

Maggie P. MacPherson

maggie.macpherson@gmail.com www.maggiemacpherson.com

RESEARCH STATEMENT: I use mathematical models to test how ecological processes interact to determine species geographic range limits.

RESEARCH POSITIONS & EDUCATION

- 2019-present Postdoctoral Scholar, University of California Santa Barbara
 Flexibility in a rapidly expanding species (Supervisor: Dr. Corina Logan)
- I model how behavioural flexibility in great-tailed grackles (*Quiscalus mexicanus*) contributes to range expansion by comparing patterns in reversal learning and innovative solution switching in multiple populations across their range.
- 2017-2019 Postdoctoral Fellow, University of Missouri
 Linking life history needs of wetland-dependent species with habitat conditions and associated ecological processes to implement the Wetland Planning Initiative (Supervisor: Dr. Elisabeth Webb)
- I discovered that waterfowl are an appropriate umbrella species for wetland conservation globally because their habitat requirements significantly overlap with other wetland-dependent species. I also discovered the suites of habitat requirements necessary to fulfill life history needs of the following mid-continent, wetland-dependent taxa in the USA: Gray Treefrog, Least Bittern, Mallard, Small-mouthed Salamander, Sora, Paddlefish, and Prothonotary Warbler.
- 2017 Postdoctoral Research Fellow, Tulane University
 The Gentilly Resilience District Ecological Monitoring Protocol (Supervisor: Dr. Joshua Lewis)
- I designed the experimental approach for measuring avian abundance and diversity across a large urban landscape in New Orleans, Louisiana.
- 2017 Ph. D. in Ecology and Evolutionary Biology, Tulane University
 Migration Patterns in Birds of the New World: Seasonal, Morphometric and Physiological Considerations (Supervisors: Dr. Caroline Taylor & Dr. Tom Sherry)
- I discovered that rainfall was a significant positive predictor of seasonal locations for migratory species, that there has been selection for variation in bill morphology in more migratory lineages, and that migratory subspecies consumed fruit in anticipation of pre-breeding migration when sympatric sedentary subspecies did not in the *Tyrannus* genus.
- 2014 M. Sc. in Biology, York University
 Effects of Migration Schedules on Physiological Condition and Timing of Breeding Wood Thrush (*Hylocichla mustelina*) (Supervisor: Dr. Bridget Stutchbury)
- I discovered that spring migration duration was negatively associated with arrival condition and delayed nesting in long-distance migratory Wood Thrush.
- 2008 B. Sc. in Wildlife Biology, University of Guelph

Male White-ruffed Manakins (*Corapipo altera*) Who Spend More Time at Home are More Likely to Receive Visits from Females (Supervisors: Dr. Alice Boyle & Dr. Ryan Norris)

- I discovered that males who spent more time at their lek received more visits from females.

Click [this link](#) to see a list of my academic coursework on my LinkedIn profile.

PEER-REVIEWED PUBLICATIONS

PUBLISHED

9. **MacPherson, M.**, E. Webb, A. Raedeke, D. Mengel, and F. Nelson. 2018. [A review of Bayesian belief networks as decision-support tools for wetland conservation: Are water birds potential umbrella taxa?](#) *Biological Conservation*, 226: 215-223.
 - I discovered that waterfowl may be appropriate umbrella taxa for wetland conservation.
8. **MacPherson, M.**, A. Jahn, M. Murphy, D. Kim, V. Cueto, D. Tuero, and E. Hill. 2018. [Follow the rain? Environmental drivers of *Tyrannus* migration across the New World.](#) *The Auk*, 135(4): 881-894.
 - *This article was amongst the American Ornithological Society Editors' top 7 Picks from Summer 2018.
 - I discovered that both boreal and austral long-distance migratory species track with seasonal rainfall.
7. Jahn, A., V. Bejarano, M. Guzman, L. Brown, I. Provinciato, J. Cereghetti, V. Cueto, J. Giraldo, V. Gomez-Bahamon, M. Husak, H. LePage, **M. MacPherson**, M. Marini, M. Pizo, A. Quickle, D. Roeder, J. Sarasola and D. Tuero. 2017. [Molting while breeding? Lessons from New World *Tyrannus* Flycatchers.](#) *Journal of Ornithology*, 158: 1061-1071.
 - We discovered that *Tyrannus* flycatchers overlap body moult with reproduction, with a negative interaction between clutch size on body molt intensity in males but not in females.
6. Jahn, A., N. Seavy, V. Bejarano, M. Guzman, I. Provinciato, M. Pizo, and **M. MacPherson**. 2016. [Intra-tropical migration and wintering areas of Fork-tailed Flycatchers \(*Tyrannus savana*\) breeding in Sao Paulo, Brazil.](#) *Brazilian Journal of Ornithology*, 24(2): 116-121.
 - We discovered and described two different fall migration strategies in Fork-tailed Flycatchers, where some individuals migrated north while others first moved further south prior to embarking on post-breeding migration out of Brazil.
5. Jahn, A., J. Giraldo, **M. MacPherson**, D. Tuero, J. Sarasola, J. Cereghetti, D. Masson, and M. Morales. 2016. [Demographic variation in timing and intensity of feather molt in migratory Fork-tailed Flycatchers \(*Tyrannus s. savana*\).](#) *Journal of Field Ornithology*, 87(2): 143-154.
 - We discovered that adults had an overall higher remige molt intensity (number of wing flight feathers molting at one time), as well as an overall more advanced remige molt (measured by mean remige number), compared to juveniles during winter. We described the first comprehensive evaluation of winter molt for a migratory New World flycatcher at tropical latitudes.

4. Stanley, C., E. McKinnon, K. Fraser, **M. MacPherson**, G. Casbourn, L. Friesen, P. Marra, C. Studds, T. Ryder, N. Diggs, and B. Stutchbury. 2014. [Connectivity of Wood Thrush breeding, wintering, and migration sites based on range-wide tracking](#). *Conservation Biology*, 29(1): 164-174.
 - We discovered and quantified migration routes and wintering regions for three distinct breeding populations. Using a migratory network, we discovered that over 50% of the all wintering habitat for the species was found in Honduras and Costa Rica, a region undergoing intensive deforestation.
3. McKinnon, E., C. Stanley, K. Fraser, **M. MacPherson**, G. Casbourn, P. Marra, C. Studds, N. Diggs, and B. Stutchbury. 2012. [Estimating geolocator accuracy for a migratory songbird using live ground-truthing in a tropical forest](#). *Animal Migration*, 1: 31-38.
 - We discovered and quantified the error in location assignment at tropical latitudes for miniaturized light-level geolocators. To obtain the best latitude estimates in the tropics with geolocators, we recommended using locations during the dry season when sun elevations are closer to those measured at breeding sites.
2. Stanley, C. §, **M. MacPherson** §, K. Fraser, E. McKinnon, and B. Stutchbury. 2012. [Repeat tracking of individual songbirds reveals consistent migration timing but flexibility in route](#). *PLOSOne*, 7(7): e40688.

§ These authors contributed equally to the work.
 *This article is in the top 10% most cited from PLOSOne.

 - We discovered that within individuals, spring migration showed high repeatability in timing, but not in route by repeat tracking of individual Wood Thrush.
1. Stutchbury, B., E. Gow, T. Done, **M. MacPherson**, J. Fox, and V. Afanasyev. 2010. [Effects of post-breeding moult and energetic condition on timing of songbird migration into the tropics](#). *Proceedings of the Royal Society B*, 278(1702): 131-137.

*6th most cited paper from Royal Society B in 2011

 - We discovered that late nesting thrushes postponed feather moult, and birds with less advanced moult in August were significantly farther north by mid-October while en route to wintering grounds. We discovered that, due to highly variable stopover durations during fall migration, high reproductive effort late in the season that resulted in poor pre-migratory physiological condition and delayed moult did not delay winter territory acquisition.

IN PRESS

*This section lists preregistrations that have passed pre-study peer review at PCI Ecology (in principle acceptance)

4. Logan, C.J., **M. MacPherson**, C. Rowney, L. Bergeron, B. Seitz, A. Blaisdell, M. Folsom, Z. Johnson-Ulrich, K.B. McCune. 2019. [Is behavioral flexibility manipulatable and, if so, does it improve flexibility and problem solving in a new context?](#) *PCI Ecology*.
3. McCune, K.B. **M. MacPherson**, C. Rowney, L. Bergeron, M. Folsom, C.J. Logan. 2019. [Is behavioral flexibility linked with exploration, but not boldness, persistence, or motor diversity?](#) *PCI Ecology*.

2. Logan, C.J., K.B. McCune, **M. MacPherson**, Z. Johnson-Ulrich, L. Bergeron, C. Rowney, B. Seitz, A. Blaisdell, M. Folsom, C. Wascher. 2019. [Are the more flexible great-tailed grackles also better at inhibition?](#) *PCI Ecology*.
1. Blaisdell A., Z. Johnson-Ulrich, L. Bergeron, C. Rowney, B. Seitz, K.B. McCune, M. Folsom, **M. MacPherson**, C.J. Logan. 2019. [Do the more flexible individuals rely more on causal cognition? Observation versus intervention in causal inference in great-tailed grackles.](#) *PCI Ecology*.

BOOK CHAPTERS

1. Tuero, D.T., A.E. Jahn, and **M. MacPherson**. 2019. Bird Migration in South America: The Fork-tailed Flycatcher (*Tyrannus savana*) as a Case Study. Chapter 7, pp. 133-154 in Reboreda, J.C., et al. Behavioral Ecology of Neotropical Birds.

SOLICITED PUBLICATIONS

1. Cueto, V.R., A.E. Jahn, D.T. Tuero, A.C. Guaraldo, J.H. Sarasola, S.P. Bravo. V. Gomez, J.I. Giraldo, D.A. Masson, **M. MacPherson**, and J.E. Jimenez. Febrero-Marzo. 2015. [Las aves migratorias de America del Sur: Nuevas tecnicas revelan informacion sobre su comportamiento.](#) *Ciencia Hoy* magazine, 24(142):19-25.

IN REVISION

1. Higdon, S., **M. MacPherson**, D. Lesmeister, H. Hackett, R. Perry, D. Sasse, M. Gompper. 2019. Predicted Distribution of Plains Spotted Skunk in Arkansas and Missouri. *Journal of Wildlife Management*.
 - We discovered that the endangered plains subspecies of spotted skunk may persist in contiguous forest of northern, western, and southern Arkansas and southern Missouri.

IN REVIEW

1. Folsom, M.A., **M. MacPherson**, D. Lukas, K.B. McCune, L. Bergeron, A. Bond, A. Blackwell, C. Rowney, C.J. Logan. [Repeated parental care by adult male great-tailed grackles and its association with hormones, fitness, specific populations, and mating strategies.](#) Pre-registration submitted December, 2019; revise and resubmit requested March, 2020; rebuttal submitted April, 2020; minor revisions requested May, 2020; revisions submitted June 2020. *PCI Ecology*.

IN PREP

1. Seitz, B.M., K.B. McCune, **M. MacPherson**, L. Bergeron, A.P. Blaisdell, C.J. Logan. 2020. Using Touchscreen Equipped Operant Chambers to Study Comparative Cognition. Benefits, Limitations, and Advice. Submitted April, 2020 to *Royal Society Open Science*; rejected June 2020.
 - We discovered behavioral differences on a reversal learning task as a function of the apparatus used for testing between wild-caught and captive-reared birds.

RESEARCH GRANTS (total: \$58,141)

2018	U.S. Fish & Wildlife Service Harnessing new technologies to inform management of endangered species: a range-wide decision support tool to inform gray bat recovery	Declined	\$50,255
2013	Stone Center Graduate Student Summer Field Research Grant Estimating physiological consequences of roosting densities in the austral migrant Fork-tailed Flycatcher (<i>Tyrannus savana</i>)		\$1,366
2012	Stone Center Graduate Student Summer Field Research Grant How do migratory birds fuel spring migration? A comparative approach.		\$1,520
2012	IBM Corporation Fellowship in Computational Science Why do some species, but not others, migrate?		\$5,000

EDITOR & REVIEWER

Associate Editor: Ibis, 12 manuscripts January 1, 2018 – June 1, 2020.

Reviewer: Avian Conservation & Ecology (2018), Ecosphere (2020), Global Ecology and Biogeography (2019), Ibis (2010, 2018-present), Journal of Experimental Biology (2018), Journal of Ornithology (2019), Population Ecology (2020), The Wilson Journal of Ornithology (2019), Wildfowl (2019).

Click [this link](#) to see my Publons profile.

AWARDS, HONORS, OFFICES, SERVICE

2019	Selected from a competitive applicant pool as an <u>Early Professional</u> (EP) to participate in an EP symposium to showcase my research and open round table discussion about strategies for success as EPs at the American Ornithological Society annual meeting in 2019.
2019	American Ornithological Society <u>Postdoc Travel Award</u> for the 2019 AOS meeting.
2018	Recognized for contributing to academic and personal development as an <u>important mentor</u> to graduate Women+ in Science and Engineering (WiSE).
2017	American Ornithologists' Union <u>Travel Award</u> for the 2016 NAOC VI meeting.
2016-2017	American Ornithological Society <u>Student Advisory Committee</u> member.

- 2016-2017 Graduate Student Research Award, Department of Ecology & Evolutionary Biology, Tulane University.
- 2016-2017 Teaching Award for lower-level undergraduate courses, Department of Ecology & Evolutionary Biology, Tulane University.
- 2016 American Ornithologists' Union Travel Award for the 2017 AOS/SCO/SOC meeting.
- 2013, 2015 Office of Graduate and Postdoctoral Studies/Graduate Studies Student Association Travel Award, Tulane University.
- 2013-2014 Vice President of Graduate Studies Student Association, Tulane University.
- 2013-2014 Senator on Graduate and Professional Student Association, Tulane University.
- 2013-2015 Student representative on the University's Graduate Council, Tulane University.
- 2013-2015 Student representative on IT Committee, Tulane University.
- 2013-2014 EcoLunch Coordinator (departmental brown-bag seminar series). Department of Ecology & Evolutionary Biology, Tulane University.
- 2012-2015 Social Chair/Events Coordinator for the Club for Ruminations of Ecology, Evolution, and Phylogenetics (CREEP). Department of Ecology & Evolutionary Biology, Tulane University.
- 2011-2013 Ecology & Evolutionary Biology student representative on Graduate Studies Student Association, Tulane University.

TEACHING TRAINING & EXPERIENCE

TRAINING IN TEACHING

- 2017 Graduate TA and Post Doc Teaching Workshop. Center for Engaged Learning and Teaching (CELT), Tulane University. (one day)
- 2016 Supporting International Students and Scholars Workshop Series. Center for Global Education, Tulane University. (one day)
- 2014 Engaging International Students in the Classroom Workshop. CELT, Tulane University. (one day)

- 2014 An Introduction to Evidence-Based Undergraduate STEM Teaching. Center for the Integration of Research, Teaching, and Learning (CIRTL) through Coursera. (eight-week MOOC)
- 2013 Teaching Workshop. CELT, Tulane University. (two days)
- 2013 Scientific Teaching Workshop. CELT, Tulane University. (one day)

FIELD COURSE INSTRUCTOR

- 2010 & 2011 Western Hemisphere Bird Banding Network (WHBBN) at Amazon Planet, Puerto Maldonado, Peru (one week in 2011) and Itatiaia State Park, Sao Paulo State, Brazil (one week in 2010): Taught research design, obtaining research and import/export permits, and field training for capture and processing of tropical passerine birds.

INVITED LECTURES

- 2017 Why Cities Kill Birds: Urban Conservation of Birds, Ornithology (EBIO 4200), Tulane University.
- 2016 Population Ecology Lesson, Diversity of Life (EBIO 1010): Developed and delivered two 1.5-hour active learning classes, Tulane University.
- 2015 Vectors & For () Loops in R. Population Ecology (EBIO 4270), Tulane University.
- 2015 Why Cities Kill Birds. Urban Ecology (EBIO 3690), Tulane University.
- 2015 Cats: The Unsuspected Killer. Introduction to Environmental Studies (EVST 1010), Tulane University.
- 2014 Birds, Banding, and Research: Adventures Studying Migrant Birds. Introduction to Environmental Studies (EVST 1010), Tulane University.
- 2011 Birds of Southern Ontario. Natural History (ENVS 4120), York University.

TEACHING ASSISTANTSHIPS

- 2017 Vertebrate Morphology (EBIO 4210), Lecture & Lab Instructor, Tulane University.
- 2016 Diversity of Life (EBIO 1010), Lecture Instructor & Grader, Tulane University.
- 2013 Tropical Biology (EBIO 2110), Lecture Instructor & Grader, Tulane University.
- 2013 History of Life (EBIO 2030), Lecture Instructor & Grader, Tulane University.

- 2012-2014 Conservation Biology (EBIO 2040), Lecture Instructor & Grader, Tulane University (three semesters).
- 2012 General Ecology (EBIO 3045), Lab Instructor, Tulane University.
- 2012 Processes of Evolution (EBIO 3080), Lab Instructor, Tulane University.
- 2011-2015 Diversity of Life (EBIO 1010), Lab Instructor, Tulane University (nine semesters).
- 2010-2011 Comparative Chordate Anatomy (BIOL 4000), Lab Instructor, York University.
- 2010 Statistics for Biologists (BIOL 2060), Lecture Instructor & Grader, York University.
- 2009-2010 Ecology (BIOL 2050), Lab Instructor, York University. (two semesters)
- 2007-2009 Vertebrate Structure & Function (ZOO 2090), Undergraduate Lab Peer Helper, University of Guelph (four semesters).

MENTORSHIP & OUTREACH

PRESENTATIONS BY MENTEES

- 2019 Higdon, S., M. MacPherson, M. Gompper. Using species distribution modeling to target eastern spotted skunk research and management efforts. Missouri Natural Resources Conference. Osage Beach, MO.
- 2018 Higdon, S., M. MacPherson, M. Gompper. Using species distribution modeling to target Eastern Spotted Skunk Research and management efforts. The Wildlife Society. Cleveland, OH.
- 2016 MacPherson, M., Clare Lister, Trey Hendrix, Amethys E'Etessam (undergraduate researchers). Are Migratory Birds Tracking Rain? School of Science & Engineering Research Day poster competition. Tulane University, LA.
*Selected as a finalist achieving honorable mention.

MENTORSHIP

- 2017-2019 Organized and led a weekly writing workshop for the School of Natural Resources graduate students, postdoctoral fellows and professors. Supported learning how to create well-written narratives while increasing productivity and decreasing the time to finished products. University of Missouri.
- 2017-2018 Trained Rukhsana Khatoon (visiting Ph. D. student) in R to test for seasonally changing spatial distributions of multiple species of mammals from which scat

samples were collected at a remote field site in northern Pakistan (Kashmir). **As a result of our work together, Rukhsana published a series of maps in her 2019 article ([A field and laboratory-based assessment of the distribution of large- and meso-carnivore species in the newly established Muree, Kotli Satian, and Kahuta National Park, Pakistan](#) – *Mammal Research*).** University of Missouri.

- 2017-2019 Trained Summer Higdon (M. S. student) in how to build and test MaxEnt species distribution models for the endangered plains subspecies of the spotted skunk (*Spirogale putorius interrupta*). **As a result of our work together, Summer added a distribution model chapter to her thesis, presented several co-authored oral presentations, and submitted a manuscript to the Journal of Wildlife Management** (see Higdon et al. 2019 *In Review* above). University of Missouri.
- 2016-2017 Organized and led a weekly writing workshop for the Ecology & Evolutionary Biology department graduate students. Supported Ph.D. candidates to complete dissertations and applications for postdoctoral fellowships and advertised positions. Tulane University.
- 2016-2017 Trained Elliot Hill (undergraduate) to use the R package FlightR to help me improve methods of analyzing geolocator data (using data from geologgers deployed on multiple species of *Tyrannus* flycatchers). **As a result of our work together, Elliot is a co-author on my publication in The Auk** (see MacPherson et al. 2018 *Published* above). Tulane University.
- 2015-2016 Trained Clare Lister (undergraduate) in R for the development of spatial statistical code to calculate Ripley's K (clustering statistic) at relevant ecological spatial scales for itinerant passerines as part of her work-study program. Tulane University.
- 2015-2016 Trained Trey Hendrix (undergraduate) to use point locations (latitudes and longitudes) from geolocator data to make animations that track migratory individuals across space and time in R. As our result of our work together, some of Trey's animations are displayed on my website. Tulane University.
- 2015-2016 Trained Amethys E'Etessamm (undergraduate) to build niche models using kernel density plots in ArcMap as part of her work-study program. Tulane University.
- 2009-2011 Trained 60 novice ornithologists how to responsibly extract songbirds from mist nets, band them, and withdraw small blood samples for corticosterone measurements that were part of my M. Sc. research. York University, Canada.

OUTREACH

- 2016-2017 Volunteer field guide for Eagle Expo. Cajun Coast Visitors & Convention Bureau, Morgan City, LA.
- 2016-2017 Volunteer bird bander with Barataria-Terrebonne National Estuary Program (BTNEP) Red Knot banding program. Grand Isle, LA.
- 2015 Volunteer trip leader for Christmas Bird Count for Kids (CBC for Kids). Hilliardton Marsh, Hilliardton, Ontario, Canada.
- 2011-2016 Volunteer field guide for Yellow Rails & Rice Festival. Louisiana State University, Jennings, LA.
- 2012-2014 Volunteer referee for First Lego League in New Orleans area elementary school competitions. New Orleans, LA.

PRESS COVERAGE

- 2017 [North for the winter: Researchers studying Fork-tailed Flycatchers gain new insight into bird migration in South America.](#) By: Andrew Jenner. For: Bird Watching Magazine.

PRESENTATIONS

ORAL CONFERENCE PRESENTATIONS

- 2019 **MacPherson, M.** A Bayesian network approach for improved seasonal distribution models of long-distance migratory passerines. American Ornithological Society Meeting. Anchorage, AK.
*This mini-talk was solicited to be part of a competitive early professional symposium that I was selected to present in.
- 2019 **MacPherson, M.** A Bayesian network approach for improved seasonal distribution models of long-distance migratory passerines using *Tyrannus* flycatchers. American Ornithological Society Meeting. Anchorage, AK.
- 2019 **MacPherson, M., E. Webb, A. Raedeke, D. Mengel and F. Nelson.** Linking life history needs of wetland-dependent species with habitat conditions and associated ecological processes to implement the Wetland Planning Initiative. Missouri Natural Resources Conference. Osage Beach, MO.
- 2019 Raedeke, A., M. Leahy, D. Mengel, F. Nelson, E. Webb, and **M. MacPherson.** Social Assessment to Inform the Wetland Planning Initiative. Missouri Natural Resources Conference. Osage Beach, MO.
- 2019 Raedeke, A., M. Leahy, D. Mengel, F. Nelson, E. Webb, and **M. MacPherson.** Wetland Planning Initiative: An Introduction. Missouri Natural Resources Conference. Osage Beach, MO.

- 2018 **MacPherson, M.**, E. Webb, A. Raedeke, D. Mengel, and F. Nelson. Are wetland birds umbrella taxa for freshwater wetlands?: Bayesian belief networks as decision-support tools for conservation. International Ornithological Congress. Vancouver, British Columbia, Canada.
- 2018 Jahn, A., A. Guaraldo, **M. MacPherson**, and T. Ryder. Drivers of molt-migration in intra-tropical migratory birds. American Ornithologists' Society annual meeting. Tucson, AZ.
- 2018 **MacPherson, M.**, E. Webb, A. Raedeke, D. Mengel, and F. Nelson. Waterfowl as umbrella taxa for wetland management decisions: Using Bayesian belief networks to evaluate potential for other taxa under the umbrella. Society of Wetland Scientists meeting – Special Symposium: Wetland Management for Waterfowl and Its Myriad of Ecosystem Services. Denver, CO.
- 2017 **MacPherson, M.**, A.E. Jahn, V. Cueto, J.Cereghetti, J. Sarasola, D. Tuero, M. Pizo, and E. Hill. How seasonality in the Southern Hemisphere affects migration of austral migrant *Tyrannus savana*. Association of Field Ornithologists Ornithological Congress of the Americas. Puerto Iguazu, Argentina.
- 2017 **MacPherson, M.** and A.E. Jahn. How seasonality in Northern vs. Southern Hemispheres affects distributions of different types of migrants. American Ornithological Society. East Lansing, MI.
- 2017 **MacPherson, M.**, A.E. Jahn, and C.M. Taylor. Convergent evolution on the morphology of migration within an entire bird genus (*Tyrannus*). Society for Integrative and Comparative Biology. New Orleans, LA.
- 2015 **MacPherson, M.** Exploring the morphology of migration: Are subspecies of Kingbirds diverging via diet? Neotropical Ornithological Congress. Manaus, Amazonas, Brazil.
- 2012 **MacPherson, M.** Testing hypotheses for the evolution of migration: A comparative approach contrasting migrant systems. North American Ornithological Congress. Vancouver, British Colombia, Canada.
- 2011 **MacPherson, M.** and B.J.M. Stutchbury. Pairing geolocators with physiology to determine the role of migratory strategies in a North-temperate passerine. Neotropical Ornithological Congress. Cusco, Peru.
- 2010 **MacPherson, M.** Spring Migration in Wood Thrush: Carry-Over Effect to Reproductive Output. 25th International Ornithological Congress. Campos do Jordao, Sao Paulo, Brazil.

- 2010 **MacPherson, M.** and B.J.M. Stutchbury. Spring Migration Strategy: Carry-Over Effects to Reproductive Output. Joint meeting of Cooper Ornithological Society, American Ornithologists' Union, and Society of Canadian Ornithologists. San Diego, CA.

INVITED RESEARCH SEMINARS

- 2019 What determines (seasonal) range limits? Improving our understanding of co-adaptations defining avian range limits. Invited speaker for the Louisiana State University Museum of Natural Science seminar series. Louisiana State University, LA.
- 2018 Habitat requirements in seasonal environments: Using physiology & mathematical modeling to understand species distributions. Invited speaker for Department of Biology seminar series. Grinnell College, IA.
- 2017 Surfing the Heat Wave or the Green Wave: How Will Different Types of Migrants Track Seasonal Resources in a Changing Climate? Keynote address at Bald Eagle Expo. Morgan City, LA.
- 2017 Surfing the Heat Wave or the Green Wave: How Will Different Types of Migrants Track Seasonal Resources in a Changing Climate? Department of Ecology & Evolutionary Biology EcoLunch (brown bag) seminar series. Tulane University, LA.
- 2016 Explaining Seasonal Movements of *Tyrannus* Flycatchers in South America. Department of Ecology & Evolutionary Biology EcoLunch (brown bag) seminar series. Tulane University, LA.
- 2016 Surfing the Green Wave: Is Winter Itinerancy in Migratory Kingbirds Explained by Following Seasonal Climatic Gradients? Invited lecture for Baton Rouge Audubon Society meeting. Baton Rouge, LA.
- 2015 Exploring the Morphology of Migration. Department of Ecology & Evolutionary Biology EcoLunch (brown bag) seminar series. Tulane University, LA.
- 2015 Studying Migrant Birds: Why, How, & Where? Invited speaker to Ducks Unlimited Annual General Meeting. New Liskeard, Ontario, Canada.
- 2014 What Makes Migrants Move? Geolocators, GIS, eBird and the Importance of Collaborations in Migratory Bird Research. Invited lecture for New Orleans Audubon Society. New Orleans, LA.
- 2014 Conservation of migratory birds: Why do migrants move? Invited speaker for Ducks Unlimited Annual General Meeting. New Liskeard, Ontario, Canada.

- 2013 Birds, Banding, and Research: Adventures Studying Migrant Birds. Keynote address for Ducks Unlimited Annual General Meeting. New Liskeard, Ontario, Canada.
- 2013 Optimal annual routines: Understanding life history strategies of Fork-tailed Flycatchers (*Tyrannus savana*). Invited lecture for The Stone Center for Latin American Studies. Tulane University, LA.
- 2013 Optimal annual routines: Understanding life history strategies of Fork-tailed Flycatchers (*Tyrannus savana*). Invited lecture for Environmental Protection Agency. Georgetown, Guyana.
- 2011 A donde van tus aves? Metodos actuales para seguirlas. Invited speaker for Western Hemisphere Bird Banding Network Annual General Meeting. Cusco, Peru.
- 2011 The Technology That Could... Pros & Cons of Exploring Migratory Behaviour in Songbirds Using Geolocators. Invited lecture for Ontario Bird Banding Association's Annual General Meeting. Port Rowan, Ontario, Canada.
- 2009 Carry-over Effects: Winter Habitat Quality, Migration & Reproductive Effort. Invited speaker for Hawk Mountain Sanctuary and Northern Saw-whet Owl Research Program. Hamburg, PA.

POSTER PRESENTATIONS

- 2016 **MacPherson, M.**, A. Jahn, V. Cueto, M. Husak, D. Tuero, J. Sarasola, J. Cereghetti, D. Roeder, C. Lister, T. Hendrix, and A. E'tessam. Surfing the Heat Wave or the Green Wave: Divergent Ecological and Evolutionary Consequences for Nearctic Neotropical and Austral Migrant Kingbirds. North American Ornithological Congress IV. Washington, DC.
- 2013 **MacPherson, M.** and C. Taylor. Optimal Annual Routine Modeling: The Evolution of Avian Long-distance Migration. School of Science & Engineering Research Day. Tulane University, LA.
*Selected as a finalist.
- 2012 **MacPherson, M.**, C.Q. Stanley, K.C. Fraser, E.A. McKinnon, and B.J.M. Stutchbury. Repeat tracking of individual songbirds reveals consistent migration timing but flexibility in route. School of Science & Engineering Research Day. Tulane University, LA.

PROFESSIONAL DEVELOPMENT

- 2018 Geolocation Workshop. Updates to code for geolocator analysis at the International Ornithological Congress meeting in Vancouver, BC, Canada. (two days)
- 2018 Structured Decision Making Workshop – Observers and Mentees (certificate program). National Conservation Training Center funded decision analysis workshop. Gainesville, FL. (five days)
- 2018 NIMBioS Search for Selection Tutorial (5d). NSF-funded workshop at the National Institute for Mathematical and Biological Synthesis, Knoxville, TN.
- 2018 Short course on analyzing animal tracking data. NSF-funded workshop through North Carolina Museum of Natural Sciences, Raleigh, NC. (two days)
- 2018 Introduction to Bayesian Networks. Innovative Decisions, Inc., Vienna, VA. (three days)
- 2017 Graduate Student & Postdoc Association Writing Retreat. University of Missouri, Columbia, MO. (two days)
- 2017 Quantitative ecology workshop by Dr. R. Blakey. Title: Adventures in Quantitative Ecology double feature: analysis methods for community ecology and an introduction to mixed effects modelling. School of Natural Resources, University of Missouri, Columbia, MO. (one day)
- 2017 Creating Talks that Inform and Inspire. Society for Integrative & Comparative Biology Webinar. (one day)
- 2017 Giving Stellar Presentations and Job Talks. Office of Graduate and Postdoctoral Studies. Tulane University, LA. (one day)
- 2017 High Performance Computing Workshop. Technology Services. Tulane University, LA. (one day)
- 2016 Geolocation with Open-Source Tools Workshop. North American Ornithological Congress IV. Washington, DC. (two days)
- 2016 Supporting International Students and Scholars Workshop Series. Center for Global Education. Tulane University, LA. (one day)
- 2016 Software Carpentry Workshop. Tulane University, LA. (two days)
- 2013 Responsible Conduct of Research. Tulane University, LA. (semester-long interdisciplinary seminar course)

OTHER RELEVANT SKILLS

ADVANCED QUANTITATIVE SKILLS

ArcGIS
Bayesian network models
Data management
Decision analysis
Dynamic programming models
Analyzing remote location data (geologgers, satellite tags)
Linear models
Mathematical modeling
Phylogenetic analyses
Spatial statistics
Spatial point processes
Species distribution models
QGIS
R

ADVANCED RESEARCH SKILLS

Avian trapping
Bird banding
Blood sampling
Backcountry navigation
Data collection
Fatty acid analysis
Hormone assays
Gas chromatography
Radio telemetry