James C. Mouton

Quantitative Avian Ecologist
Migratory Bird Center
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EDUCATION

University of Montana, Dec 2019
PhD in Organismal Biology, Ecology, and Evolution
Dissertation Title: *Developmental, Ecological, and Life History Influences on Predator-induced Plasticity in Songbirds.*
Advisor: Dr. Thomas Martin

University of California, Davis, Dec 2007
Bachelor of Sciences in Biological Sciences
Emphasis in Evolution and Ecology
Minor in Wildlife, Fish and Conservation Biology

ACADEMIC AND RESEARCH POSITIONS

Smithsonian Institute, Jul 2020 – Present
Migratory Bird Center
Postdoctoral Fellow
Advisor: Dr. T. Scott Sillett

University of Arizona, Jan – Jun 2020
G.G. Simpson Postdoctoral Fellow
Advisor: Dr. Renee Duckworth

AWARDS, GRANTS, AND FELLOWSHIPS

2020 $23,830 – G.G. Simpson Postdoctoral Fellowship
2019 $3,000 – UM Bertha Morton Scholarship
$1,000 – Drollinger-Dial Foundation Travel Award
2018 $1,000 – Drollinger-Dial Foundation Travel Award
2017 $13,000 – NSF Doctoral Dissertation Grant
$2,500 – Toelle-Bekken Family Memorial Fund Grant
$990 – Drollinger-Dial Foundation Travel Award
2016 $5,000 – NSF EPSCoR, Institute on Ecosystems Graduate Enhancement Award
$2,500 – Drollinger-Dial Foundation Travel Award
$450 – UM Research & Creative Scholarship Fund
2015 $1,000 – Drollinger-Dial Foundation Travel Award
2014 $2,119 – American Ornithologists' Union Research Award
$849 – Drollinger-Dial Foundation Travel Award
2013 $146,000 – NSF Graduate Research Fellowship

SCIENTIFIC PUBLICATIONS

Peer-Reviewed Papers:

10. Ton, R., Boyce, A.J., Mitchell, A.E., **Mouton, J.C.**, Gobbo, N.R., Blake, W., and Tobalske, B.W. Species of migratory gamebirds have heavier heart, lung and larger tracheas but similar skeletal mass compared to resident species. *Wilson Journal of* Ornithology. In Review.

9. **Mouton, J.C.**, and Duckworth, R.A. (2021) Maternal hormones, neurosteroids, and the development of behavior. *Proceedings of the Royal Society B*. In Press.

8. Oteyza, J.C., **Mouton, J.C.**, and Martin, T.E. (2021) Adult survival probability and body size affect parental risk-taking across latitudes. *Ecology Letters.* 24:20-26.

7. **Mouton, J.C.,** Tobalske, B.W., Wright, N.A., and Martin, T.E. (2020) Risk of predation on offspring reduces parental provisioning, but not flight performance or survival across early life stages. *Functional Ecology*. 34:2147-2157.

6. Martin, T.E.*, and **Mouton, J.C.*** (2020) Longer-lived tropical songbirds reduce breeding activity to buffer impacts of drought. *Nature Climate Change.* 10:953-958. **Co-lead authors.*

5. Boyce, A.J., **Mouton, J.C.**, Lloyd, P., Wolf, B.O., and Martin, T.E. (2020) Metabolic rate is negatively linked to adult survival but does not explain latitudinal differences in songbirds. *Ecology Letters.* 23:642-652.

4. **Mouton, J.C.**, and Martin, T.E. (2019) Nest structure affects auditory and visual detectability, but not predation risk, in a tropical songbird community. *Functional Ecology*. 33:1973-1981.

3. **Mouton, J.C.**, and Martin, T.E. (2018) Fitness consequences of interspecific nesting associations among cavity-nesting birds. *The American Naturalist.* 192:389-396.

2. Martin, T.E., Riordan, M., Repin, R., **Mouton, J.C.**, and Blake, W. (2017) Apparent annual survival estimates of tropical songbirds better reflect life history variation when based on intensive field methods. *Global Ecology and Biogeography*. 26:1386-1397.

1. Martin, T.E., Boyce, A.J., Fierro-Calderón, K., Mitchell, A.E., Armstad, C.E., **Mouton, J.C.**, and Bin Soudi, E. (2017) Enclosed nests may provide greater thermal than nest predation benefits compared with open nests across latitudes. *Functional Ecology*. 31:1231-1240.

In Preparation:

Mouton, J.C., Duckworth, R.A., Paitz, R.T., and Martin, T.E. Nest predator cues do not dramatic alter yolk steroid profiles in a cavity-nesting songbird. In Prep. Expected submission: February 2021.

Mouton, J.C., Hall, L., Morrison, S., and Sillett, T.S. Trends in abundance and habitat use of land birds breeding in Channel Islands National Park after removal of invasive ungulates. In Prep. Expected submission: March 2021.

Martin, T.E., Mitchell, A.E., **Mouton, J.C.**, Oliver, K., Gobbo, N.R., Oteyza, J.C., Ton, R., and Wolf, B.O. Parental daily energy expenditure is explained by mortality and care behaviors but not offspring number. In Revision. Expected re-submission: March 2021.

Hayes, S., Cheek, R., **Mouton, J.C.**, and Ghalambor, C.K. Nest building behavioral plasticity linked to nesting success in an insular songbird. In Prep. Expected submission: March 2021.

Landry D. *, **Mouton, J.C.** *, Larkin, B., and Breuner, C.W. No evidence that heat dissipation limits drive seasonal decline in reproductive output in an aerial insectivore. In Prep. Expected submission: March 2021. **Co-lead authors.*

PRESENTATIONS

Oral Presentations:

Mouton, J.C. "Developmental, Ecological, and Life History Influences on Predator-induced Plasticity in Songbirds." University of Montana OBEE Noon Seminar, 6 November 2019, Missoula, MT.

Mouton, J.C., Tobalske, B.W., Wright, N.A., and Martin, T.E. "Stage-specific predation risk affects morphology, performance, and survival: an experimental test." International Ornithological Congress, 23 August 2018, Vancouver, BC.

Mouton, J.C., Tobalske, B.W., Wright, N.A., and Martin, T.E. "Stage-specific predation risk affects morphology, performance, and survival: an experimental test." Society for Integrative and Comparative Biology Annual Meeting, 4 January 2018, San Francisco, CA.

Mouton, J.C. "Predator-induced plasticity: morphology, performance and survival across life stages." University of Montana OBEE Noon Seminar, 8 November 2017, Missoula, MT.

Mouton, J.C., and Martin, T.E. "Interannual variation in nest predation risk influences spatial associations and fitness outcomes in a cavity nesting bird community." Ecological Society of America Annual Meeting, 11 August 2017, Portland, OR.

Mouton, J.C. "The role of competition and predation risk for heterospecific breeding aggregation in cavity nesting birds." University of Montana OBEE Noon Seminar, 7 December 2016, Missoula, MT.

Oteyza, J.C., **Mouton, J.C.***, and Martin, T.E. "Adult survival probability explains parental risk-taking behavior in tropical and temperate songbirds." North American Ornithological Congress, 18 August 2016, Washington, DC. ***Contributing author***

Mouton, J.C., Duckworth, R.A., and Martin, T.E. "Age-specific mortality and hormone-mediated maternal effects: a role for avian life history evolution?" Society for Integrative and Comparative Biology Annual Meeting, 6 January 2016, Portland, OR.

Mouton, J.C. "Does offspring begging constrain parental responses to environmental conditions?" University of Montana OBEE Noon Seminar, 28 October 2015, Missoula, MT.

Mouton, J.C. "House rules: Do parental responses to nest predation risk constrain offspring developmental trajectories?" University of Montana OBEE Noon Seminar, 18 February 2015, Missoula, MT.

Mouton, J.C. "Nest predation risk, parental reproductive strategies, and offspring developmental trajectories: the 'horns of a dilemma'." University of Montana OBEE Noon Seminar, 11 April 2014, Missoula, MT.

Poster Presentations:

Mouton, J.C., and Martin, T.E. "Why do responses to nest predation risk differ across species?" North American Ornithological Congress, 18 August 2016, Washington, DC.

QUANTITATIVE ECOLOGY EXPERIENCE AND TRAINING

Skills and experience:

Survival Analyses – Expertise in applying survival models to estimate survival rates of wildlife populations based on diverse types of data. Applications include: nest survival (Mouton & Martin 2019 *Func. Ecol.*; Mouton & Martin 2018 *Am. Nat.*; Mouton et al. 2020 *Func. Ecol.*), Bayesian multistate models using radio-telemetry data (Mouton et al. 2020 *Func. Ecol.*), Comack-Jolly-Seber models using mark-resight/recapture data (Martin et al. 2017 *Glob. Ecol. Biogeogr.*). Experience implementing models in JAGS, R, and Mark/RMark.

Phylogenetic Analyses – Expertise in analyzing comparative data in phylogenetically informed models. Applications include: phylogenetic generalized least squares (PGLS) models in frequentist (Mouton & Martin 2019 *Func. Ecol.*; Mouton & Martin 2018 *Am. Nat;* Martin et al. 2017 *Glob. Ecol. Biogeogr.*; Martin et al. 2017 *Func. Ecol.*) and Bayesian frameworks, phylogenetic path analysis (Boyce, Mouton, et al. *2020 Ecol. Lett.*). Experience implementing models in R and JAGS.

Population Modelling – Expertise modelling population abundance and dynamics. Applications include: sensitivity/elasticity analyses using individual-based and matrix models, stochastic population simulations based on climate projections (Martin & Mouton 2020 *Nat. Clim. Chan.*), assessing abundance, density, and species interactions using hierarchical distance sampling models.

Genomic Data – Skilled with manipulating and visualizing large complex datasets (including genomic data) using Python and Processing.

Statistical Analyses – Expert in the application of basic statistical analyses in frequentist and Bayesian frameworks. Applications include: generalized linear mixed models, Mantel tests, Information-Theoretic approaches (Mouton & Martin 2018 *Am. Nat.*; Mouton et al. *submitted*).

Training:

Theoretical Ecology – University of Montana – Fall 2018 –This course provided practical experience in a general toolbox of ecological and evolutionary modelling approaches, ranging from the behavior of individuals (optimality, game theory) to populations (stochastic, structured and unstructured, logistic growth, matrix models) to communities (competition, predation, parasitism). A strong emphasis was placed on formalizing conceptual ideas into a mathematical framework and, ultimately, developing ecological, statistical, and mathematical models of ecological systems (e.g. population dynamics). This course was instructed by Dr. Angela Luis from University of Montana's Population and Disease Ecology Lab.

Programming for Genomics – University of Montana – Spring 2015 – This course used genomic datasets to provide practical experience in the basics of the Python programming language, regular expressions, basic data types, program logic and control, reading and writing files, python modules, and visualization of large genomic datasets using Processing. This course was instructed by Dr. John McCutcheon.

Bird Demography in Program R Workshop – American Ornithological Union Conference – 23 Sept 2014 –This workshop provided practical experience in a broad set of tools for demographic analyses including (1) the survival package in R for time-to-event models for known fate data such as radio-marked birds or bird nests, including Kaplan-Meier and Cox proportional hazards models, (2) using the RMark package to interface with Program Mark for mark-recapture models such as Cormack-Jolly-Seber or nest survival models, (3) the popbio package for matrix population models, and (4) the unmarked package for occupancy modeling and distance sampling. This workshop was instructed by Dr. Brett Sandercock from Kansas State University and Dr. Viviana Ruiz-Gutierrez from Colorado State University.

Statistical Applications in Wildlife Biology – University of Montana – Spring 2014 –This course examined statistical problems encountered by wildlife biology graduate students and explored analysis options, assumptions, pitfalls, and alternative solutions. Instructed by Dr. Paul Luckacs.

Applied Linear Models – University of Montana – Fall 2013 –This course covered numerical and graphical data summaries, simple linear and multiple regression and analysis of variance, including estimation, hypothesis testing, residual analysis, diagnostics, and model-building strategies. Instructed by Dr. John Graham.

LEADERSHIP AND MANAGEMENT EXPERIENCE

Assistant Field Supervisor – University of Montana – Summer 2013 – Coordinated logistics and helped manage and train 19 field technicians to search for and monitor nests.

Video Lab Supervisor – University of Montana – Spring 2013 –Trained and supervised a lab of 30 undergraduates to analyze video recordings of nesting birds collected from three field sites.

Logistics Officer – United States Marine Corps – 2008-2011 – Planned and coordinated all logistical functions for a Marine infantry battalion of up to 1,300 personnel as part of an interdisciplinary staff. Established and managed an effective safety and hazardous materials program. Supervised and developed training for 40-85 Marines.

TEACHING EXPERIENCE AND TRAINING

Courses Instructed:

Teaching for science graduate students: philosophy and practice – University of Montana – Autumn 2015 – C&I 694 –Organized and co-taught a semester long graduate course covering the psychology of learning, curriculum development, assessment strategies, and applying research in the classroom. Co-taught with professors from across four departments.

OBEE Graduate Seminar Discussion Series – University of Montana – Autumn 2015, 2016, and 2017 – BIOB 595 – Organized and led weekly graduate student discussion group related to weekly seminars by invited guest lecturers. Facilitated discussion and managed participation.

Earth and Life Science (Teaching Assistant) – University of Montana – Spring 2015 – BIOB 226 – Instructed a lab section for a biology and geosciences course for future educators. Implemented, designed, and reshaped lab activities. Created and graded lab practical exams and weekly quizzes for assessing student progress.

General Ecology (Teaching Assistant) – University of Montana – Autumn 2014 – BIOB 370 – Instructed a lab section for an upper division ecology course geared towards biology and wildlife biology majors. Created and delivered short lectures for lab activities. Led field trips and facilitated student learning by engaging pairs and small groups during activities. Helped students develop, conduct, write, and present group research projects.

Pedagogy Training:

Scientific Teaching Fellow – Yale Center for Teaching and Learning – This week-long institute focused on evidence-based active learning strategies that have been shown to improve student understanding and success in STEM courses. Participants developed an original, peer reviewed course module that incorporated backwards design and learning activities on the topic of their choice.

Pathways to Scientific Teaching – UM NSF Noyce Scholars Program – Developed and implemented learner-centered instructional materials and teaching strategies for interdisciplinary and introductory science courses. Two-day workshop lead by Dr. Diane Ebert-May from the University of Michigan.

Motivating students to complete assigned readings – UM Professional Development Series – Discussed research findings on why so few college students complete course reading assignments and examine strategies for motivating students to read and learn more from those assigned readings.

Understanding and addressing implicit bias – UM Professional Development Series – Discussed ways to recognize and address personal and institutional biases that are harmful to others and explored ways to create an inclusive and supportive culture on campus.

How to invite and assess in-class participation – UM Pedagogy Project – Discussed tactics to engage and assess substantive student participation in classes of all sizes.

Setting the stage for success: Creating classes and assignments to help students manage work, life, and school – UM Pedagogy Project – Explored strategies for engaging non-traditional students balancing family, work, and classes using effective course structures, assignments, and assessments.

Creating an effective campus culture for mentoring Native students – UM Pedagogy Project – Discussed strategies for creating a classroom culture that facilitates effective mentoring for Native American students.

PROFESSIONAL SERVICE

Membership:
Ecological Society of America
American Ornithological Society
Society for Integrative and Comparative Biology
American Naturalist Society
Society for Conservation Biology
Wildlife Society

Peer-reviewer for Journals:
Ecology Letters
Journal of Animal Ecology
Ecology
Frontiers in Ecology and Evolution
Oecologia
Animal Behavior
Auk: Ornithological Advances
Journal of Ethology