

Matthew Furst, M.Sc., Associate Wildlife Biologist@; mfurst@uoguelph.ca;
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Education

PhD Candidate, Department of Integrative Biology, University of Guelph, Guelph, ON
Aug. 2018 – Aug. 2022

M.Sc, School of Marine and Atmospheric Sciences, Stony Brook University, Stony Brook, NY
Aug. 2016 – Jul. 2018; GPA: 3.57

B.S. (Fisheries and Wildlife Science, Minor GIS), Paul Smith's College, Paul Smiths, NY
Aug. 2011 – Jun. 2015; GPA; 3.67, *Cum Laude*

Awards

Integrative Biology Distinguished Student Speaker Award (2021)	\$300
● One award given annually for excellence graduate student research and a subsequent presentation given to the college	
Paul A. Stewart Grant, Wilson Ornithological Society (2021)	\$1,000
● Awards given annually for excellence graduate student movement ecology research	
Weston Family Foundation Fellowship, Wildlife Conservation Society Canada (2021)	\$10,200
● Awards given annually for distinguished conservation research in Ontario's boreal forest	
ABS Student Research Grant, Animal Behaviour Society (2021)	\$1,500
● Awards given annually for excellence graduate student research	
AOS Student Research Grant, American Ornithological Society (2021)	\$2,472
● Awards given annually for excellence graduate student or post-doctoral research	
James L. Baillie Student Research Award, Society of Canadian Ornithologists (2020)	\$2,000
● one award given annually for excellence graduate student research	
Elgin Card Terrestrial Zoology Scholarship, Department of Integrative Biology (2020)	\$4,000
● one award given annually for excellence in graduate student research	
Elgin Card Terrestrial Zoology Scholarship, Department of Integrative Biology (2019)	\$4,000
● one award given annually for excellence in graduate student research	
Nisbet Research Award, Waterbird Society (2018)	\$565
● awarded annually to 6 graduate students to support seabird research	
Maze-Landeau Graduate Travel Award (2018)	\$450
● awarded annually to 1 graduate students to support travel to conferences	
Pacific Seabird Group Travel Award (2018)	\$1000
● awarded annually to 4 graduate students to support travel to conferences	
Association of Field Ornithologists Travel Award (2017)	\$1300
● awarded annually to 4 graduate students to support travel to conferences	

Examples of Research Experience

Canada jay Ecology Graduate Research – University of Guelph: Aug. 2018- Present

- studied the breeding success and dispersal movements of Canada jays (winter and fall)
- data collection consists of nest searching, monitoring, and banding of nestlings
- lead radio telemetry dispersal study of juvenile jays, via ground and aerial tracking

Gull Foraging Ecology Graduate Research – Stony Brook University: Aug. 2016-Aug. 2018

- examined differences in herring gull foraging ecology and microbial communities
- organized and executed two consecutive field seasons of data collection
- lived and worked on remote, isolated islands for prolonged periods of time

Marine Mammal/Seabird Observer – Stony Brook University: July 2018-Aug. 2018

- acted as one of four marine mammal observers aboard the R.V. Seawolf
- conducted opportunistic seabird surveys during mammal sightings
- was responsible for daily chlorophyll measurements from marine water samples
- assisted in the maintenance and deployed of CTDs

Avian Ecology Intern – Archbold Biological Station: Jan. 2016 – Aug. 2016

- contributed to the long-term demographic study of Florida scrub jays at ABS
- duties included nest searching/monitoring, trapping/banding, blood sampling, mapping
- assisted with prescribed burns and vegetation surveys

Lead Owl Bander – Bird Conservancy of the Rockies: Sept. 2015- Dec. 2015

- organized daily set up and removal of mist nets
- extraction and processing of northern saw-whet, long eared, and eastern screech owls
- conducted daily outreach activities and education to nightly public visitors

Assistant Project Manager – Saltmarsh Habitat & Avian Research Program: May-Aug. 2015

- navigated salt marsh environments for daily nest searching and monitoring
- employed both systematic and targeted mist netting daily for adult sparrows
- utilized shorebird egg floating techniques for willet and clapper rails

Peer-reviewed Papers

Sherer, D.L. & **Fuirst, M.** (2017) First Documentation of a Swallow-Tailed Kite (*Elanoides forficatus*) Preying on an Infant Squirrel. *Florida Field Naturalist* 40: 24-25.

Fuirst, M., Hahn, M., Dheilly, N., Veit, R. R., & Thorne, L. H. (2018) Effects of urbanization on the foraging ecology and microbiota of a generalist seabird *Larus argentatus*. *PLoS One* 13(12), e0209200.

Fuirst, M., Greer, J., & Bowman, R. (2020) Ontogeny of food-caching site preferences in young Florida Scrub-Jays: evidence of learning or changing social status? *Journal of Field Ornithology* 91(3): 241-253

Sutton, A. O., **Fuirst, M.**, & Bill, K. (2020) Into the drink: an observation of a novel hunting technique employed by an Eastern Gray Squirrel (*Sciurus carolinensis*). *Canadian Field Naturalist* 134(1): 42-44.

Thorne, L. H., **Fuirst, M.**, Veit, R. R. & Baumann, Z. (2020) Mercury concentrations provide an indicator of marine foraging in coastal birds. *Ecological Indicators* 121:106922

- Lato, K. A., Thorne, L. H., **Fuirst, M.**, & Brownawell, B. J. (2020) Microplastic abundance in gull nests in relation to urbanization. *Marine Pollution Bulletin* 164:112058
- Fuirst, M.**, Ward, C. S., Schwaner, C., Diana, Z., Schultz, T. F., & Rittschof, D. Compositional and functional microbiome variation between tubes of an intertidal polychaete and surrounding marine sediment. *Frontiers in Marine Science* 8, 637.
- Fuirst, M.**, Strickland, D., & Norris, D. R. Breeding dispersal in a resident boreal passerine can lead to short- and long-term fitness benefits. *Ecosphere* 12(9):e03747
- Fuirst, M.**, Strickland, D., & Norris, D. R. Patterns and causes of breeding dispersal in a declining population of Canada jays (*Perisoreus canadensis*) over 55 years. *Animal Behaviour – In Press*
- Gow, E. A., Burant, J. B., Sutton, A. O., Freeman, N. E., Grahame, E., **Fuirst, M.**,... & Shiffman, D. S. Far from purrfect: How the popular press portrays domestic cat welfare, management, and environmental impacts – *People and Nature - In press*
- Martin, R. J., **Fuirst, M.**, & Sherry, D. Canada jays (*Perisoreus canadensis*) identify and exploit coniferous cache locations using visual cues. *Behavioural Ecology and Sociobiology – In review*
- Sorensen, M., Strickland, D., Freeman, N.E., **Fuirst, M.**, Sutton, A.O., & Norris, D.R. Early-life experience shapes patterns of senescence in a food-caching passerine. *Biology Letters- In review*

Published Book Chapters

- Fuirst, M.** (2019) Gulls. Encyclopedia of Ocean Sciences, Vol. 5. , London: Academic Press
- Ballance, L.T., Ainley D.G., Hunt J G.L., and **Fuirst, M.** (2019) Seabird Foraging Ecology. Encyclopedia of Ocean Sciences, Vol. 5. , London: Academic Press

Popular Publications

- M, Fuirst.** Ice, ice, babies: the winter breeding Canada jays of Algonquin. Algonquin Life Magazine. Winter 2021
- M, Fuirst.** Algonquin Jays in Decline. Muskoka Steward. Winter 2021: 2.
- M, Fuirst.** Canada Jays on the Air. The Raven, Winter 2021: 1-4.
- M, Fuirst.** Changing gulls in a changing world. The Sandpiper, Winter 2021, 3.
- M, Fuirst.** Where do Canada jays go on summer vacation? Algonquin Wildlife Research Station Blog. October 2020: 1-2.
- M, Fuirst.** Organic vs fast food: Herring gulls make diet choices, too. Tuckernuck News. Fall 2017: 3-4.

Professional Presentations: * indicates voted as best student presentation

- Fuirst, M.**, Strickland, D., & Norris, D. R. Patterns and consequences of natal dispersal in a declining population of Canada jays at the southern edge of their range. Digital oral presentation. 2021. American Ornithological Society & Society for Canadian Ornithologists Conference [Part of a symposium organized and led by myself and Young Ha Suh]

- *Furst, M.,** Martin, R. J., & Sherry, D. Canada jays (*Perisoreus canadensis*) identify and exploit coniferous cache locations using visual cues. Digital oral presentation. 2021. International Student Symposium on Animal Behaviour and Cognition.
- Furst, M.,** Ward, C.S., Schwaner, C., Diana, Z., Schultz, T.F., & Rittschof, D. Compositional and functional microbiome variation between tubes of an intertidal polychaete and surrounding marine sediment. Digital oral presentation. 2020. Duke Microbiome Center.
- Gow, E.A., Burant, J.B., Sutton, A.O., Freeman, N.E., Grahame, E., **Furst, M.,** Sorensen, M., Knight, S.M., Clyde, H., Quarrell, N.J., Wilcox, A.A.E., Chicalo, R., Van Drunen, S.D., & Shiffman, D.S. Far from purrfect: How the popular press portrays domestic cat welfare, management and environmental impacts. Digital oral presentation. 2020. North American Congress in Conservation Biology.
- Furst, M.,** Strickland, D., & Norris, D. R. Till death do us part: Mate loss and territory proximity cause breeding dispersal in Canada jays (*Perisoreus canadensis*). Digital oral presentation. 2020. North American Ornithological Congress.
- *Furst, M.,** Strickland, D., & Norris, D. R. Till death do us part: Mate loss and territory proximity cause breeding dispersal in Canada jays (*Perisoreus canadensis*). Digital oral presentation. 2020. Ontario Ecology, Ethology, and Evolution Colloquium.
- Thorne, L.H., **Furst, M.,** Veit, R.R., & Baumann, Z. Mercury concentrations reflect foraging behavior of herring gulls along an urban gradient. Oral presentation. 2020. Pacific Seabird Group Annual Meeting, Portland, OR.
- Martin, R.J., **Furst, M.,** & Sherry, D.F. Cache site selection and habitat exploitation by Canada jays (*Perisoreus canadensis*). Oral presentation. 2019. International Student Symposium for Animal Behaviour and Cognition (ISSABC), Kyoto, Japan.
- Thorne, L.H., **Furst, M.,** Veit, R.R., & Baumann, Z. Mercury concentrations reflect foraging behavior of herring gulls along an urban gradient. Oral presentation. 2019. The Waterbird Society Annual Meeting, Princess Anne, MD.
- Thorne, L. H., **Furst, M.,** & R.R. Veit,. Local movements of gulls in urban habitats by herring gull colonies. Oral presentation. 2018. Harbor Herons and Colonial Waterbirds Working Group Meeting, Staten Island, NY.
- Furst, M.,** R.R. Veit, & L.H. Thorne. Comparing herring gull (*Larus argentatus*) foraging ecology along an urban gradient. Oral presentation. 2018. Pacific Seabird Group Annual Meeting, La Paz, Mexico.
- Furst, M.,** R.R. Veit, & L.H. Thorne. Street smarts: Utilization of urban habitats by herring gulls. Oral presentation. 2017. Harbor Herons and Colonial Waterbirds Working Group Meeting, Staten Island, NY.
- *Furst, M.,** R.R. Veit, & L.H. Thorne. A comparison of foraging ecology between urban and remote seabird colonies. Oral presentation. 2017. Nantucket Biodiversity Initiative Conference, Nantucket, MA.

Fuirst, M., J. Greer, & R. Bowman. Learning where to store your food: Microhabitat caching preferences of yearling and adult Florida Scrub-Jays. Poster presentation. 2017. Ornithological Congress of the Americas, Iguazu, Argentina.

Teaching Experience

Teaching Assistant – University of Guelph: Sept. 2018-Present

- Assisted in teaching duties for courses such as Animal Behaviour, Introduction to Biodiversity, Introduction to Wildlife Rehabilitation, and Field Ecology (both in-person in 2019 and virtually in 2021). Primary duties involved leading weekly seminars and lab exercises, mentoring group and individual reports and projects, grading, running workshops, and facilitating discussions.

Teaching Assistant – Stony Brook University: Sept. 2016-June 2017

- Assisted professor of two ecology lectures, prepared lectures, graded and designed assignments and exams, and met with students after class and during regular office hours. Classes taught included biology of marine apex predators and conservation and biology of seabirds.

Ecology Summer Camp Leader – Archbold Biological Station: May-Aug. 2016

- Led and organized programs for the Archbold Biological Station Ecology Summer Camp. Activities included guided walks through the Florida scrub ecosystem and created games and exercises for the campers.

Undergraduate Tutor – Paul Smith’s College: Sept. 2012-June 2015

- Peer tutor for multiple courses in the natural resources department. Ran private and group tutoring meetings as well as exam preparation review sessions. Classes tutored included general ecology, wildlife management, advanced wildlife techniques, and ornithology.

Mentoring

Karen Ong – MSc student – University of Guelph (2020-present)

Kathryn Nicol – Field Assistant – University of Guelph (2021-present)

Joschka McLeod – Undergraduate Thesis Student – University of Guelph (2020-2021)

Andre Picard – Field Assistant – University of Guelph (2020)

Cheyenne Patterson Garand – Field Assistant – St. Lawrence College (2020)

Eloise Hind-Smith – Field Assistant – University of Guelph (2019)

Violeta Onland – MSc Internship – Wageningen University (2019)

Kimberly Lato – MSc student – Stony Brook University (2019-2020)

Maria Amella – MSc Internship – Stony Brook University (2018)

Invited Talks and Guest Lectures

2021 - **Guest lecturer.** Proximate causes and patterns of delayed dispersal in Canada jays. “Animal Behaviour” course. Department of Biology, Benedictine College, Kansas

2020 – **Guest lecturer.** Case studies of cooperative breeding and food caching. “Animal Behaviour” course. Department of Integrative Biology, University of Guelph, ON

2020 - **Invited speaker.** Behind the scenes of the Canada jay study. Public seminar. Algonquin Wildlife Research Station, Algonquin Provincial Park, ON.

2020 - **Invited speaker.** Applications of geocator devices to monitor foraging and dispersal movements in birds. Public seminar. Georgian Bay Biosphere Reserve, Parry Sound, ON.

2020 - **Invited speaker.** Human impacts on coastal seabird behaviour and health. Public seminar. Long Beach Island Science and Art Foundation, Long Beach Island, NJ.

2019 - **Invited speaker.** An introduction to radio-telemetry techniques and applications for Canada jay research. Public seminar. Algonquin Wildlife Research Station, Algonquin Provincial Park, ON.

2019 – **Guest lecturer.** Insights into communicating doctoral research. “Scientific Communications” course. Department of Integrative Biology, University of Guelph, ON

2017 – **Guest lecturer.** Marine mammal and seabird associations. “Marine Apex Predator” course. Department of Ecology and Evolution, Stony Brook University, NY

Professional Involvement

Reviewer for PLoS One, Ecological Indicators, PeerJ, Journal of Fish Biology, and Journal of Avian Biology

Academic Community Engagement

President Elect – Ontario Chapter of the Wildlife Society (2021)

Committee Member – College of Biological Sciences Office of Educational Scholarship and Practice (2020-present)

Co-Founder/Social Media & Communications Officer – Bird Safe Guelph Initiative – (2020-present)

Lead Organizer – University of Guelph, Integrative Biology Student Seminar Series (2019-present)

Committee Member – University of Guelph Graduate Student Mental Health and Wellness (2018-present)

President – Stony Brook University Graduate Student Club (2017-2018)

Chapter President – Paul Smith’s College Wildlife Society Student Chapter (2014-2015)