

## HEATH BLACKMON

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### ACADEMIC POSITIONS

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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

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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

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#### Awarded

2016	\$102,000	University of Minnesota Grand Challenges Grant <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 <i>The Tree of Sex: A comprehensive synthesis of sex determination systems and their evolution in invertebrates</i>

#### Pending

2016              NSF preliminary proposal invited for full submission to Systematics and Biodiversity Science cluster  
*Breaking barriers to the study of trait-dependent lineage diversification.*  
PI: Emma Goldberg; I generated preliminary data and wrote sections that involve work that I will lead.

## PEER REVIEWED PUBLICATIONS

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- 2016      **Blackmon H.**, Ross L, Bachtrog D. Sex determination, sex chromosomes and karyotype evolution in insects. – *Journal of Heredity* (in press)
- 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.
- 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
- 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      **Blackmon, H.**, N. Hardy, L. Ross. The evolutionary dynamics of haplodiploidy: genome architecture and haploid viability. *Evolution* 69:11 2971-2978.
- 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.
- Blackmon, H.**, and J. P. Demuth. Coleoptera Karyotype Database. *The Coleopterists Bulletin* 69:1 174-175.
- 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.
- 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      **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.
- 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.
- 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 **Blackmon, H.**, and J. P. Demuth. Ring Species and Speciation. *Encyclopedia of Life Science*. [www.els.net](http://www.els.net).

## SOFTWARE AND DATABASES

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R Packages      chromevolR: Probabilistic models of chromosome and ploidy evolution  
[github.com/coleoguy/chromevolR](https://github.com/coleoguy/chromevolR)

SAGA: Software for the Analysis of Genetic Architecture.  
[github.com/coleoguy/SAGA](https://github.com/coleoguy/SAGA)

EvobiR: Evolutionary biology analysis in R.  
[github.com/coleoguy/EvobiR](https://github.com/coleoguy/EvobiR)

Databases      Coleoptera Karyotype Database.  
[uta.edu/karyodb/](http://uta.edu/karyodb/)

Tree of Sex Database – responsible for invertebrates  
[treeofsex.org](http://treeofsex.org)

Pedagogy      Popgensim: Wright-Fisher Simulator – undergraduate lab exercise  
[github.com/coleoguy/popgensim](https://github.com/coleoguy/popgensim)

## PRESENTATIONS (T – talk P – poster)

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2016      Evolution Conference joint meeting of SSE, SSB, & ASN. Texas. – P  
2016      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

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2016      Outstanding poster presentation University of Minnesota postdoctoral seminar  
2014      Learning Community Grant - University of Texas at Arlington – \$500  
Writing Fellowship - University of Texas at Arlington – \$6,726  
2013      Excellence in Teaching Award - University of Texas at Arlington – \$500  
Eck Institute for Global Health Travel Grant – \$600  
2012      NESCent Working Group Travel Funds – \$2,300

2010-2015	Department Travel Grant – \$1,125 Carrizo Oil and Gas Doctoral Student Fellowship – \$10,000 STEM Fellowship – \$104,000
2010	The Utley Graduate Fellowship - \$2,000

### **ADDITIONAL TRAINING**

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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

### **OTHER PUBLICATIONS**

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2010 – 2016	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**

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(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 comparative analyses	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**

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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**

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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**

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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 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 learning community – 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**

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Emma Goldberg  
Assistant Professor  
University of Minnesota

Jeffery Demuth  
Associate Professor  
University of Texas at Arlington

Yaniv Brandvain  
Assistant Professor  
University Minnesota