

FRANCES BONIER

Contact Information

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Citizenship

U. S. citizen, permanent resident of Canada

Appointments

- Jul 2011 – Jun 2013 Banting Postdoctoral Fellow, Queen's University, Biology Department, Kingston, Ontario, Canada. Advised by Bob Montgomerie.
- 2010 – present Research Scientist, Virginia Tech, Department of Biological Sciences, Blacksburg, Virginia, USA.
- 2007 – present Adjunct Assistant Professor, Queen's University, Biology Department, Kingston, Ontario, Canada.
- 2006 – 2010 Postdoctoral Associate, Virginia Tech, Department of Biological Sciences, Blacksburg, Virginia, USA. Advised by Ignacio Moore.
- Jan – Apr 2009 Part-time Lecturer, St. Lawrence College, Veterinary Technician Program, Kingston, Ontario, Canada.

Education

- 2006 – University of Washington, Seattle. Ph.D. Zoology. Advised by John Wingfield.
- 2001 – University of Idaho, Moscow. M.S. Zoology. Advised by Steven Austad.
- 1998 – Lesley University, Cambridge, Massachusetts. B.S. Ethology.

- ❖ In reviewing my productivity, please note that I had my first child in February 2008 and my second in December 2009 and was on parental leave caring for them for more than two years. I returned to full time work in July 2011.

Peer-reviewed Publications

- Rohwer VG, **F Bonier**, and PR Martin. *In press*. Juvenal plumage polymorphism in Yellow Warblers is not associated with sex. *Condor*, manuscript #CONDOR-11-0086, accepted November 2011.
- Bonier F**, IT Moore, and RJ Robertson. 2011. The stress of parenthood? Increased glucocorticoids in birds with experimentally enlarged broods. *Biology Letters* 7: 944-946.
- Ouyang JQ, M Hau, and **F Bonier**. 2011. Within seasons and among years: when are corticosterone levels repeatable? *Hormones and Behavior* 60: 559-564.
- Danner JE, RM Danner, **F Bonier**, PR Martin, TW Small, IT Moore. 2011. Female, but not male, tropical sparrows respond more strongly to the local song dialect: implications for population divergence. *American Naturalist* 178: 53-63.
- Greeney HF, PR Martin, **F Bonier**, RA Gelis, A Solano-Ugalde, B Freeman, ET Miller. 2011. Notes on the breeding of high-Andean birds in northern Ecuador. *Bulletin of the British Ornithologists' Club* 131: 24-31.
- Bonier F**, PR Martin, IT Moore, and JC Wingfield. 2010. Clarifying the Cort-Fitness Hypothesis: A response to Dingemanse et al. *Trends in Ecology and Evolution* 25: 262-263.
- Bonier F**, PR Martin, IT Moore, and JC Wingfield. 2009. Do baseline glucocorticoids predict fitness? *Trends in Ecology and Evolution* 24: 634-642.
- Bonier F**, PR Martin, IT Moore, and RJ Robertson. 2009. The relationship between fitness and baseline glucocorticoids in a Passerine bird. *General and Comparative Endocrinology* 163: 208-213.
- Martin PR, **F Bonier**, IT Moore, and JJ Tewksbury. 2009. Latitudinal variation in the asynchrony of seasons. *Ideas in Ecology and Evolution* 2: 9-17.
- Martin PR, **F Bonier**, and IT Moore. 2009. First observation of sap well use and maintenance in the Glossy Flowerpiercer (*Diglossa lafresnayii*). *The Wilson Journal of Ornithology* 121: 213-215.
- Munro HJ*, PR Martin, IT Moore, and **F Bonier**. 2009. Blood parasites in adult and nestling birds in the Ecuadorian Andes. *Ornitologia Neotropical* 20: 461-465.
- Bonier F**, PR Martin, and IT Moore. 2008. First description of the nest and young of the agile tit-tyrant (*Uromyias agilis*). *Ornitologia Neotropical* 19: 117-122.
- Bonier F**, PR Martin, KS Sheldon, JP Jensen*, S Foltz*, and JC Wingfield. 2007. Sex-specific consequences of life in the city. *Behavioral Ecology* 18: 121-129.
- Bonier F**, PR Martin, and JC Wingfield. 2007. Urban birds have broader environmental tolerance. *Biology Letters* 3: 670-673.
- Bonier F**, PR Martin, and JC Wingfield. 2007. Maternal corticosteroids influence primary offspring sex ratio in a free-ranging Passerine bird. *Behavioral Ecology* 18: 1045-1050.

- Bonier F**, PR Martin, JP Jensen*, LK Butler, M Ramenofsky, and JC Wingfield. 2007. Premigratory life history stages of juvenile arctic birds: Costs, constraints, and trade-offs. *Ecology* 88: 2729-2735.
- Martin PR, **F Bonier**, and JJ Tewksbury. 2007. Revisiting Jablonski (1993): Cladogenesis and range expansion explain latitudinal variation in taxonomic richness. *Journal of Evolutionary Biology* 20: 930-936.
- Tidhar WL, **F Bonier**, and JR Speakman. 2007. Sex- and concentration-dependent effects of predator feces on seasonal regulation of body mass in the bank vole *Clethrionomys glareolus*. *Hormones and Behavior* 52: 436-444.
- Martin PR, **F Bonier**, and DD Gibson. 2006. First nest of the Yellow-bellied Flycatcher *Empidonax flaviventris* for Alaska, with notes on breeding biology. *Western Birds* 37: 8-22.
- Moore IT, **F Bonier**, and JC Wingfield. 2005. Reproductive asynchrony and population divergence between two tropical bird populations. *Behavioral Ecology* 16: 755-762.
- Bonier F**, H Quigley, and SN Austad. 2004. A technique for noninvasively detecting stress response in cougars. *Wildlife Society Bulletin* 32: 711-717.
- * undergraduate student co-authors

Manuscripts in Review

- Bonier F**. *In review*. Hormones in the city: endocrine ecology of urban birds. *Hormones and Behavior*, invited review, manuscript #HB-11-332, submitted November 2011.
- Shutler D, DJT Hussell, DR Norris, DW Winkler, RJ Robertson, **F Bonier**, WB Rendell, M Bélisle, RG Clark, RD Dawson, NT Wheelwright, MP Lombardo, PA Thorpe, MA Truan, ML Leonard, AG Horn, CM Vleck, D Vleck, AP Rose, LA Whittingham, PO Dunn, KA Hobson, and MT Stanback. *In review*. Win some, lose some: Temporal patterns across North America in nest box occupancy by tree swallows, aerial insectivores. *Avian Conservation and Ecology*, manuscript #ACE-ECO-2011-484, submitted October 2011, revision invited January 2012.

Popular Media Coverage

- Bonier et al. 2011 *Biology Letters* study on effects of brood size manipulation on glucocorticoids: several stories in print, on the radio, and on-line, including CBC radio interview and Science Daily story:
<http://www.sciencedaily.com/releases/2011/06/110614131952.htm>
- Danner et al. 2011 *American Naturalist* study on preference for local song dialect in a tropical bird: several stories online and in print, including coverage in the online and print edition of the *New York Times*:
http://www.nytimes.com/2011/07/05/science/05obsparrow.html?_r=1
- Bonier et al. 2007 *Biology Letters* study on environmental tolerance in urban birds: several stories in print, on the radio, on-line, and on television (e.g., Discovery Channel Canada

and ABC affiliates via ScienCentral, an NSF funded media organization – <http://www.youtube.com/watch?v=aZs8EhAtUo0>

Technical Reports

2008 – Review and synthesis of current knowledge of impacts of wind power facilities on birds and bats and effectiveness of methods aimed at mitigating such impacts, with recommendations for future directions of research and development. Prepared for the Ontario Ministry of Natural Resources, July 2008.

Research Funding and Fellowships

2012-2016 – National Science Foundation, PI on a collaborative grant (with M. Hausmann and I. Moore), \$800,000 USD for four years of support of research on the role of glucocorticoid hormones in mediating life history trade-offs

2011-2013 – Banting Postdoctoral Fellowship, National Sciences and Engineering Research Council of Canada, \$140,000 CAD for two-year stipend support for postdoctoral research in Canada. One of only 23 recipients across all NSERC disciplines

2008-2011 – Queen’s University Summer Work Experience Program, \$39,648 CAD for stipend support for undergraduate student research assistants

2008-2009 – Queen’s University Advisory Research Committee, \$13,966 CAD for cost of room and board at field station for undergraduate student research assistants

2007-2009 – National Science Foundation International Research Fellowship, \$59,445 USD for postdoctoral research in Ecuador and Canada

2006-2007 – VT Advance Postdoctoral Fellowship (NSF-funded program to advance women in science), \$21,735 USD for postdoctoral research in Ecuador

2002-2006 – several grants and awards, including: University of Washington Experimental and Field Ecology Award (\$500), American Ornithologists Union Research Award (\$1,400), University of Washington Richard C. Snyder Award (\$250), Sigma Xi Grants in Aid of Research (\$800), Woodland Park Zoo Wildlife Conservation Fund (\$6,500, declined), Woodland Park Zoo Jungle Party Conservation Fund (\$4,000)

Awards and Honors

2011 – Invited by the biology graduate students of Carleton University and the University of Ottawa to be a keynote speaker at their annual OCIB symposium

2009 – Invited by the graduate students of the department of Ecology and Evolutionary Biology at Princeton University to deliver the annual John Bonner Lecture

2008 – Received the Young Investigator Award at the 9th International Symposium on Avian Endocrinology in Leuven, Belgium for a presentation entitled: “Interpreting baseline corticosteroid measures: are they useful predictors of fitness?”

2006 – Honorable Mention, Aubrey Gorbman Best Student Oral Presentation Award, Society for Integrative and Comparative Biology

2003 – University of Washington Tri-Beta Outstanding T.A. Award for excellence in teaching an upper-level course in science (Evolutionary Mechanisms) as selected by student nomination and vote

2003 – University of Washington Charlotte Cornell Crary Award for excellence in introductory biology laboratory teaching, as selected by faculty nomination

Teaching and Student Supervision

Courses Taught:

ANIM103, Introductory Physiology for veterinary technician students at St. Lawrence College – a new course in the curriculum that had not been taught previously, requiring complete development of course content

Lab meeting, An Introduction to Science, co-coordinated a 14-week meeting for undergraduate and graduate students (2009 and 2011), attended by students from 3 labs in the Queen's University Biology Department. Weekly discussions covered topics such as: Strong Inference and the Scientific Method; Generating Questions in Science; Hypotheses, Predictions, and Convincing Tests; The Importance of Natural History; Being a Successful Graduate Student in the Sciences; Effective Communication in Science; and Ethics and Misconduct in Science

Guest Lecture on urban and rural birds for BIOL422 *Conservation Biology* at Queen's University, March 2011.

Teaching Assistantships (Universities of Washington and Idaho):

Advanced Animal Physiology (BIOL463), 1 quarter

Comparative Vertebrate Physiology (BIOL423), 1 quarter

Evolutionary Analysis (BIOL454), 2 quarters

Foundations of Evolution and Systematics (BIOL354), 1 quarter

Introductory Biology (BIOL180), 3 quarters

Introductory Human Physiology (BIOL119), 3 quarters

Introductory Biology for non-Biology majors (BIOL 102), 2 quarters

Queen's University Undergraduate Honors Students:

Primary adviser to 1 current and 5 former honors students who completed independent thesis projects under my supervision. Committee member for 6 former students.

Invited Oral Presentations

2012 – Co-organizer (with L. Jenni) of a symposium on glucocorticoids and fitness for the 10th International Symposium on Avian Endocrinology in July in Gifu, Japan.

2012 - City bird, country bird: mechanisms of response to urbanization. Invited lecture for the Kingston Field Naturalists, Kingston, Ontario.

2012 – The stress of parenthood: the role of glucocorticoids in mediating reproductive investment. 34th annual Winter Animal Behavior Conference in Steamboat Springs, Colorado.

2011 – City bird, country bird: mechanisms of response to urbanization. Department of Wildlife, Fish, and Conservation Biology at UC Davis.

- 2011 – City bird, country bird: mechanisms of response to urbanization. **Invited keynote speaker** at the Ottawa Carleton Institute of Biology annual symposium. Invited by graduate student nomination.
- 2010 – Coping mechanisms: behavioral and physiological responses to environmental challenges. Department of Biology, McGill University
- 2010 – Coping mechanisms: behavioral and physiological responses to environmental challenges. Department of Biology, McMaster University
- 2009 – Stress hormones and life history allocation decisions. **Annual John Bonner Lecture on evolution, genetics, and behavior**, on invitation by the graduate students of the department of Ecology and Evolutionary Biology, Princeton University
- 2008 – Interpreting baseline corticosteroid measures: are they useful predictors of fitness? At the 9th International Symposium on Avian Endocrinology – One of 6 researchers selected from among international applicants to participate in the Young Investigator symposium, and sole **recipient of the Young Investigator Award**
- 2007 – Effects of the urban environment on the distribution, physiology, and life history of birds. Ecology, Evolution, and Behavior seminar series at Queen’s University’s Biology Department
- 2006 – Effects of the urban environment on the distribution and physiology of birds. Ecology and Evolutionary Biology seminar series at Virginia Tech
- 2006 – Physiological mediation of condition-dependent sex ratio manipulation – are corticosteroids the missing link? At an NSF, ESF, NSERC Research Coordination Network E-Bird Meeting on Individual Variation
- 2006 – Life in the city: avian responses to urban challenges. Invited lecture for the Washington Ornithological Society, Seattle, Washington
- 2004 – Physiological adaptation in urban birds. Point Reyes Bird Observatory

Contributed Oral Presentations

- 2011 – **Bonier F**, IT Moore, and RJ Robertson. The stress of parenthood? Reproductive investment and glucocorticoids in Tree Swallows. Annual meeting of the Society for Integrative and Comparative Biology (SICB)
- 2009 – **Bonier F**, PR Martin, RJ Robertson, IT Moore, and JC Wingfield. Field endocrine studies of tree swallows: what do hormone levels tell us about individual fitness? Oral presentation at the Queen’s University Biological Station
- 2009 – **Bonier F**, PR Martin, RJ Robertson, IT Moore, and JC Wingfield. Interpreting baseline glucocorticoids: are they useful predictors of fitness? Annual SICB meeting
- 2006 – **Bonier F**, PR Martin, JP Jensen, S Foltz, and JC Wingfield. Stress hormones in urban birds: adaptation to life in the city? Annual SICB meeting (**received Honorable Mention for Best Student Oral Presentation**)

Contributed Poster Presentations

- 2009 – Munro HJ, L Lockhart, IT Moore, RJ Robertson, and **F Bonier**. Hormones and life-history trade-offs: do parental corticosteroid levels correlate with changes in offspring sex ratio in tree swallows? Annual SICB meeting
- 2009 – Lockhart L, HJ Munro, RJ Robertson, and **F Bonier**. Resource allocation patterns in tree swallows under stressful conditions. Annual SICB meeting
- 2005 – **Bonier F**, PR Martin, M Ramenofsky, and JC Wingfield. Departure biology of an Arctic-breeding Passerine. Annual SICB meeting
- 2004 – Moore IT, **F Bonier**, and JC Wingfield. Gene flow between two equatorial populations of rufous-collared sparrow, *Zonotrichia capensis*, with opposed reproductive patterns. Annual SICB meeting

Professional Service and Outreach

Manuscript review for: American Naturalist, Animal Behaviour, Auk, Behavioral Ecology, Biological Journal of the Linnaean Society, Ecology, Ecology Letters, Emu, Evolutionary Ecology Research, Functional Ecology, General and Comparative Endocrinology, Hormones and Behavior, Integrative and Comparative Biology, Journal of Animal Ecology, Journal of Comparative Physiology B, Journal of Experimental Zoology, Journal of Ornithology, Oecologia, Philosophical Transactions of the Royal Society, Physiological and Biochemical Zoology, PLoS One, Proceedings of the Royal Society B, Science

Grant review for: the U.S. National Science Foundation, National Geographic Society, Graduate Women in Science, and the US-Israel Binational Science Foundation

Selected as a “Top Referee for 2010” by Proceedings of the Royal Society B based on number, speed, and quality of manuscript reviews

Presentation judging for the Society for Integrative and Comparative Biology student oral and poster presentations competition at the annual meeting (2009, 2011)

Escuela Politécnica del Ejército, Quito, Ecuador: Co-taught two half-day seminars on field biology, research methods, and biodiversity in Ecuador (in Spanish) for undergraduate students (2006)

University of Washington: Graduate student representative to Center for Instructional Development and Research (2005-6), graduate student representative to faculty appointments committee in the Biology Department (2005-6), facilitator for three workshops for a campus-wide conference on teaching and learning (topics: teaching through discussion, responding to student writing, and feedback and grades) (2005), panelist for campus-wide workshop for Research Assistants (2004), graduate student representative to faculty meetings in the Biology Department (2003-4)

University of Idaho: Graduate student representative to curriculum committee in the Department of Biological Sciences (2000-1)

Professional References

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National Science Foundation

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