**LISA E. SCHWANZ**

*Curriculum Vitae*

# School of Biological, Earth and Environmental Sciences Email: l.schwanz@unsw.edu.au

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# Education

Ph.D. 2006 Biology, University of New Mexico.

Dissertation: *“Reproductive investment when condition varies: optimality models and an experiment with deer mice* *(Peromyscus maniculatus).”*

Committee Chairs: Eric L. Charnov, Astrid Kodric-Brown.

# B.A. 2000 with Honors, Integrative Biology, University of California, Berkeley.

# Advisor: Eileen Lacey.

**Research Interests**

Evolutionary ecology: phenotypic plasticity, response to climate and habitat change, sex allocation, temperature-dependent sex determination, life-history and physiological trade-offs

**Professional Experience**

2015 - **Senior Lecturer,** School of Biological, Earth and Environmental Sciences, University of New South Wales

2013-15 **Senior Lecturer (tenured) and ARC DECRA,** School of Biological, Earth and Environmental Sciences, University of New South Wales

2012-13 **Australian Research Council** Discovery Early Career Researcher Award Fellow, Australian National University. Mentors: J. Scott Keogh, Michael Jennions, Hanna Kokko.

2011-12 University of Canberra Postdoctoral Fellow, University of Canberra. Supervisors: Arthur Georges, Tariq Ezaz, Bernd Gruber.

2009-11 **National Science Foundation** International Research Fellow. James Cook University. Supervisor: Christopher Johnson.

2008-09 Postdoctoral Associate, Cary Institute of Ecosystem Studies. Supervisor: Rick Ostfeld.

2006-08 **National Science Foundation** Postdoctoral Fellow in Biological Informatics, Iowa State University and Edinburgh University. Supervisors: Fredric Janzen, Stephen Proulx, Stuart West.

2001-06 **National Science Foundation** Graduate Research Fellow, University of New Mexico.

2001-02 **National Science Foundation** Biocomplexity Fellow, University of New Mexico.

# Publications

*In preparation or review*

Boyle, M., **L.E. Schwanz**, J. Hone, and A. Georges*.* Dispersal not climate warming determines range expansion in reptiles. In prep for *Ecography.*

**Schwanz, L.E.,** G.A. Cordero, E.L. Charnov, and F.J. Janzen. Sex-specific survival to maturity and the evolution of environmental sex determination. *Evolution i*n review.

**Schwanz, L.E.**, W. Sherwin, K. Ognenovska, E.A. Lacey. Multiple paternity and male reproductive success in a ground squirrel (*Ictidomys parvidens*) with an extended mating season. *Journal of Mammalogy* in revision*.*

**Schwanz, L.E.**, K.A. Robert. Costs of rearing the wrong sex of offspring revealed by cross-fostering. *PLoS ONE* in review*.*

*In press or print*

Halstead, J.E., **L.E. Schwanz**. 2015. Impacts of thermal limitation on thermoregulatory behaviour and reproductive success in a lizard. Australian Journal of Zoology in press.

**Schwanz, L.E.** 2015. Review: *The Evolution of Sex Determination* by Leo W. Beukeboom and Nicolas Perrin. *Quarterly Review of Biology* 90:333-334.

Tan, W.C. and **L.E.** **Schwanz**. 2015. Thermoregulation across thermal environments in a nocturnal gecko. *Journal of Zoology* 296:208-216.

Boyle, M., J. Hone, **L.E. Schwanz**, and A. Georges. 2014. Under what conditions do climate-driven sex ratios enhance versus diminish population persistence? *Ecology and Evolution* 4:4522-4533*.*

Harts, A.M.F., **L.E. Schwanz**, and H. Kokko. 2014.Demography can favour female-advantageous alleles. *Proceedings B* 281 (1790)*.*

Boyle, M., **L.E. Schwanz,** J. Hone, and A. Georges*.* 2014.How do climate-linked sex ratios and dispersal limit range boundaries in reptiles? *BMC Ecology* 14:19*.*

* **Population press coverage** in **BBC Nature http://www.bbc.co.uk/nature/28212783's**
* **Invited blog at BMC Ecology http://blogs.biomedcentral.com/bmcseriesblog/2014/07/10/can-a-bounty-of-females-save-reptile-species-from-climate-change/**

Esquerré, D., J.S. Keogh and **L.E. Schwanz**. 2014. The influence of incubation temperature on morphological, physiological and behavioural traits in jacky dragons (*Amphibolurus muricatus*) *Journal of Thermal Biology* 43:33-39.

**Schwanz, L.E.**, K.A. Robert. 2014. Proximate and ultimate explanations of mammalian sex allocation in a marsupial model. *Behavioral Ecology and Sociobiology* 68:1085-1096.

Roche, DG, Lanfear, R, Binning, SA, Haff, TM, **Schwanz, LE**, Cain, KE, Kokko, H, Jennions, MD, Kruuk, LEB. 2014. Troubleshooting public data archiving: suggestions to increase participation. *PLoS Biology* 12(1): e1001779.

**Schwanz, L.E.** 2013. Untangling the links between climate and demography for reptiles with environmental sex determination. *Animal Conservation* 16:495-497*.*

**Schwanz, L.E.**, T. Ezaz, B. Gruber, A. Georges. 2013. Novel evolutionary transitions between sex-determining mechanisms. *Journal of Evolutionary Biology* 26: 2544–2557.

Robert, K.A., and **L. E. Schwanz**. 2013. Monitoring the health status of free-ranging tammar wallabies using haematology, serum biochemistry and parasite load. *Journal of Wildlife Management* 77:1232-1243 doi: 10.1002/jwmg.561.

# Kahn, A. T., L. E. Schwanz and H. Kokko. 2013. Paternity protection can provide a kick-start for the evolution of male-only parental care. *Evolution* 67:2207-2217.

Booksmythe, I., **L.E. Schwanz**, H. Kokko. 2013. The complex interplay of sex allocation and sexual selection. *Evolution* 67: 673-678. DOI: 10.1111/evo.12003.

**Schwanz, L.E.**, K.A. Robert. 2012. Reproductive ecology of wild Tammar wallabies in natural and developed habitats on Garden Island, Western Australia**.** *Australian Journal of Zoology* 60:111-119.

* **Popular press coverage** inScience Network Western Australia

**Schwanz, L.E.**, A. Previtali, M. Gomes-Solecki, D. Brisson, and R.S. Ostfeld. 2012. Immunochallenge reduces risk sensitivity during foraging in white-footed mice. *Animal Behaviour* 83:155-161.

**Schwanz, L.E.**, M.J. Voordouw, D. Brisson, and R.S. Ostfeld. 2011. *Borrelia burgdorferi* has minimal impact on the Lyme disease reservoir host *Peromyscus leucopus. Vector-Borne and Zoonotic Diseases* 11:117-124*.* doi:10.1089/vbz.2009.0215

**Schwanz, L.E.,** S. McGaugh, D. Warner, R. Di-Terlizzi, and A. Bronikowski. 2011. State-dependent physiological maintenance in a long-lived ectotherm, the painted turtle (*Chrysemys picta*). *Journal of Experimental Biology* 214:88-97.

* **Featured in “Inside JEB”, Short-listed (1 of 8) for JEB Outstanding Paper Prize**

**Schwanz, L. E.**, D. Brisson, M. Gomes-Solecki, and R.S. Ostfeld. 2011. Linking disease and community ecology through behavioural indicators: immunochallenge of white-footed mice and its ecological impacts. *Journal of Animal Ecology* 80:204-214. doi: 10.1111/j.1365-2656.2010.01745.x

Robert, K.A., and **L.E. Schwanz.** 2011. Emerging sex allocation research in mammals: marsupials and the pouch advantage. *Mammal Review* 41(1):1-22.

**Schwanz, L.E.**, R.-J. Spencer, R.M. Bowden, and F.J. Janzen. 2010. Climate and predation dominate early life-stages and adult recruitment in a turtle with temperature-dependent sex determination: insight from a long-term study. *Ecology* 91:3016-3026.

**Schwanz, L.E.**, F.J. Janzen, and S.R. Proulx. 2010. Sex allocation based on relative and absolute condition. *Evolution* 64:1331-1345. doi 10.1111/j.1558-5646.2009.00916.x

Robert, K.A., **L.E. Schwanz**, and H. R. Miller. 2010. Offspring sex varies with maternal investment ability: empirical demonstration based on cross-fostering. *Biology Letters* 6:242-245. doi 10.1098/rsbl.2009.0774.

* **Popular press coverage** inABC Science and Science Alert

McGaugh, S., **L.E. Schwanz**, R.M. Bowden, J.E. Gonzalez, and F.J. Janzen. 2010. Inheritance of nesting behaviour across natural environmental variation in a turtle with temperature-dependent sex determination. *Proceedings of the Royal Society B* 277:1219-1226. doi 10.1098/rspb.2009.1883.

**Schwanz, L.E.**, R.M. Bowden, R.-J. Spencer, and F.J. Janzen. 2009. Nesting ecology and offspring recruitment in a long-lived turtle. *Ecology* 90:1709. Archives E090-119

* Made an 18-year dataset publicly available

**Schwanz, L.E.**, and F.J. Janzen. 2008. Climate change and temperature-dependent sex determination: can plasticity in maternal nesting behavior prevent extreme sex ratios? *Physiological and Biochemical Zoology* 81: 826-834.

* **Top 5 Downloads from PBZ,** month of December 2008

**Schwanz, L.E.**, and S.R. Proulx. 2008. Mutual information reveals variation in temperature-dependent sex determination in response to environmental fluctuation, lifespan and selection. *Proceedings of the Royal Society B* 275:2441-2448.

**Schwanz, L.E.** 2008.Persistent effects of maternal parasitic infection on offspring fitness: implications for adaptive reproductive strategies when parasitized. *Functional Ecology* 22:691-698.

* **popular press coverage** in New Scientist, Iowa State Daily, Science Daily
* **featured in** Faculty of 1000

**Schwanz, L.E.** 2008. Chronic parasitic infection alters reproductive output in deer mice. *Behavioral Ecology and Sociobiology* 62:1351-1358.

**Schwanz, L.E.**, J.G. Bragg, and E.L. Charnov. 2006. Maternal condition and facultative sex ratios in populations with overlapping generations. *American Naturalist* 168(4):521-530.

**Schwanz, L.E.** 2006. Schistosome infection in deer mice (*Peromyscus maniculatus*): impacts on host physiology, behavior, and energetics. *Journal of Experimental Biology* 209:5029-5037*.*

**Schwanz, L.E.** 2006. Annual cycle of activity, reproduction, and body mass in Mexican ground squirrels (*Spermophilus mexicanus*). *Journal of Mammalogy* 87(6):1086-1095.

**Schwanz, L.E.**, and E.A. Lacey. 2003. Olfactory discrimination of gender by colonial tuco-tucos (*Ctenomys sociabilis*). *Mammalian Biology* 68 (1): 53-60.

**Grants, Awards and Fellowships**

2012-15 **Australian Research Council** Discovery Early Career Researcher Award Fellow. Title: *The Battle of the Sexes Heats Up: Climate Change and the Ecological and Evolutionary Fate of Reptiles when Sex is Determined by Temperature.* **AUD$375,000.**

2011-12 University of Canberra Postdoctoral Fellowship.

2008-11 **National Science Foundation** International Research Fellowship Program. Title: *Mammalian sex ratios: linking adaptive hypotheses with physiological mechanisms*. **US$170,444.**

2006-08 **National Science Foundation** Postdoctoral Fellowship in Biological Informatics. Title: *Sex ratios in amniote vertebrates: the importance of environmental predictability***. US$120,000.**

2001-06 **National Science Foundation** Graduate Research Fellowship. **US$108,500.**

2004 American Society of Mammalogists Grant-in-Aid of Research.

2001, 03 Student Research Allocations Committee Research Grant, UNM.

2002-04 Graduate Research Allocations Committee Research Grant, UNM.

2003, 04 Grove Scholarship, UNM.

2002, 03 Graduate Research Development Fund Grant, UNM.

2002 Research, Project, and Travel Grant, UNM.

2001-02 National Science Foundation Biocomplexity Training Grant Fellowship, UNM.

**Teaching and Mentoring**

*Professional Training*

Foundations in University Learning and Teaching Program, 2014

*Teaching - Instructor*

 Advanced Field Biology(3rd year), 2014 ongoing, University of New South Wales.

 Field Research in a Costa Rican Rainforest(3rd year)*,* 2008, Iowa State University.

*Teaching - Lectures*

 Evolution (3rd year), 2014 ongoing, University of New South Wales.

 Animal Behaviour (3rd year), 2014 ongoing, University of New South Wales.

 Vertebrate Zoology (2nd year), 2013, Australian National University.

 Evolution (4th year), 2005, University of New Mexico.

 Animal Behavior (4th year), 2004, University of New Mexico.

*Teaching - Assistantships*

 *Ecology and Evolution* (1st year), 2005, University of New Mexico. Development of online laboratory study guides.

 *Animal Physiology* (1st year), 2005, University of New Mexico. Scoped labs based on inquiry-based learning.

 *Animal Behavior* (4th year)*,* 2005, University of New Mexico.

 *Evolution* (4th year), 2004, University of New Mexico.

*Mentoring*

Ph.D. Maria Boyle (Co-Supervisor), Ph.D. (2013), University of Canberra

Honours Stephanie McDonald (2015)

Undergrad Wei Cheng Tan (3rd year Special Topics in Biology), Australian National University.

Projects Mitchel Hodgson (Summer Vacation Research Scholarship), UNSW

Undergrad Jordann Ash (UNSW), Jason Chu (UNSW), Mitchell Hodgson (UNSW), Naomi Huynh

Research (UNSW), Jessica Rooke (UNSW), Janelle So (UNSW), Nicole Adams (Iowa State

 University), Erin Schultz (University of New Mexico), Hannah Anderson (Univerity of New Mexico), Jeb Brown (University of New Mexico), Lyliana Aguilar (University of New Mexico), Chandra Tweet (University of New Mexico)

High school Kimberly Kreitinger (Gifted Mentorship Program, La Cueva High School)

*Public Outreach and non-University Teaching*

2010 Presentation titled “Wonderful World of Wallabies” to 250 school children (pre-school to year 5) during Science Week 2010, Charnwood-Dunlop Primary, Canberra, ACT.

2007 Public demonstrations of herpetofauna of western Illinois at the Thomson Causeway Recreation Area, as part of the annual Turtle Camp research program.

2007 Public demonstration of local herpetofauna to children aged 5-8 years at a children’s story time at Thomson Public Library (Thomson, IL).

2007-08 Participation in TREE (Turtle Camp Research in Ecology Education), a field experiential education/research program for high school, undergraduate and graduate students from traditionally-underrepresented groups in science. This program was funded by the Ecological Society of America’s SEEDS grant (Strategies for Ecology Education, Development, and Sustainability).

**Additional Professional Experience**

* Fowlers Gap Steering Committee (2015 ongoing)
* Voting Member (2005-2006), Institutional Animal Care and Use Committee, UNM.
* Chair (2004-2006) and Member (2003-2004), Graduate Research Allocations Committee, Biology Graduate Student Association, UNM.
* Complex Systems Summer School, Santa Fe Institute, Budapest, Hungary, July 2002.
* Reviewer: Australian Research Council, National Science Foundation, American Naturalist, Animal Behavior, Ecology, Endangered Species Research, Evolution, Evolutionary Ecology, Functional Ecology, Global Change Biology, Journal of Animal Ecology, Journal of Austral Ecology, Journal of Mammalogy, Journal of Thermal Biology, Ethology, Oecologia, Parasitology, Proceedings of the National Academy of Sciences, Proceedings of the Royal Society B.

**Professional Societies**

Animal Behavior Society, Australasian Evolution Society, Ecological Society of America, Ecological Society of Australia, International Society for Behavioral Ecology, American Society of Mammalogists, Society for Integrative and Comparative Biology.

**Selected Oral and Poster Presentations**

Schwanz, L.E. 2015. Invited Seminar. University of Tasmania, Australia.

Schwanz, L.E. 2015. Invited Seminar. Monash University, Australia.

Schwanz, L.E. Invited Symposium Keynote. 2015. Society for Reproductive Biology.

Schwanz, L.E. Invited Symposium Keynote. 2015. European Society for Evolutionary Biology.

Schwanz, L.E. Invited Plenary Address. 2015. Australian Society of Herpetology.

Schwanz, L.E. and F.J. Janzen. 2013. Evolution, Snowbird, UT

Schwanz, L.E., T. Ezaz, B. Gruber, A. Georges. 2013. Aus. Soc. for Herpetologists, Newcastle, Australia.

Schwanz, L.E. and K.A. Robert. 2012. Internat. Soc. for Behavioral Ecology, Lund, Sweden.

Schwanz, L.E. 2011. Invited Seminar. University of Virginia, VA.

Schwanz, L.E. 2011. Invited Seminar. Australian National University, Canberra, Australia.

Schwanz, L.E., K.A. Robert, H.R. Mills. 2011. Australasian Evolution Soc., Townsville, Australia.

Schwanz, L.E. 2010. Invited seminar. Victoria University Wellington, New Zealand.

Schwanz, L.E., K.A. Robert, H.R. Mills. 2010. Evolution, Portland, OR.

Schwanz, L.E., K.A. Robert, H.R. Mills. 2010. Am. Soc. of Mammalogists, Laramie, WY.

Schwanz, L.E., F.J. Janzen and S.R. Proulx. 2009. Australasian Evolution Soc., Canberra, Australia.

Schwanz, L.E., D. Brisson, M. Gomes-Solecki, R.S. Ostfeld. 2009. Ecological Soc. of America, Albuquerque, NM.

Schwanz, L.E., F.J. Janzen. August 2009. Invited symposium presentation. International Ecology, Brisbane, Australia.

Schwanz, L.E. 2009. Invited seminar. University of Western Australia, Perth, Australia.

Schwanz, L.E., D. Brisson, M. Gomes-Solecki, R.S. Ostfeld. 2009. Soc. for Integrative and Comparative Biology, Boston, MA.

Schwanz, L.E. 2008. Invited seminar. Bard College, NY.

Schwanz, L.E., F.J. Janzen. 2008. Internat. Soc. for Behavioral Ecology, Ithaca, NY, USA.

Schwanz, L.E. 2008. Invited seminar. Oklahoma State University.

Schwanz, L.E., J.G. Bragg, E.L. Charnov. 2006.Internat. Soc. for Behavioral Ecology, Tours, France.

Schwanz, L.E. 2005. Animal Behaviour Soc., Snowbird, UT.

**Advisors and Mentors**

*Ph.D.*

James H. Brown, Distinguished Professor, University of New Mexico

Eric L. Charnov, (Co-Chair), Distinguished Professor, University of New Mexico

Astrid Kodric-Brown, (Co-Chair), Professor, University of New Mexico

John S. Millar, Professor, University of Western Ontario

*Postdoctoral*

Tariq Ezaz, Assistant Professor, University of Canberra

Arthur Georges, Professor, University of Canberra

Bernd Gruber, Assistant Professor, University of Canberra

Fredric Janzen, Professor, Iowa State University

Christopher Johnson, Professor, James Cook University

Richard Ostfeld, Scientist, Cary Institute of Ecosystem Studies

Stephen Proulx, Assistant Professor, Iowa State University

Stuart West, Professor, University of Edinburgh

*ARC DECRA Mentors*

Michael Jennions, Professor and ARC DORA Fellow, Australian National University

J. Scott Keogh, Professor and Head of Division of EEG, Australian National University

Hanna Kokko, Professor and ARC Laureate Fellow, Australian National University

**Referees**

1. Richard Ostfeld, *postdoctoral advisor*

Staff Scientist, Cary Institute of Ecosystem Ecology, Millbrook, NY, USA

Email: ostfeldr@caryinstitute.org, phone: +1-845-677-7600 ext. 136

2. Fredric Janzen, *postdoctoral advisor*

Professor, Department of Ecology, Evolution and Organismal Biology, Iowa State University, USA, email: fjanzen@iastate.edu, phone: +1-515-294-4230.

3. Astrid Kodric-Brown, *doctoral advisor*

Professor, Department of Biology, University of New Mexico, USA, email: kodric@unm.edu, phone: +1-505-277-9336.

4. Eric Charnov, *doctoral advisor*

Distinguished Professor, Department of Biology, University of New Mexico, USA, email: rlc@unm.edu, phone: +1-505-277-2717.