Alyssa J. Sargent

PhD Candidate, Behavioral Ecophysics Lab, University of Washington
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Education

Ph.D., Biology (ongoing: candidate), Behavioral Ecophysics Lab, University of Washington — 2020–
Topic: Characterization and modeling of movement behavior in hummingbirds (Advisor: Dr. Alejandro Rico-Guevara)

B.Sc., Environmental Science, Messiah University — 2014–18
Independent research: Avian habitat associations and environmental impact assessment for Oakwood Hills (2017–18, Advisor: Dr. David Foster)

Departmental honors independent research: Noninvasive individual identification of the Panamanian golden frog (2016–17, Advisor: Dr. Erik Lindquist)

Publications & Manuscripts

Sargent AJ, Ward M, Fernandes AM, Talwekar Y, Muñoz-Amaya AM, Téllez-Colmenares N, Rico-Guevara A. Investigating the home ranges of hummingbirds in Colombia using two automated radio telemetry approaches. In prep for *Ornithology* (automated telemetry special issue). — In prep

Sargent AJ, Fernandes AM, Elting R, Martinez SL, Clarkson A, Coenen A, Hansell L, Cartwright O, Talwekar Y, Muñoz-Amaya AM, Téllez-Colmenares N, Rico-Guevara A. Tiny backpacks: experimentally monitoring the behavior of radio-tagged hummingbirds in Colombia. In prep for *Animal Biotelemetry*. — In prep

Van Dyke F, Harju S, Hindy M, Cannata N, Schmidt E, Hillman E, **Sargent AJ**, Keas B. 2023. Bird communities of jack pine and red pine stand types: implications of multi- versus single-species management. *The Wilson Journal of Ornithology.* 135:3, 311–326. https://doi.org/10.1676/22-00062. — 2023

Hewes A, Cuban D, Groom DJE, **Sargent AJ**, Beltrán DF, Rico-Guevara A. 2022. Comparative functional morphology of nectar-feeding birds. *Journal of Morphology.* https://doi.org/10.1002/jmor.21513. — 2022

Van Dyke F, Harju S, Hindy M, Cannata N, Schmidt E, Hillman E, **Sargent AJ**, Keas B. 2022. Comparative detection, density, and reproductive performance of the Kirtland's Warbler in jack and red pine habitats. *Journal of Wildlife Management.* e22233. https://doi.org/10.1002/jwmg.22233. — 2022

Cuban D, Hewes A, **Sargent AJ**, Groom DJE, Rico-Guevara A. 2022. On the feeding biomechanics of nectarivorous birds, *Journal of Experimental Biology*. 225:2, p.jeb243096. https://doi.org/10.1242/jeb.243096. — 2022

Sargent AJ, Groom DJE, Rico-Guevara A. 2021. Locomotion and energetics of divergent foraging strategies in hummingbirds: a review. *Integrative and Comparative Biology*, 61:2, 736–748. https://doi.org/10.1093/icb/icab124. — 2021

Hereward H, Facey R, **Sargent AJ**, Roda S, Couldwell M, Renshaw E, Shaw K, Devlin J, Long S, Porter B, Henderson J, Emmett C, Astbury L, Maggs L, Rands S, Thomas R. 2021. Raspberry Pi nest cameras: an affordable tool for remote behavioral and conservation monitoring of bird nests. *Ecology and Evolution*, 00, 1–13. https://doi.org/10.1002/ece3.8127. — 2021

Funding: Fellowships (>$178,500)

Graduate Research Fellowship, National Science Foundation (NSF GRFP), $152,000 — 2022–

Graduate Student Excellence Fellowship, Washington Research Foundation & Benjamin Hall, $10,866 — 2022

Barbara Eddy Outreach Fellowship, Burke Museum of Natural History and Culture, $15,982 — 2021

Funding: Research Grants (>$16,500)

Robert T. Paine Experimental & Field Ecology Award, University of Washington, $6,600 — 2024

Richard C. Snyder Award, University of Washington, $500 — 2024

Walter & Margaret Sargent Award, University of Washington, $2,000 — 2023

Hoag Award, University of Washington, $500 — 2023

Personal Fundraising, Private donors, $300 — 2022–

Outreach Grant, Animal Behavior Society, $1,000 2022

Orians Award for Tropical Studies, University of Washington, $1,500 ('21), $900 ('24) 2021–24

Margo & Tom Wyckoff Award, University of Washington, $3,500 2021

Funding: Scholarships & Travel Awards (>$87,000)

Charlotte Mangum Student Support, Society for Integrative and Comparative Biology, $125 2024

Travel Award, American Ornithological Society, $931 2023

Graduate School Conference Presentation Award, University of Washington, $500 2023

Biology Department Graduate Student Travel Award, University of Washington, $500 2023

Graduate Student Travel Grant, Animal Behavior Society, $700 2023

Federal Work-Study, Messiah University, $6,998 2015–18

Messiah University Grant, Messiah University, $19,440 2014–18

Provost Scholarship, Messiah University Honors Program, $58,000 2014–18

Awards & Honors

Founders Memorial Award for Outstanding Poster, Honorable Mention, Animal Behavior Society 2023

Certified Field Naturalist, Au Sable Institute 2018

Departmental Honors (Research), Department of Biology, Messiah University 2016–18

Dean's List; School of Science, Engineering, and Health; Messiah University 2014–18

Hummingbird Sugar Rush: Game & Curriculum Development (2021–Present)

Development: Personally conceived & developed educational curriculum "Hummingbird Sugar Rush," with assistance from the Burke Museum's Education Department

Curriculum components: board game, life-sized field game, hands-on "deeper dive" activities (morphometrics & viscosity)

Burke Museum program collaborators: Education (implementation through BurkeMobile & Burke Boxes programs), Communications (dissemination), Museology (surveys)

Playtested at: Aki Kurose Middle School (73 students, 2023), Lake Washington Girls Middle School (29 students, 2024), community outreach events (165 attendees, see below)

Science Communication: Community Education & Events

DIY Science Zone, GeekGirlCon 2023
Hosted booth to playtest board game on behavioral trade-offs faced by hummingbirds (45 booth attendees)

Outreach Fair, Animal Behavior Society 2023
Hosted booth to playtest board game on behavioral trade-offs faced by hummingbirds (120 booth attendees)

YouthForce (Boys & Girls Club) with Behavioral Ecophysics Lab 2020
Arranged & co-hosted career-oriented connection event (30 attendees)

President of Sigma Zeta Science and Mathematics Honor Society, Messiah University 2016–18
Coordinated seminars, public scientific demonstrations, judging K-8 science fairs

Oakes Museum of Natural History Assistant Collections Manager, Messiah University 2015–18
Volunteer guide; curated, identified, and catalogued bird, egg, nest, mammal, insect specimens; gave ornithological talks to public, created displays, contributed to blog

Science Communication: Writing & Publications

Editor for *Exploration Revealed,* Scientific Exploration Society 2023–

Worked with contributing authors to conceptualize and hone submitted articles

***Exploration Revealed*,** Scientific Exploration Society (Feature article, Issue 3) 2023
From backyards to beyond: the surprising odysseys of radio-tagged hummingbirds

Science Journalism Fellowship, Puget Sound Institute & *Salish Sea Currents* (Feature article) 2022
Bird populations improve after Elwha Dam removals

TED-Ed collaboration for hummingbird-focused animation 2021
Created supplementary learning materials for animation (>1,009,000 views)

Current Conservation (Feature article, Vol. 14.4) 2021
The secret world of owl migration

Dispatches from the Field (Guest article) 2020
Praia, paradise, & petrel poop

Selected, additional publications on human-nature coexistence 2013–18
Artwork (*Peregrine Review*), personal essays (*Kelsey Review*, *Aspirations*), LEGO (*Beautiful LEGO: Wild!*)

Science Communication: Talks, Interviews, & Panels (>3,350 citizens reached)

Scientific consultation on hummingbird behavior 2023–
Wildlife film consultation for WildStar Films (National Geographic, Disney+), BBC

Wildlife Webinar, Washington Chapter of The Wildlife Society 2023
Fast & furious: tracking the movements of territorial hummingbirds (20 attendees)

Young Birders Talk, Seattle Audubon 2022
Invited storytelling on career trajectory, fieldwork, & research (13 student attendees)

Selected interviews on hummingbirds 2021–
Seattle Audubon blog post (2021), #itsawildlife blog post and podcast (2022), Birds & Blooms article (2024)

Virtual Open Door, Burke Museum of Natural History and Culture 2021
Invited Instagram Live Q&A on research (>1,050 views)

Research Spotlight, Burke Museum of Natural History and Culture 2021
Presentation with museum donors on research (51 attendees)

Career Café with Girls in Science, Burke Museum of Natural History and Culture 2021
Invited livestream career talk and iNaturalist activity (>800 student attendees)

Skype a Scientist 2020–
28 hummingbird talks with all ages, class- and school-wide presentations (>1,450 student attendees)

Teaching Assistantships (* *included curriculum development*; >180 students instructed)

Scientific Writing in Marine Biology, University of Washington (48, 42 undergraduates) 2022–23

***Ornithology,** University of Washington (32 undergraduates) 2021

Introductory Biology, University of Washington (51 undergraduates) 2020

Environmental Chemistry, Messiah University (12 undergraduates) 2018

Invited Academic Talks & Guest Lectures (64 peers instructed)

Ornithology Course, University of Puerto Rico Mayaguez (14 undergraduates) 2023
Talk: Rápidos y furiosos: seguimiento de los movimientos de los colibríes territoriales

Plastic Punk Animal Games Workshop, University of Washington (20 graduate engineers) 2022
Talk: Using games and bespoke field methodology to increase understanding of hummingbirds

Graduate & Professional Life Course, University of Washington 2021–
Lecture: "What is outreach, anyway?" Resources to communicate complex topics well (2023, 11 graduates)
Lecture: The mechanics of science communication: effectively engaging with diverse audiences (2022, 13 graduates)

Lecture: Unpacking science communication and getting plugged in (2021, 17 graduates)

Academic Conference Presentations (* *granted award*)

Sargent AJ, Pen J, Stockham C, Canning K, Canaday R, Rockwood A, Clark A, Rico-Guevara A. Learning Through Games: A Case-Study in Urban Outreach. Society for Integrative and Comparative Biology, *Poster*. 2024

Sargent AJ, Fernandes AM, Elting R, Clarkson A, Martinez SL, Hansell L, Coenen A, Talwekar Y, Muñoz-Amaya M, Téllez-Colmenares N, Rico-Guevara A. Tiny Backpacks: Experimentally Monitoring the Behavior of Radio-Tagged Hummingbirds in Colombia. Society for Integrative and Comparative Biology, *Talk*. 2024

Sargent AJ, Ward M, Fernandes AM, Talwekar Y, Muñoz-Amaya MA, Téllez-Colmenares N, Rico-Guevara A. Investigating the home ranges of hummingbirds in Colombia using two automated radio-telemetry approaches. American Ornithological Society, *Talk ("Automating ornithology: Advances in avian ecology through automated radio telemetry"* symposium*).* 2023

Sargent AJ, Pen J, Canaday R, Stockham C, Rockwood A, Clark A, Rico-Guevara A. Become the hummingbird: using games to engage with underrepresented groups in science. American Ornithological Society, *Poster.* 2023

***Sargent AJ,** Canaday R, Pen J, Rockwood A, Clark A, Stockham C, Rico-Guevara A. Hummingbird Sugar Rush: teaching complex behavioral trade-offs through games. Animal Behavior Society, *Poster.* 2023

Sargent AJ, Rico-Guevara A. Where do they go? Mysterious hummingbird foraging. Animal Behavior Society, *Talk.* 2021

Sargent AJ, Groom D, Rico-Guevara A. Reassessing hummingbird foraging: the territoriality-traplining continuum. Society for Integrative and Comparative Biology, *Talk ("Physical mechanisms of behavior"* symposium*).* 2021

Sargent AJ, Hindy M, Van Dyke F. Examining nesting site flexibility of the Kirtland's Warbler—an endangered, extreme habitat specialist. School of Science, Engineering, and Health Research Symposia, Messiah University, *Talk.* 2018

Sargent AJ, Foster D. Survey of the Oakwood Hills avian community, stratified by habitat type. School of Science, Engineering, and Health Research Symposia, Messiah University, *Poster.* 2018

Sargent AJ, Hindy M, Van Dyke F. Kirtland's Warbler use of red pine stands in Northern Lower Michigan. Internal Research Symposium, Au Sable Institute, *Talk.* 2017

Sargent AJ, E Lindquist. Non-invasive individual identification of the Panamanian golden frog (*Atelopus zeteki*). School of Science, Engineering, and Health Research Symposia, Messiah University, *Talk* ('16), *Poster* ('17). 2016–17

Professional Service

Career-Building Workshop Discussion Leader, University of Washington 2023

Departmental Awards Peer Reviewer, University of Washington 2023

NSF GRFP Workshop Peer Reviewer, University of Washington 2022

Applying to Graduate School Panelist and Host, University of Washington 2020–
Facilitator of Q&A panel for prospective grad students (>140 total attendees)

Biology Website Accessibility Redesign, University of Washington 2020
Established, co-led taskforce to enhance website accessibility for prospective grad students

Academic Peer Review (2020–present)

Biology Letters (1), *Journal of Pollination Ecology* (1), *The Oriole* (1)

Students Mentored (14)

Project: Biologging ethics and time budgets of radio-tagged hummingbirds 2023–

University of Washington: Samantha-Lynn Martinez (also mentored for 2024 Mary Gates Leadership Scholarship), Laney Hansell, McKenna Dailey, Yutong Sung, Olivia Cartwright, Alexandra Coenen, Jonathan Bristle

Texas A&M University: Aeris Clarkson

Project: Characterizing hummingbird movement ecology through automated telemetry 2022–

Centro de Investigación Colibrí Gorriazul: Ana Melisa Fernandes

Project: Geometric morphometrics of hummingbird bills 2020
University of Washington: Linda Chen, Michelle Hsu, Monica Hu, Allison Li

Additional Research & Field Experience

Field Assistant, New York University, Dr. Valentina Alaasam (Puerto Rico) 2023
Project: Thermoregulatory evolution of hummingbirds: using urban heat islands as a natural experiment

Research Technologist, University of Washington, Dr. Alejandro Rico-Guevara (WA) 2020
Lab maintenance; virtual outreach; wrote protocols, permits, proposals, and papers

Banding Assistant & Owl Banding Crew Leader, Long Point Bird Observatory, Kyle Cameron (Canada) 2019
Fall migration constant-effort banding

Research Intern, AMNH Southwestern Research Station, Dr. Susan Wethington (AZ) 2019
Project: Blue-throated Mountain-gem site preference and nest characterization

Field Assistant, Cardiff University, Drs. Hannah Hereward & Veronica Neves (Azores, Portugal) 2019
Project: Nesting study and conservation of the Monteiro's Storm-petrel

Field Assistant, Cornell University & University of Queensland, Dr. Will Feeney (Australia) 2018
Project: Avian brood parasitism and social behavior of Australian Fairy-wrens

Field Assistant, University of Missouri, Melissa Roach (MO) 2018
Project: Effects of lead (Pb) on success of ground-foraging birds in Southeast Missouri

Collaboratory Intern/Project Leader, Messiah University, Dr. Thomas Soerens (PA) 2015–18
EPA-certified bacterial/chemical testing of commercial and student-designed water filters

Research Student, Au Sable Institute, Dr. Fred Van Dyke (MI) 2017
Project: Kirtland's Warbler use of red pine in Northern Lower Michigan

Skills Overview

Taxa handling: Trochilidae, Passeriformes, Procellariiformes, Strigiformes, Cuculiformes, Piciformes

Avian processing: mist-netting and extraction, ground trapping, baited trapping, processing (e.g., aging, sexing, recording biometrics, banding), brachial blood sampling, aging nestlings and eggs

Avian field techniques: ID, resighting color bands, nest searching and monitoring, territory mapping, point counting, spot mapping, behavioral monitoring

Wildlife tracking techniques: Automated Radio-Telemetry System setup, maintenance, data cleaning/analysis (grid, tower, base station); radio-telemeter & GPS logger application/removal (glue, backpack harness); passive integrated transponder (PIT tag) implantation; radio-frequency identification (RFID) antenna maintenance

Field electronics: Raspberry Pi load cell & nest burrow camera maintenance, camera trapping, field video recording (JVC, GoPro, Minolta)

Vegetation sampling: ID, line-transect, Daubenmire, quadrat, DBH, density, relative cover

Programming languages: R (proficient); Raspberry Pi, Python (beginner)

Software: BORIS, BioRender (proficient); Premiere Pro, Procreate, Canva (competent); SlicerMorph, Illustrator, Photoshop (beginner)