
- **Columbia University Earth Institute Travel Grant Symposium** Dispersal and Settlement Patterns of Invasive Lionfish. (2019, March).

Invited Talks

- **Wilmurt Club.** Beneath the surface: benthic macroinvertebrates of Adirondack Lakes. (2023, July).
- **Trout Power Annual Meeting.** Understanding the dynamics of native Adirondack fishes. (2024, May)
- **Adirondack League Club.** Swimming with the natives: a deep dive into Adirondack fishes. (2024, August)

MENTORING

- Demetra Williams** Cornell University Spring 2021 - Present
- Honors Thesis - Graduation May 2022
 - Use of d18O and d13C of otoliths to understand thermal habitat use of brook trout in thermally stressed lakes.
- Mathew Woo** Brown University Summer 2023 - Present
- Honors Thesis - Expected Graduation May 2024
 - Community analysis of littoral benthic macroinvertebrate communities to determine the influence of man-made structures on invertebrate community structure and function.
- Adirondack Fishery Research Program Interns** Cornell University Summer 2021 - Summer 2024
- Mentored 10 undergraduate students and 10+ high schools students
 - Introduced field station interns to common field techniques and field safety
 - Regularly led field efforts with interns to achieve programmatic data collection
 - Oversaw one to three college interns each year and up to five high school interns.

SERVICE

- Equity Committee** - Cornell Graduate Student Assembly September 2020 - September 2022
- Conducted climate surveys on graduate student and postdoc communities within the department
 - Organized meetings with faculty to discuss departmental DEI issues
 - Worked with graduate student to identify priorities within the department
 - Co-lead departmental meetings designed to discuss DEI issues and identify solutions or action-items
- Departmental DEI Committee** - Cornell University September 2021 - September 2022
- Represented graduate student interests in DEI on a committee of faculty, staff, postdocs, and graduate students.
- Curriculum Content: DEI Working Group** September 2021 - September 2022
- Contributed to a working group dedicated to making DEI recommendations for faculty. Assisted in building DEI statements, policies, and resources for course syllabi and first day of class activities.
- Student Representative** - Boston University Marine Program September 2016 - May 2017
- Promoted BU Marine Program at recruitment and prospective student events
- Marine Science Laboratory Tour Guide** - Boston University January 2014 - May 2015

OUTREACH

- Letters to a Pre-Scientist September 2022 - May 2023
 - Corresponded with a middle school student about the field of STEM through letters

SOCIETY MEMBERSHIPS

- Ecological Society of America
- Association for Limnology and Oceanography
- Society of Freshwater Science