

CURRICULUM VITAE
Dr. SARAH GUINDRE-PARKER

NSERC Postdoctoral Fellow — Department of Integrative Biology — University of Guelph
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POSITIONS

Assistant Professor Department of Ecology, Evolution, and Organismal Biology, Kennesaw State University	Starting Aug 2019
Postdoctoral Fellow Department of Integrative Biology, University of Guelph (primary affiliation) & Department of Psychology, University of Michigan (cross-appointment)	2017-present
Visiting Scientist Ornithology Department, National Museums of Kenya, Nairobi	2013-2017

EDUCATION

PhD – Columbia University, New York City (USA) Supervisor: Dr. Dustin Rubenstein Dissertation: Costs & benefits of cooperative breeding in fluctuating environments in African starlings	2012-2017
MSc – University of Windsor, Windsor (CAN) Supervisor: Dr. Oliver Love Thesis: Multiple achromatic plumage signals of male quality in the snow bunting (<i>Plectrophenax nivalis</i>)	2010-2012
BSc – Simon Fraser University, Burnaby (CAN) Supervisor: Dr. Elizabeth Elle Honors Thesis: Among-population variation in the timing of selfing in <i>Collinsia parviflora</i>	2006-2010

PUBLICATIONS († student/mentee author)

PEER-REVIEWED ARTICLES

13. **Guindre-Parker S** & DR Rubenstein. 2018. No short-term physiological costs of parental care in a cooperatively breeding bird. *Journal of Experimental Biology* 221: jeb186569
12. **Guindre-Parker S**. 2018. The evolutionary endocrinology of circulating glucocorticoids in free-living vertebrates: recent advances and future directions across scales of study. *Integrative and Comparative Biology* 58: 814-825 (Invited Contribution)
11. **Guindre-Parker S** & DR Rubenstein. 2018. The oxidative costs of parental care in cooperative and pair-breeding African starlings. *Oecologia* 188: 53-63
10. **Guindre-Parker S** & DR Rubenstein. 2018. Multiple benefits of alloparental care in a fluctuating environment. *Royal Society Open Science* 5: 172406 (Cover Article)
9. †Pikus, AE, **S Guindre-Parker** & DR Rubenstein. 2018. Testosterone, social status and parental care in a cooperatively breeding bird. *Hormones and Behavior* 97:85-93

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8. Baldo S, DJ Mennill, **S Guindre-Parker**, H Gilchrist & OP Love. 2015. The oxidative cost of acoustic signals: examining steroid versus aerobic-activity hypotheses in a wild bird. *Ethology* 121:1081-1090
7. Baldo S, DJ Mennill, **S Guindre-Parker**, H Gilchrist & OP Love. 2014. Snow buntings sing individually distinctive songs and show inter-annual variation in song structure. *Wilson Journal of Ornithology* 126: 333-338
6. **Guindre-Parker S** & OP Love. 2014. Revisiting the condition-dependence of melanin-based plumage. *Journal of Avian Biology* 45: 29-33
5. **Guindre-Parker S**, S Baldo, CA Macdonald, CM Harris, H Gilchrist & OP Love. 2013. The oxidative costs of territory quality and offspring provisioning. *Journal of Evolutionary Biology* 26:2558-2565 (Cover Article)
4. **Guindre-Parker S**, H Gilchrist, Baldo, S. & OP Love. 2013. Alula size signals male condition and predicts reproductive performance in an Arctic-breeding passerine. *Journal of Avian Biology* 44:209-215 (Editor's Choice)
3. **Guindre-Parker S**, H Gilchrist, S Baldo, S Doucet & OP Love. 2013. Multiple achromatic plumage ornaments signal to multiple receivers. *Behavioral Ecology* 24:672-682
2. Bourgeon S, **S Guindre-Parker** & TD Williams. 2011. Effects of sibling competition on growth, oxidative stress and humoral immunity: a two-year brood size manipulation. *Physiological and Biochemical Zoology* 84: 429-437
1. Elle E, S Gillespie, **S Guindre-Parker** & A Parachnowitsch. 2010. Variation in the timing of autonomous selfing among populations that differ in flower size, time to reproduction maturity and climate. *American Journal of Botany* 97: 1894-1902

UNDER REVIEW

- b. **Guindre-Parker S** & DR Rubenstein. *Under Review*. Fluctuating environmental conditions drive sex-specific survival benefits of group living.
- a. **Guindre-Parker S**, A McAdam, F van Kesteren, R Palme, R Boonstra, S Boutin, J Lane, & B Dantzer. Individual variation in phenotypic plasticity of the stress axis.

SCHOLARSHIPS & FELLOWSHIPS

NSERC Postdoctoral Fellowship - <i>National Research Award</i>	\$90,000 CAD	2017-2019
Columbia University Dean's Fellowship - <i>Institutional Research Stipend</i>	\$340,000 USD	2012-2017
NSERC PhD Graduate Scholarship - <i>National Research Award</i>	\$63,000 CAD	2012-2015
Ontario Graduate Scholarship - <i>Provincial Research Award</i>	\$15,000 CAD	2011-2012
University of Windsor Scholarship - <i>Institutional Tuition Award</i>	\$9,000 CAD	2010-2012
NSERC MSc Graduate Scholarship - <i>National Research Award</i>	\$17,500 CAD	2010-2011
NSERC Undergraduate Research Award - <i>National Research Award</i>	\$5,625 CAD	2008
SFU Gordon Shrum Entrance Scholarship - <i>National Academic Award</i>	\$24,000 CAD	2006-2010

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AWARDS & GRANTS

RESEARCH GRANTS

NSF Doctoral Dissertation Improvement Grant – <i>International Grant</i>	\$20,800 USD	2015-2017
Sigma Xi Grant in Aid of Research – <i>International Grant</i>	\$464 USD	2016
American Ornithologists' Union Research Award – <i>International Grant</i>	\$2,218 USD	2014
Animal Behavior Society Research Grant – <i>International Grant</i>	\$1,250 USD	2013
Columbia E3B Pre-Dissertation Research Grant – <i>Institutional Grant</i>	\$2,500 USD	2013
Northern Scientific Training Program Grant – <i>National Grant</i>	\$2,200 CAD	2011

TRAVEL AWARDS

Society for Integrative and Comparative Biology Travel Support	\$550 USD	2018
Animal Behavior Society Graduate Student Travel Grant	\$500 USD	2017
International Society for Behavioral Ecology Travel Grant	\$1,250 USD	2016
Lynn Riddiford Best Poster Award at the 2016 SICB meeting	\$150 USD	2016
Society for Integrative and Comparative Biology Housing Support	\$200 USD	2012,'14,'16
North American Ornithological Conference Student Travel Award	\$500 USD	2012
Canadian International Polar Year Travel Award	\$500 CAD	2012
Rising Starts of Research Travel Award	\$400 CAD	2008

PRESENTATIONS (*† student/mentee presenter*)

INVITED SEMINARS & PRESENTATIONS

9. **Guindre-Parker S.** 2019. Coping with unpredictable environments via endocrine plasticity. Department of Biological Sciences, California State University, Chico CA. Feb 27. Invited departmental speaker
8. **Guindre-Parker S.** 2019. Coping with unpredictable environments via endocrine plasticity. Department of Ecology, Evolution and Organismal Biology, Kennesaw State University, Kennesaw GA. Feb 12. Invited departmental speaker
7. **Guindre-Parker S.** 2019. Coping with unpredictable environments via endocrine plasticity. Federated Department of Biological Sciences, Rutgers University - Newark, Newark NJ. Feb 4. Invited departmental speaker
6. **Guindre-Parker S.** 2018. Coping with unpredictable environments via endocrine plasticity. Department of Biological Sciences, University of New Orleans, New Orleans LA. Dec 3. Invited departmental speaker
5. **Guindre-Parker S.** 2018. The costs & benefits of cooperative breeding in fluctuating environments. Ecology and Evolutionary Biology Department Tuesday Lunch Seminar Series, University of Michigan, Ann Arbor MI. Mar 27. Invited departmental speaker

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4. **Guindre-Parker S.** 2018. The costs & benefits of cooperative breeding in fluctuating environments. Department of Biological Sciences Seminar Series, University of Windsor, Windsor ON. Mar 9. Invited departmental speaker
3. **Guindre-Parker S.** 2018. Coping with unpredictable environments in African starlings. Department of Integrative Biology Seminar Series, University of Guelph, Guelph ON. Feb 13. Invited departmental speaker
2. **Guindre-Parker S & DR Rubenstein.** 2018. Coping with environmental uncertainty using the avian glucocorticoid response. 2018 SICB Annual Meeting, San Francisco CA. Jan 3-7. Invited symposium presentation. (Symposium titled: *“Understanding the evolution of endocrine system variation through large-scale comparative analyses”*)
1. **Guindre-Parker S & DR Rubenstein.** 2016. Integrating proximate & ultimate costs of reproduction in cooperatively breeding starlings. 2016 SICB Annual Meeting, Portland OR. Jan 3-7. Invited oral presentation. (Symposium titled: *“New Frontiers in the Integrative Study of Animal Behavior”*)

CONTRIBUTED ORAL & POSTER PRESENTATIONS

20. **Guindre-Parker S,** A McAdam, F van Kesteren, R Palme, R Boonstra, S Boutin, J Lane, D Coltman & B Dantzer 2019. Fitness consequences of individual variation in endocrine plasticity. 2019 SICB Annual Meeting, Tampa, FL Jan 3-7. Oral presentation.
19. **Guindre-Parker S & DR Rubenstein.** 2019. The physiological costs and fitness benefits of group living trade-off in an unpredictable environment. 2019 SICB Annual Meeting, Tampa, FL Jan 3-7. Poster presentation
18. **Guindre-Parker S,** B Dantzer, S Boutin, M Humphries, J Lane, D Coltman & A McAdam 2018. Do glucocorticoid hormones respond to selection in free-living North American red squirrels? Second Joint Conference on Evolutionary Biology, Montpellier France. Aug 19-23. Poster presentation
17. **Guindre-Parker S & DR Rubenstein.** 2017. Multiple fitness benefits of alloparental care in fluctuating environments. 54th Annual Conference of the Animal Behavior Society, Toronto, ON. Jun 12-16. Oral presentation. (*Finalist in the Allee Symposium for best student paper*)
16. †Marcus R, **S Guindre-Parker & DR Rubenstein.** 2017. Immune costs of breeding in superb starlings. Science and Engineering Fair, Westchester, NY. March 4. Poster presentation (*Awarded 4th place for poster presentation & selected as 2018 Regeneron Science Talent Search Scholar*)
15. **Guindre-Parker S & DR Rubenstein.** 2017. Cooperative breeding reduces the oxidative costs of reproduction. 2017 SICB Annual Meeting, New Orleans, LA. Jan 4-8. Oral presentation. (*Finalist in the Division of Animal Behavior's Best Student Presentation competition*)
14. **Guindre-Parker S & DR Rubenstein.** 2016. Unpredictable environmental conditions and alloparental care in superb starling. 16th International Society for Behavioral Ecology, Exeter, UK. Jul 28 - Aug 3. Oral presentation
13. †Pikus AE, **S Guindre-Parker & DR Rubenstein.** 2016. Testosterone in cooperatively breeding superb starlings (*Lamprotornis superbus*). Department of Ecology, Evolution and Environmental Biology Student Seminar, New York NY. April 14. Oral presentation
12. **Guindre-Parker S & DR Rubenstein.** 2016. What physiological traits allow tropical passerines to cope with climatic uncertainty? 2016 SICB Annual Meeting, Portland OR. Jan 3-7. Poster presentation (*Awarded Division of Comparative Endocrinology's Lynn Riddiford best poster award*)

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11. **Guindre-Parker S** & DR Rubenstein. 2014. Survival costs of reproduction in a cooperative breeder. 15th International Society for Behavioral Ecology, New York NY. Jul 31- Aug 5. Oral presentation
10. **Guindre-Parker S** & DR Rubenstein. 2014. Oxidative costs of reproduction and the evolution of cooperative breeding. 2014 SICB Annual Meeting, Austin TX. Jan 3-7. Oral presentation
9. **Guindre-Parker S**, H Gilchrist, S Baldo & OP Love. 2012. Alula Size in an Arctic-breeding passerine: condition-dependent achromatic signalling of a rarely studied plumage trait. 5th N. American Ornithology Conference, Vancouver BC. Aug 15-18. Oral presentation
8. **Guindre-Parker S**, H Gilchrist, S Doucet, S Baldo & OP Love. 2012. Complex communication with simple plumage: multiple ornaments and multiple receivers in an achromatic passerine. 42nd Ontario Ecology, Ethology & Evolution Colloquium, Hamilton ON. May 11-13. Oral presentation
7. **Guindre-Parker S**, H Gilchrist, S Baldo & OP Love. 2012. Alula size in snow buntings: a rare signal of male condition predicts reproductive performance. ArcticNet 8th Scientific Meeting and International Polar Year Conference, Montreal QC. April 22-27. Poster presentation
6. †Parker R, **S Guindre-Parker** & OP Love. 2012. Characterizing variation and repeatability in acquired humoral immunity: the effect of age, diet quality and body condition on immunoglobulin Y levels. University of Windsor's Biology undergraduate student honors colloquium. April 24. Oral presentation (*Awarded 3rd place presentation prize*)
5. †Parker R, **S Guindre-Parker** & OP Love. 2012. Characterizing variation and repeatability in acquired humoral immunity: the effect of age, diet quality and body condition on immunoglobulin Y levels. 25th Ontario Biology Day, Sudbury, ON. March 16-18. Oral presentation
4. **Guindre-Parker S**, H Gilchrist, S Doucet, DJ Mennill & OP Love. 2012. Does physiology link plumage and reproduction? 2012 SICB Annual Meeting, Charleston SC. Jan 3-7. Oral presentation
3. **Guindre-Parker S**, S Baldo, H Gilchrist, S Doucet, DJ Mennill & OP Love. 2012. Does physiology mediate the link between acoustic and visual signals and reproductive success in an Arctic passerine? 2012 SICB Annual Meeting, Charleston SC. Jan 3-7. Poster presentation
2. **Guindre-Parker S**, H Gilchrist, S Doucet, TE Pitcher & OP Love. 2010. Male quality in an Arctic passerine: does plumage quality drive fitness in snow buntings (*Plectrophenax nivalis*). ArcticNet 7th Scientific Meeting, Ottawa ON. December 14-17. Poster presentation
1. **Guindre-Parker S**, S Bourgeon & TD Williams. 2008. Seasonal variation in European starling nestling health. Rising Stars of Research National Science Poster Competition, University of British Columbia, Vancouver BC. August 21-24. Poster presentation

TEACHING EXPERIENCE

INSTRUCTOR

Co-Instructor – Sustainable Development (Undergraduate field course in Kenya), Feb 2016
Princeton & Columbia University

Planned course schedule, contributed to developing class project and syllabus; provided extensive feedback on presentations and writing; organized international travel & meals

TEACHING ASSISTANT & GUEST LECTURER

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- Guest Lecturer – Integrative Vertebrate Biology (Senior undergraduate course), University of Guelph** Nov 2018
Lecture on physiological and endocrine adaptations to living in tropical environments; including case studies from my research
- Guest Lecturer – Adaptational Physiology (Senior undergraduate course), University of Guelph** Mar 2018
Lecture on physiological and endocrine adaptations to living in tropical environments; including case studies from my research
- Guest Lecturer – Ecology of African Savannahs (Undergraduate field course in Kenya), University of Florida** May 2015
Delivered introductory lecture on “Avian Reproduction”; presented recent findings from my PhD research
- Graduate Teaching Assistant – Sustainable Development (Undergraduate field course in Kenya), Princeton & Columbia University** Feb 2015
Helped develop the class schedule and syllabus for a new course; graded exam; provided extensive feedback on written assignments and presentations; organized travel & meals
- Graduate Teaching Assistant – Fundamentals of Ecology and Evolution (Graduate course), Columbia University** Sep - Dec 2013
Answered student questions during office hours; graded all assignments; provided ample written feedback; delivered a guest lecture on “Interspecific Competition”
- Graduate Teaching Assistant – Tropical Biology (Undergraduate field course in Kenya) Princeton & Columbia University** Feb 2013
Helped students develop independent field research projects; provided ample written feedback; graded assignments and exams
- Graduate Teaching Assistant – Introduction to Ecology (Junior undergraduate course), University of Windsor** Sep - Dec 2010 & 11
Led labs; wrote and graded quizzes; graded assignments; guided students in developing independent research projects

PROFESSIONAL DEVELOPMENT

- Weaving the Future of Animal Behavior** – Invited to participate in NSF-sponsored professional-development symposium for early-career animal behavior scientists May 2019
- Instructional Skills Workshop – Open Learning and Educational Support, University of Guelph** Dec 2017
Developed learner-centered lessons; practiced active learning teaching techniques; provided peer-review feedback to other instructors

MENTORING EXPERIENCE

GRADUATE STUDENTS

- Student Supervisor – MA, Columbia University** Sep 2015 – Jul 2017
Miss. Alyx Pikus – Thesis titled: “Testosterone, social status and parental care in a cooperatively breeding bird”

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UNDERGRADUATE HONORS STUDENTS

Student Supervisor – BSc with Honors, University of Windsor Sep 2011
Mr. Ryan Parker – Thesis titled: “Are IgY levels condition-dependent in a passerine?” - Apr 2012

VOLUNTEERS AND INTERNS

Student Supervisor – Four undergraduate student volunteers, University of Guelph Jan – Dec
Oversaw and trained students performing a literature review titled “Using hormone 2018
challenges in free-living populations”

Student Supervisor – Two undergraduate student volunteers, University of Guelph Sep – Dec
Oversaw and trained students performing a literature review titled “Using intra-specific 2017
studies to understand the evolution of hormones”

Intern Supervisor – Post-baccalaureate field intern at the Mpala Research Centre, Kenya Mar – Jun
2016
Taught intern about recording bird songs; performing behavioral observations and monitoring breeding

Student Supervisor – High School student, Columbia University Jan 2016
Oversaw and trained a student’s independent project through her school’s science – Apr
electives program titled “Immune costs of reproduction in a cooperative breeder” 2017

Intern Supervisor – Two high school field interns at the Mpala Research Centre, Kenya July 2015
Taught interns to read avian color-bands; to perform behavioral observations

Intern Supervisor – Post-baccalaureate field intern at the Mpala Research Centre, Kenya Mar – Jun
2014
Taught intern about trapping and measuring birds; about performing behavioral observations and monitoring breeding

Field Assistant Supervisor– Mpala Research Centre, Kenya Apr 2013
Hired, trained and oversaw a Kenyan field assistant to trap, sample and observe birds – Jul 2016

SELECTED RESEARCH EXPERIENCE

Postdoctoral Research – Field work on North American red squirrel physiology and behavior in the Yukon as part of the Kluane Red Squirrel Project 2017-2019

PhD Research – Field and laboratory work on African starling physiology and behavior across an environmental gradient, Mpala Research Centre and throughout rural Kenya 2012-2017

Independent Graduate Course Project – Field and laboratory work on tropical wren duetting physiology and behavior, Santa Rosa National Park, Costa Rica 2011

MSc Research – Field and laboratory work on Arctic snow bunting physiology and behavior, East Bay Island, Canadian Arctic 2010-2012

Research Associate for Environment Canada – Field work on Arctic-breeding sea duck physiology and behavior, East Bay Island, Canadian Arctic 2010-2011

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- Research Assistant** – Field work on migratory passerine physiology and morphology, 2008
Manning Cooper & Associates Resource Management Consulting, Canada
- Research Assistant** – Field and laboratory work on European starling and captive 2007-2009
zebra finch physiology and behavior, Simon Fraser University, Canada

RESEARCH SKILLS

- Wildlife Trapping** – using mist-nets and ground traps; tagging small mammals; banding birds; measuring birds; trapping animals in nest boxes
- Biological Sampling** – blood, fecal, urine & feather sampling; hormone injections; recording song
- Behavioral Observations** – reading color bands or ear tags; finding nests; performing focal observations
- Field** – camping in rural settings; living in isolated camps; coordinating import and export permits; training in wilderness first aid; managing field assistants
- Laboratory** – EIA kits (testosterone, corticosterone); bacteria killing assay; colorimetric kits (reactive oxygen metabolites, antioxidants); immunoglobulin Y; differential white blood cell counts
- Statistical Software & Analyses** – JMP; R; mixed effect modeling; model selection; survival modeling; structural equation modeling; quantitative genetic animal models

VOLUNTEERING, SCIENCE COMMUNICATION AND PUBLIC OUTREACH

- Letters to a Pre-Scientist** – corresponded with a primary school pen pal about being a 2019
scientist, conducting research, and hobbies
- Skype a Scientist Guest Speaker** – spoke with several high school classes about 2019
preparing for college, being a scientist, and animal behavior
- SICB Broadening Participation Mentorship Program** – mentored three students 2018, 2019
during annual SICB meetings; provided networking, research, and career advice
- Primary and Secondary School Guest Speaker** – delivered presentations on research 2015-2016
and education to primary and secondary school students throughout Kenya
- Laikipia Rabies Vaccine Campaign Volunteer** – helped at mobile clinic in rural Kenya 2015
to educate pet owners and vaccinate dogs against rabies
- Daraja Day Volunteer** – taught Kenyan high school girls about ornithology and field 2015
research methods; explained PhD research results and importance
- Wrote for local field station newsletter** – Guindre-Parker, S. Costs of reproduction. 2015
The Mpala Memos – newsletter for the Mpala Research Centre. July 2015 Edition.
- Scientific Consultant for PBS** – advised producers of a 3-part PBS documentary 2014
“Animal Homes”: www.pbs.org/wnet/nature/animal-homes
- Wild Bird Fund of New York City Volunteer** – rehabilitated New York city birds 2013-2014

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- Wrote for local naturalists' club newsletter** – Guindre-Parker, S. Snow bunting plumage quality: from feather to father? *The Egret*. Volume 28. *Also included in the Snow Bunting Report, from the Canadian Snow bunting network.* 2012
- Judge for the Windsor Science, Technology and Engineering Fair** – judged elementary school science presentations; provided feedback to participants 2011
- Featured in local community paper** – George, J. Features: The snow bunting's spring tune-up. *Nunatsiaq News*. April 22nd Edition. 2011

PEER-REVIEWER CONTRIBUTIONS

Journal Peer Reviewer (33x) for *General & Comparative Endocrinology*, *Journal of Ornithology*, *Animal Behavior*, *Journal of Comparative Physiology B*, *Wilson Journal of Ornithology*, *Conservation Physiology*, *Avian Biology Research*, *Proceedings of the Royal Society*, *Oecologia*, *Auk*, *Behavioral Ecology*, *Journal of Avian Biology*, *PLOS ONE*, *Behavioral Ecology and Sociobiology*

Grant Reviewer (6x) for the Animal Behavior Society

PROFESSIONAL REFERENCES

Dr. Andrew McAdam

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Department of Integrative Biology
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Postdoctoral supervisor

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University of Michigan
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Dr. Dustin Rubenstein

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