

KRISTAL E CAIN

The Australian National University
Evolution, Ecology & Genetics
Research School of Biology

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CURRICULUM VITAE

EDUCATION

- 2006 -12 PhD Ecology, Evolution & Behavior
Indiana University, Bloomington, IN
Advisor: [Ellen D Ketterson](#)
Competitive phenotypes in females: Proximate origins and ultimate outcomes.
- 1994 - 98 BS Wildlife Ecology (Honors); Minor: Physical Anthropology
Texas A&M University, College Station, TX

PROFESSIONAL APPOINTMENTS

- 2016 - Lecturer in Terrestrial Behaviour. Evolution, Ecology & Behaviour
University of Auckland; Auckland, New Zealand
- 2015 - 16 Postdoctoral Research Associate. Evolution, Ecology & Genetics
Australian National University & University of Melbourne
Advisors: [Naomi Langmore](#) & [Raoul Mulder](#)
Sex differences in the ontogeny, senescence, and heritability of morphology in Gouldian finch
- 2014 - 15 Postdoctoral Research Associate. Evolution, Ecology & Genetics
Australian National University; Canberra, Australia
Advisors: [Loeske Kruuk](#) & [Sarah Pryke](#)
Sex differences in the ontogeny, senescence, and heritability of morphology in Gouldian finch
- 2012 -14 Postdoctoral Research Fellow. Evolution, Ecology & Genetics
Australian National University; Canberra, Australia
Advisors: [Andrew Cockburn](#) & [Naomi Langmore](#)
The role of ecology in the evolution of female competitive phenotypes
- 2012 Adjunct Professor/Lecturer: University of Virginia. [Field Biology of Sex](#)
- 2006 - 12 PhD candidate, Indiana University (Advisor [ED Ketterson](#))
- 2006 - 09 Associate Instructor, Indiana University. [Biology of Birds](#) & Introductory Biology
- 2001 - 06 Wildlife Biologist, Texas Parks and Wildlife Department, Austin, TX
- 1999 - 00 Field Biologist, USFWS, Grey's Lake National Wildlife Refuge, ID

COMPETITIVE FELLOWSHIPS

- 2013 - 14 [American Australian Association](#) Postdoctoral Research Fellowship
Determining the role of ecology in the evolution of female phenotypes

- 2012 - 13 Endeavour Postdoctoral Research Fellowship, Australia Dept. of Education
Competition in a changing world: The role of resource availability in evolution female phenotypes
- 2009 - 10 National Institute of Health (NIH) Trainee Research Fellowship training grant
[Common themes in reproductive diversity](#): *The persistence of competitive traits in females*
- 2008 - 11 National Science Foundation (NSF), Graduate Research Fellowship (GRFP)
Testosterone and variation in female mating behavior
- 2008 Brackenridge Fellowship, Indiana University

GRANTS AND AWARDS

- 2013 Australian National University, Early Career Researcher Travel Grant. \$2,100
- 2012 Canberra Birds Conservation Fund, Research Grant. \$3,000 AUD
- 2010 International Society for Behavior Ecology, Travel Grant. \$3,000
- 2010 Center for Integrative Study of Animal Behavior, Travel Grant. \$500
- 2009 NSF, Doctoral Dissertation Improvement Grant (DDIG). \$14,467
- 2008 Indiana Academy of Sciences, Research Grant. \$3,000
- 2008 Center for Integrative Study of Animal Behavior, Travel Grant. \$500
- 2007 Kinsey Institute, Grants-in Aid of Research for Graduate Students. \$500
- 2007 Wilson Foundation, Research Grant. \$1,000

PEER-REVIEWED PUBLICATIONS (*Student collaborators)

In review, revision, or invited

In revision **Cain, KE**, A Cockburn & NE Langmore. Female song patterns: what do they tell us about the resources important to females?

In Print

- 2016 **Cain, KE** & SR Pryke. Testosterone production in response to exogenous gonadotropin releasing hormone (GnRH challenge) depends on social environment and color polymorphism. *General & Comparative Endocrinology*, [IN PRESS](#)
Special issue in on Australian animals
- 2016 **Cain, KE**, A Cockburn & NE Langmore. Female territorial behaviour (song and activity) is positively related to fitness estimates in superb fairy-wrens (*Malurus cyaneus*). Invited special issue on female song in **Front. Ecol. Evol.**
<http://dx.doi.org/10.3389/fevo.2015.00119>.
Special issue on Fitness consequences of female song
- 2015 **Cain, KE** & NE Langmore. Female and male song rates across breeding stage: testing for sexual and non-sexual functions of female song. *Animal Behaviour*
[109:65-71](#)

- 2015 *Young, C, **KE Cain**, & SR Pryke. Carotenoid or melanin? The role of coloured badges in resolving group conflicts. *Journal of Avian Biology*, [10.1111/jav.00742](https://doi.org/10.1111/jav.00742)
- *Young, C, **KE Cain**, N Svedin, P Backwell & SR Pryke. Nest success in crimson finches: chance or choice? *Ethology*, [DOI:10.1111/eth.12422](https://doi.org/10.1111/eth.12422)
- 2014 **Cain, KE** & KA Rosvall. Next steps for understanding the selective relevance of female-female competition. *Frontiers in Ecology and Evolution*, 2 (32): [10.3389/fevo.2014.0003](https://doi.org/10.3389/fevo.2014.0003)
- **Cain, KE**. Mates of competitive females: the relationships between female aggression, mate quality and parental care. *Advances in Zoology*, 2014 (319567): [10.1155/2014/319567](https://doi.org/10.1155/2014/319567)
- Roche, DG, R Lanfear, SA Binning, LE Schwanz, **KE Cain**, TM Haff, MD Jennions, LEB Kruuk. Troubleshooting public data archiving: suggestions to increase participation. *PLoS Biol* 12 (1):[e1001779](https://doi.org/10.1371/journal.pbio.1001779)
- 2013 **Cain, KE** & ED Ketterson. Costs and benefits of female competitive traits; aggression, maternal care, and reproductive success in a common songbird. *PLoS ONE*, 8 (10): [e77816](https://doi.org/10.1371/journal.pone.0177816)
- **Cain, KE** & ED Ketterson. Individual variation in testosterone and parental care in a female songbird; the dark-eyed junco (*Junco hyemalis*). *Hormones & Behavior*, 64 (4): [685-692](https://doi.org/10.1016/j.yhbeh.2012.08.002)
- 2013 **Cain, KE**, CM Bergeon Burns & ED Ketterson. Testosterone production, sexually dimorphic morphology and digit ratio in a common songbird, the dark-eyed junco. *Behavioral Ecology*, 24 (2): [462-469](https://doi.org/10.1093/beheco/arn022)
- 2012 **Cain, KE** & ED Ketterson. Competitive females are successful females; phenotype, mechanism and selection in a common songbird. *Behavioural Ecology and Sociobiology*, 66 (2): [241-252](https://doi.org/10.1007/s00265-011-1452-2)
**Editor's Choice Article
- 2011 **Cain, KE**, MR Rich*, KA Ainsworth* & ED Ketterson. Two sides of the same coin? Consistency in aggression to conspecifics and predators in a female songbird. *Ethology*, 117 (9): [786-795](https://doi.org/10.1111/j.1365-3113.2011.04601.x)

OTHER PUBLICATIONS

- Dataset 2014. Haff T, Roche D, Lanfear R, Binning S, Schwanz L, **Cain KE**, Kokko H, Jennions M, Kruuk L. Survey results for Roche et al. *PLoS Biology* Troubleshooting public data archiving: suggestions to increase participation. *Figshare dataset*. [doi: 10.6084/m9.figshare.811801](https://doi.org/10.6084/m9.figshare.811801)
- Chapter **Cain KE**, J Jawor & JW McGlothlin. Individual variation and selection on hormone-mediated phenotypes. In: *The Ordinary Extraordinary Junco*. (JW Atwell & ED Ketterson, editors). Chicago University Press, IL. Forthcoming

SYMPOSIUM ORGANIZED

- (2015) **Cain, KE & K Buchanan.** *Endocrine control of behaviour: the avian perspective.* Behavior 2015, a joint meeting of the International Ethological Conference, Australasian Society for the Study of Animal Behaviour, Australasian Evolution Society, Cairns
- 2011 **Cain, KE & KA Rosvall.** Behavior 2011, the joint meeting of the International Ethological Conference and Animal Behavior Society, Bloomington, IN.
[Female competition for breeding resources: Traits, mechanisms and modes of selection.](#)

INVITED SEMINARS

- (2015) **Invited Symposium.** Behaviour 2015. *Endocrine control of behaviour: the avian perspective.* Cairns, AUS.
- (2015) **Invited Symposium.** Behaviour 2015. *Female Song: Fitness Costs & Benefits.* Cairns.
- 2014 Centre for Integrative Ecology Seminar Series. Deakin University, AUS
- 2013 Evolution, Ecology & Genetics Series. Australian National University, AUS
- 2012 Mountain Lake Biological Station Seminar Series, Virginia, USA
- 2012 Ecology & Evolution seminar series, University of Virginia, USA
- 2012 Ecology, Evolution & Behavior Seminar series, Indiana University, USA
- 2011 **Invited Symposium.** Behaviour 2011. Bloomington, IN
Mechanisms & Consequences Of Female Competition: Hormones, Genes & Fitness.

SELECTED CONFERENCE PRESENTATIONS

- 2014 The 15th Congress of the Intl. Society of Behavioral Ecology, NYC, NY
- 2014 Society for Integrative & Comparative Biology, Austin, TX
- 2013 Australasian Evolution Society, Geelong, Australia
- 2010 The 13th Congress, of the Intl. Society of Behavioral Ecology, Perth, AUS
- 2010 Society for Integrative & Comparative Biology, Seattle, WA
- 2009 Society for Integrative & Comparative Biology, Boston, MA
- 2008 The American Ornithologists' Union, Portland, OR
- 2008 Society for Integrative & Comparative Biology, San Antonio, TX

TEACHING EXPERIENCE

Awards

- 2009 **Favorite Teaching Faculty Award,** [Biology of Birds](#) course.

Primary Instructor / Adjunct Professor

- 2012 [The Field Biology of Sex.](#) Upper level biology course. University of Virginia.

Associate Instructor

- 2008 *Biology of Birds*. Indiana University, spring semester
2007 *Biology of Birds*. Indiana University, fall & spring semesters
2006 *Introductory Biology Laboratory*. Indiana University, fall semester

Guest Lectures

- 2014 *Vertebrate Biology*. Australian National University
2008 - 11 *Human Sexuality* (non-majors course). Indiana University, fall & spring semesters

RESEARCH MENTORING EXPERIENCE

PhD Student (Co-Supervised)

- Ongoing C Young (Australian National University). *Mechanisms, function and the evolution of aggression in [crimson finches](#)*.

Thesis Examinations

- 2012 A Fleming (Australian National University), Honours Thesis Examiner.
Social networks in captive lions: Implications for reintroduction programs

Undergraduate and High School Mentoring

- 2013 - 14 K Alford (University of Virginia), Volunteer. *Seasonal patterns in female song*.
2011 - 12 S Bertolini Meli (Bloomington High School, Indiana), Senior project. *Population differences in yolk hormones and digit ratio*.
2009 - 11 M Forquer (Indiana University), Undergraduate research assistant.
2010 T Fetters (Virginia Tech), NSF REU Program. Mountain Lake Biological Field Station, VA. (MLBS). *The role of preen oil in nest predation*.
2009 MS Rich (Swarthmore College), NSF REU Program. MLBS.
*Response of female dark-eyed juncos (*Junco hyemalis*) to simulated intrusions by conspecifics*.
2009 L Chaby (Clarkson University), NSF REU Program. MLBS.
Extrinsic and intrinsic predictors of risk-taking behavior in female songbirds.
2008 KA Ainsworth (Morehouse School of Medicine), NSF REU Program. MLBS.
Does testosterone exposure during development predict maternal aggression?

OUTREACH ACTIVITIES

- Ongoing Personal website, disseminate research information kecain.weebly.com
Ongoing Blog on integrative field research. ww-junco.blogspot.com
2010 Assisted in organizing stations for the [Animal Behavior Fair](#)
2009 Assistant Coach, Science Olympiad Team, Bloomington High, IN
2009 Sassafras Audubon Society. *Females behaving badly: How hormones may regulate infidelity & aggression in songbirds*. Bloomington, IN. **Invited talk**

- 2008 Friends of The Kinsey Institute Graduate Awardees Seminar. *Individual variation in female mating choices: yolk hormones and extra-pair behavior in a female songbird*, Bloomington, IN. **Invited talk**
- 2007 - 11 Outreach presentations for youth groups: 4-H, Future Farmers of America, the Boy Scouts and the Girl Scouts. **Invited talks**

PROFESSIONAL SERVICE

2008 - 12 Steering Committee, Graduate representative, Center for Integrative Study of Animal Behavior (CISAB)

2008 - 12 Panelist for REU special topic meetings at Mountain Lake Biological Station; *Women in Science, The Grad School Experience, and Alternatives to Academia*

Manuscript Reviewing: American Naturalist, Animal Behavior, Behavioral Ecology, Biology Letters, Current Zoology, Frontiers of Ecology and Evolution, Functional Ecology, General & Comparative Endocrinology, Hormones & Behavior, Ibis, Journal of Avian Biology, Journal of Ornithology, PLoS ONE, Philosophical Transactions of the Royal Society B, Proceedings of the Royal Society B, Wilson's Ornithology

Society memberships: *The American Ornithologist Union, The Animal Behavior Society, Australasian Society for the Study of Animal Behaviour, Australasian Evolution Society, Canberra Ornithologist Group, The Cooper Ornithological Society, Indiana Academy of Science, The International Society for Behavioral Ecology, The Society for Integrative & Comparative Biology*

Associate Faculty Member of Faculty of 1000, Biology