

HEATH BLACKMON

College of Biological Sciences,
University of Minnesota,
Saint Paul, MN 55108
coleoguy.github.io
coleoguy@gmail.com

ACADEMIC POSITIONS

2016 – present Postdoctoral Associate, University of Minnesota; College of Biological Sciences
2015 – 2016 Postdoctoral Associate, University of Minnesota; Goldberg Lab
2013 Graduate Fellow, National Evolutionary Synthesis Center

EDUCATION

2015 Ph.D., Quantitative Biology, University of Texas at Arlington
Dissertation: Synthesis and phylogenetic comparative analyses of the causes and consequences of karyotype evolution in arthropods
Major Professor: Jeffery Demuth

2010 B.S., Environmental Science, Oregon State University, Summa Cum Laude

GRANTS

2016	\$102,000	University of Minnesota Grand Challenges Grant – Accepted <i>Sex chromosome aneuploidy: reproductive health in humans and domestic animals and driving forces in the evolution of genome architecture</i>
	\$46,000	BARD Postdoctoral Fellowship – Declined <i>The evolutionary dynamics of ploidy evolution in plants</i>
2013	\$23,000	NESCent Graduate Fellowship – Accepted <i>The Tree of Sex: A comprehensive synthesis of sex determination systems and their evolution in invertebrates</i>

PEER REVIEWED PUBLICATIONS

2016 **13 Blackmon H.,** Ross L, Bachtrog D. Sex determination, sex chromosomes and karyotype evolution in insects. – *Journal of Heredity* doi:10.1093/jhered/esw047

12 Blackmon, H. and J.P. Demuth. An information-theoretic approach to estimating the composite genetic effects contributing to variation among generation means:

moving beyond the joint-scaling test for line cross analysis. – *Evolution* 70:2 420-432.

- 11 Ross, L. and **H. Blackmon**. Sex Determination. In R. Kliman (Ed.) *Encyclopedia of Evolutionary Biology*. 81-88 Elsevier Academic Press. doi:10.1016/B978-0-12-800049-6.00146-3
- 10 Richard Adams; **H. Blackmon**; J. Reyes-Velasco; D. Schield; D. Card; A. Andrew; N. Waynewood; T. Castoe. Microsatellite landscape evolutionary dynamics across 450 million years of vertebrate genome evolution. *Genome* 59:5, 295-310- Editor's choice.
- 2015 9 **Blackmon, H.**, N. Hardy, L. Ross. The evolutionary dynamics of haplodiploidy: genome architecture and haploid viability. *Evolution* 69:11 2971-2978.
- 8 **Blackmon, H.**, and J. P. Demuth. The fragile Y hypothesis: Y chromosome aneuploidy as a selective pressure in sex chromosome and meiotic mechanism evolution. *Bioessays* 37:9 942-950.
- 7 **Blackmon, H.**, and J. P. Demuth. Coleoptera Karyotype Database. *The Coleopterists Bulletin* 69:1 174-175.
- 6 Ross, L., **H. Blackmon**, P. Lorite, V. Gokhman, and N. Hardy. Recombination, chromosome number and eusociality in the Hymenoptera. *Journal of Evolutionary Biology* 28:1 105-116.
- 5 **Blackmon, H.**, and J. P. Demuth. Genomic origins of insect sex chromosomes. *Current Opinion in Insect Science* 7 45-50. – recommended by Faculty of 1000.
- 2014 4 **Blackmon, H.**, and J. P. Demuth. Estimating tempo and mode of Y chromosome turnover: explaining Y chromosome loss with the fragile Y hypothesis. *Genetics* 197:2 561-572.
- 3 Streicher, J. W., T. J. Devitt, C. S. Goldberg, J. H. Malone, **H. Blackmon**, and M. K. Fujita. Diversification and asymmetrical gene flow across time and space: lineage sorting and hybridization in polytypic barking frogs. *Molecular Ecology* 23:13 3273-3291.
- 2 Tree of Sex Consortium; T. Ashman, D. Bachtrog, **H. Blackmon**, E.E. Goldberg, M.W. Hahn, M. Kirkpatrick, J. Kitano, J.E. Mank, I. Mayrose, R. Ming, S.P. Otto, C.L. Peichel, M.W. Pennell, N. Perrin, L. Ross, N. Valenzuela, and J.C. Vamosi. Tree of Sex: A database of sexual systems. *Nature Scientific Data* 1:140015. – responsible for 11,526 invertebrate records and all figures.
- 2012 1 **Blackmon, H.**, and J. P. Demuth. Ring Species and Speciation. *Encyclopedia of Life Science*. www.els.net.

SOFTWARE AND DATABASES

R Packages	chromevoIR: Probabilistic models of chromosome and ploidy evolution <i>github.com/coleoguy/chromevoIR</i> SAGA: Software for the Analysis of Genetic Architecture. <i>github.com/coleoguy/SAGA</i> EvobiR: Evolutionary biology analysis in R. <i>github.com/coleoguy/EvobiR</i>
Databases	Coleoptera Karyotype Database. <i>uta.edu/karyodb/</i> Tree of Sex Database – responsible for invertebrates <i>treeofsex.org</i>
Pedagogy	Popgensim: Wright-Fisher Simulator – undergraduate lab exercise <i>github.com/coleoguy/popgensim</i>

PRESENTATIONS (T – talk P – poster)

2016	James F Crow early career researcher award symposium - The Allied Genetics Conference Genetic Society of America. Florida. – T Evolution Conference joint meeting of SSE, SSB, & ASN. Texas. – P Tel Aviv University, Department of Plant Biology, Israel – T
2015	American Genetics Association: President’s Symposium, Bainbridge Island – T University of Minnesota Postdoctoral Symposium. – P
2014	Arthropod Genomics Conference, Notre Dame, Indiana. 2014 – P University of Texas at Arlington, Genome Biology Group. 2014 – T
2013	University of Texas at Austin, Department of Population Biology. – T
2012	Evolution Conference joint meeting of SSE, SSB, & ASN. Canada. – P
2011	Evolution Conference joint meeting of SSE, SSB, & ASN. Oklahoma. – P

AWARDS AND MINOR GRANTS

2016	Outstanding poster presentation University of Minnesota postdoctoral seminar
2010-2015	Carrizo Oil and Gas Doctoral Student Fellowship – \$10,000 STEM Fellowship – \$104,000
2014	Learning Community Grant - University of Texas at Arlington – \$500 Writing Fellowship - University of Texas at Arlington – \$6,726 Eck Institute for Global Health Travel Grant – \$600
2013	Excellence in Teaching Award - \$500
2012	NESCent Working Group Travel Funds – \$2,300 Department Travel Grant – \$1,125
2010	The Utley Graduate Fellowship - \$2,000

ADDITIONAL TRAINING

2016	Software Carpentry Instructor Training
2015	CIRTL Associate level certification in STEM teaching
2014	Bark Beetle Academy – University of Florida
2012	Bodega Phylogenetics Workshop – University of California Davis
2011	Geometric Morphometrics Workshop – University of Manchester

OTHER PUBLICATIONS

2010 – present	Coleopterists Corner - blog. 100+ posts. 3,000+ views/month
2014	Blackmon, H. Coleoptera Karyotypes: The evolution of sex chromosomes and chromosome number. <i>Newsletter of the Ontario Entomological Society</i> 19:2 19–21

TEACHING EXPERIENCE

(U – undergraduate G – graduate)

Average student evaluation 4.5/5

Developed curricula and primary instructor

2013	Introduction to R for Biologists	G 12 students
2011	Entomology Laboratory	U 60 students

Teaching assistant

2016	Biostatistics	U 60 students
2014	Bioinformatics	G 21 students

Laboratory instructor

2014-2015	Anatomy and Physiology I	U 96 students
2014	Anatomy and Physiology II	U 72 students
2013-2015	Research Methods	U 76 students
2012	Zoology	U 46 students
2010	Introductory Biology (majors)	U 72 students

Guest lectures

2016	Measurement error in PCMs	G 6 students
2015	Reproducible research in R	G 15 students
2014	Phyloinformatics	G 21 students
2012	Graphing in R	G 21 students
2011	Ancestral State Reconstruction	G 14 students
2011	Evolution and Ecology of Insects	U 191 students

PROFESSIONAL MEMBERSHIPS

Genetics Society of America; Society for the Study of Evolution, American Genetics Association; Coleopterists Society; American Society of Naturalists; American Association for the Advancement of Science

JOURNAL REVIEW

Annals of the New York Academy of Sciences; Axios; European Journal of Entomology; Evolution; Genome Biology and Evolution; Heredity; International Journal of Gynecology and Obstetrics Research; Journal of Heredity; Myrmecological News; Proceedings of the Royal Society B; Zoological Science

UNIVERSITY AND COMMUNITY SERVICE

2016 – present Genetics Society of America Board of directors – postdoctoral representative
2015 – present Organize and facilitate the EvolTwin group (evolution group in the Twin Cities)
2010 – present Elementary and Middle School Hands on Science Programs:
Scientific Inference - Fossils and Skeletons: 213 students
Insects Adaptation: 69 students

2016 Allied Genetics Conference poster judge
Grant review for Phi Sigma Biological Sciences Honor Society;
Software Carpentry Instructor: Reproducible research in R - 4 hour module
2015 Software Carpentry Class at University of Texas at Arlington; assistant
Organized and led reading group – Primary literature in undergraduate biology
2014 Formed and moderated foundations of evolutionary biology graduate study group
2012 Session Moderator for ACES conference
Faculty search committee — graduate student representative
2011 Judge for Undergraduate Research Posters at LSAM Conference

REFERENCES

Emma Goldberg
Assistant Professor
University of Minnesota
612-625-5713
eeg@umn.edu

Jeffery Demuth
Associate Professor
University of Texas at Arlington
817-272-2653
jpdemuth@uta.edu

Yaniv Brandvain
Assistant Professor
University Minnesota
612-624-4375
ybrandva@umn.edu