

Amanda J. Lea

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Academic experience and education

Postdoctoral Fellow, Lewis-Sigler Institute for Integrative Genomics &
Department of Ecology and Evolution, Princeton University

- Mentors: Julien Ayroles and Joshua Akey 2017-current

Ph.D. in Ecology, Duke University

- Mentors: Jenny Tung and Susan Alberts 2011-2017

B.S. in Ecology and Evolution, University of California: Los Angeles

- Mentors: Daniel Blumstein and Robert Wayne 2005-2009

Publications and pre-prints (* indicates equal contribution)

AJ Lea, D Martins, J Kamau, M Gurven, JF Ayroles. Urbanization and market-integration have strong, non-linear effects on metabolic health in the Turkana tribe. In review and on *bioRxiv*, <https://doi.org/10.1101/756866>.

AJ Lea*, M Subramaniam*, A Ko, T Lehtimäki, E Raitoharju, M Kähönen, I Seppälä, N Mononen, OT Raitakari, M Ala-Korpela, P Pajukanta, NA Zaitlen*, JF Ayroles*. 2019. Genetic and environmental perturbations lead to regulatory decoherence. *eLife*, 8: e40538.

AJ Lea, CM Vockley, RA Johnston, CA Del Carpio, LB Barreiro, TE Reddy, J Tung. 2018. Genome-wide quantification of the effects of DNA methylation on human gene regulation. *eLife*, 7: e37513.

AJ Lea, MY Akinyi, R Nyakundi, P Mareri, F Nyundo, T Kariuki, SC Alberts, EA Archie, J Tung. 2018. Dominance rank-associated immune gene expression is widespread, sex-specific, and a precursor to high social status in wild male baboons. *Proceedings of the National Academy of Sciences*, 115: E12163-12171.

N Snyder-Mackler*, **AJ Lea***. 2018. Functional genomic insights into the environmental determinants of mammalian fitness. *Current Opinion in Genetics and Development*, 53: 105-112

AJ Lea, J Tung, EA Archie, SC Alberts. 2018. Developmental plasticity: bridging research in evolution and human health. *Evolution, Medicine, and Public Health*, 1: 162-175

LEK Serieys, **AJ Lea**, M Epeldegui, TC Armenta, J Moriarty, S VandeWoude, S Carver, J Foley, RK Wayne, SPD Riley, CH Uittenbogaart. 2018. Urbanization and anticoagulant poisons promote immune dysfunction in bobcats. *Proceedings of the Royal Society Series B*, 285: 20172533

AJ Lea, PAP Durst, TP Vilgalys, J Tung. 2017. Maximizing ecological and evolutionary insight in bisulfite sequencing data sets. *Nature Ecology and Evolution* 1: 1074-1083

P Charruau*, R Johnston*, DR Stahler, **AJ Lea**, N Snyder-Mackler, DW Smith, B vonHoldt, SW Cole, J Tung, RK Wayne. 2016. Pervasive effects of aging on gene expression in wild wolves. *Molecular Biology and Evolution* 33: 1967-1978

- AJ Lea**, J Altmann, SC Alberts, J Tung. 2016. Resource base influences genome-wide DNA methylation levels. *Molecular Ecology* 25: 1681-1696
- AJ Lea**, J Tung*, X Zhou*. 2015. A flexible, efficient binomial mixed model for identifying differential DNA methylation in bisulfite sequencing data. *PLoS Genetics* 11: e1005650
- KP Koepfli, J Pollinger, R Godinho, J Robinson, **AJ Lea**, S Hendricks, RM Schweizer, O Thalmann, P Silva, Z Fan, AA Yurchenko, P Dobrynin, A Makunin, JA Cahill, B Shapiro, F Alvares, JC Brito, E Geffen, JA Leonard, KM Helgen, WE Johnson, SJ O'Brien, B Van Valkenburgh, RK Wayne. 2015. Genome-wide evidence reveals that African golden jackals are a distinct species. *Current Biology* 25: 2158-2165
- AJ Lea**, J Altmann, SC Alberts, J Tung. 2015. Developmental constraints in a wild primate. *The American Naturalist* 185: 809-21
- LEK Serieys, **AJ Lea**, JP Pollinger, SPD Riley, RK Wayne. 2014. Disease and urbanization drive genetic change in urban bobcat populations. *Evolutionary Applications* 8: 75-92
- AJ Lea**, NH Learn, MJ Theus, J Altmann, SC Alberts. 2014. Complex sources of variance in female dominance rank in a nepotistic society. *Animal Behaviour* 94: 87-99
- DM Shier, **AJ Lea**, MA Owen. 2012. Beyond masking: endangered Stephen's kangaroo rats respond to traffic noise with footdrumming. *Biological Conservation* 150: 53-58
- AJ Lea**, DT Blumstein. 2011. Ontogenetic and sex differences influence alarm call response: a meta-analysis. *Ethology* 117: 839-851
- AJ Lea**, DT Blumstein. 2011. Heightened risk reveals state-dependent anti-predator responses in marmots. *Behavioral Ecology and Sociobiology* 65: 1525-1533
- AJ Lea**, DT Blumstein, TW Wey, JGA Martin. 2010. Heritable victimization and the benefits of agonistic relationships. *Proceedings of the National Academy of Sciences* 107: 21587-21592
- DT Blumstein, **AJ Lea**, LE Olson, JGA Martin. 2010. Heritability of anti-predator traits: vigilance and locomotor performance in marmots. *Journal of Evolutionary Biology* 23: 879-887
- AJ Lea**, JP Barrera, LM Tom, DT Blumstein. 2008. Heterospecific eavesdropping in a nonsocial species. *Behavioral Ecology* 19: 1041-1046

Fellowships and awards (since 2011)

Helen Hay Whitney Foundation, Postdoctoral Fellowship	2018-2021
NSF Directorate for Social, Behavioral, and Economic Sciences, Postdoctoral Fellowship (declined for HHWF fellowship)	2018
Finalist for the Life Sciences Research Foundation Postdoctoral Fellowship	2017
Duke University, Biology Department Research Fellowship	2016
Finalist for the Regeneron Prize for Creative Innovation (1 of 2 proposals chosen from Duke University for national competition)	2015
National Evolutionary Synthesis Center and Triangle Center for Evolutionary Medicine, Graduate Student Fellowship	2015
Duke University, Summer Research Fellowship	2014
Duke University, James B. Duke Fellowship	2011-2015

National Science Foundation, Graduate Research Fellowship 2011-2014

Research grants and awards

International Society for Evolution, Medicine, and Public Health, Travel Award: \$500 2015
National Science Foundation, Doctoral Dissertation Improvement Grant: \$20000 2014
Leakey Foundation, Research Grant: \$15000 2014
Duke University, International Dissertation Research Travel Award: \$2000 2014
Society for Molecular Biology and Evolution, Young Investigator Travel Award: \$1500 2013
Duke University, Biology and Evolutionary Anthropology Departments Grants in Aid of Research: \$1000 each 2012, 2013, 2014, 2015
Sigma Xi, Grant-in-Aid of Research: \$1000 2012

Conference presentations

The American Society of Human Genetics: Uncovering the evolutionary history of the Turkana, a desert pastoralist tribe (Poster) upcoming
Animal Behavior Society: To what degree do evolutionary and developmental mismatch affect adult health in the Turkana people? (Invited symposium talk) 2019
The American Society of Human Genetics: Genetic and environmental effects disrupt molecular co-regulation (Talk) 2018
The Biology of Genomes: Genome-wide quantification and prediction of DNA methylation-dependent regulatory activity (Poster) 2017
The International Primatological Society: Early adversity in wild baboons: molecular and demographic insights into human aging (Invited symposium talk) 2016
The Biology of Genomes: A high-throughput, experimental method for quantifying the effects of enhancer methylation on gene expression (Poster) 2016
The Biology of Genomes: A flexible, binomial mixed effects model for differential DNA methylation analysis (Poster) 2015
The International Society for the Study of Evolutionary Medicine and Public Health: Diet influences DNA methylation in a wild primate (Poster) 2015
Society for the Study of Evolution: Resource abundance influences DNA methylation in a wild primate (Talk) 2014
The Biology of Genomes: Resource abundance influences DNA methylation in a wild primate (Poster) 2014
Society for Molecular Biology and Evolution: Social and nutritional effects on DNA methylation in a wild primate (Poster) 2013
American Genetic Association: Characterizing major histocompatibility complex genetic variation in yellow-bellied marmots (Poster) 2011

Invited seminars and presentations

Duke University, Social and Behavioral Determinants of Health Meeting: Urban environments alter cardio-metabolic health in the Turkana people	2019
Wake Forest University, Department of Biology: Evolution and mechanisms of plasticity in wild baboons	2017
UC Conservation Genomics Consortium, Conservation and Gene Expression Workshop: Statistical analysis of DNA methylation data	2016
Princeton University, Department of Ecology and Evolutionary Biology: Early life effects in wild baboons	2015
University of Pennsylvania, Department of Psychology: Evolutionary and mechanistic explanations for early life effects	2015
East Carolina University, Department of Biology: Social and ecological effects on DNA methylation in a wild primate	2014
Duke University, Epigenetics and Epigenomics Symposium: Ecology influences DNA methylation in wild baboons	2014

Teaching and mentoring

Mentor to Princeton University Quantitative and Computational Biology graduate student (Yushi Tang, rotating in the Ayroles lab)	2019
Teaching assistant, Duke University Department of Biology: Behavioral Ecology	2017
Mentor to two Duke University undergraduate students (Yingying Zhang: honors thesis and Meghana Rao: honors thesis, Faculty Scholars Award)	2015-2017
Duke University, Evolutionary Anthropology Department Undergraduate Mentorship Grant	2015, 2016
Guest lecturer, Duke University Program in Computational Biology and Bioinformatics: Statistical Methods in Computational Biology	2015
Teaching assistant, Duke University Department of Evolutionary Anthropology: Primate Disease Ecology	2014
Teaching assistant, Duke University Department of Evolutionary Anthropology: Primate Field Biology	2013
Teaching assistant, UCLA Department of Ecology and Evolutionary Biology: Introduction to Marine Biology	2010

Outreach and service

Princeton University, Representative to the "Committee on Climate for All" (focused on promoting and sustaining diversity)	2019-2020
Duke University, Biology Department Steering Committee Member	2014-2015
Women and Mathematics Mentoring Program Member	2013-2015
Duke University, Behavior and Morphology Seminar Series Organizer	2013-2015

Lowe's Grove Middle School Guest Speaker	2013, 2014, 2015
North Carolina Museum of Natural Sciences Guest Speaker	2013
Duke University, Science Education Outreach Grant Recipient	2012, 2013
Duke University, Community Outreach Committee Member	2012-2013
Duke University, Representative to the Graduate Student Council	2012-2013
YMCA, Youth Development Guest Speaker	2011

Reviewer for: *Molecular Ecology, Proceedings of the National Academy of Sciences, Behavioral Ecology and Sociobiology, Animal Behaviour, The Leakey Foundation, Swiss National Science Foundation, American Journal of Physical Anthropology, Behavioral Ecology, Ibis, Animal Cognition, Ethology, Behaviour, Developmental Sciences, Science of the Total Environment*