

# Chad M. Eliason

## Education

The University of Akron, Akron OH Ph.D. Integrated Bioscience	2014
The University of Akron, Akron OH M.S. Education	2006
Baldwin-Wallace University, Berea OH B.S. Biology	2002

## Appointments

The Field Museum of Natural History, Chicago IL Interdisciplinary Postdoctoral Scientist, Division of Birds Advisor: Shannon Hackett	2016-
The University of Texas at Austin, Austin TX Postdoctoral Scholar, Jackson School of Geosciences Advisor: Julia Clarke	2014-2016

## Publications

- 2016 Riede T, **Eliason CM**, Miller EH, Goller F, Clarke JA. 2016. Coos, booms, and hoots: the evolution of closed-mouth vocal behavior in birds. *Evolution* 70:1734-1746. (***Received extensive media coverage, including The Tonight Night Show with Jimmy Fallon, Time Magazine, NPR Weekend Edition; highlighted in Discover Magazine as one of the top-10 science stories of the year***)
- Iskandar J-P\*, **Eliason CM**, Astrop T, Igic B, Maia R, Shawkey MD. 2016. Morphological basis of glossy red plumage colors. *Biological Journal of the Linnaean Society* 119:477-487.
- Eliason CM**, Shawkey MD, Clarke JA. 2016. Evolutionary shifts in the melanin-based color system of birds. *Evolution* 70:445-455.
- 2015 **Eliason CM**, Maia R, Shawkey MD. 2015. Modular color evolution in ducks facilitated by a complex nanostructure. *Evolution* 69:357-367.
- 2014 **Eliason CM**, Shawkey MD. 2014. Antireflection-enhanced color by a natural graded refracting index (GRIN) structure. *Optics Express* 22:A642-A650. (***Highlighted in Virtual Journal of Biomedical Optics***)
- D'Alba LD, Jones DN, **Eliason CM**, Badawy HT, Shawkey MD. 2014. Antimicrobial properties of a nanostructured eggshell from a compost-nesting bird. *Journal of Experimental Biology* 217:116-1121.

- 2013 **Eliason CM**, Bitton, P-P, Shawkey MD. 2013. How hollow melanosomes affect iridescent colour production in birds. *Proceedings of the Royal Society: B* 280:20131505.
- Maia R, **Eliason CM**, Bitton, P-P, Doucet SM, Shawkey MD. 2013. pavo: an R package for the analysis, visualization and organization of spectral data. *Methods in Ecology and Evolution* 4:906-913.
- 2012 **Eliason CM**, Shawkey MD. 2012. A photonic heterostructure produces diverse iridescent colours in duck wing patches. *Journal of the Royal Society Interface* 9(74):2279-2289. **(Received press coverage in Science and Spiegel Online)**
- 2011 **Eliason CM**, Shawkey MD. 2011. Decreased hydrophobicity of iridescent feathers: a potential cost of shiny plumage. *Journal of Experimental Biology* 214:2157-2163. **(Named as Editor's Choice for that issue of JEB, and as one of the top eight articles of the year; received press coverage in Spiegel Online)**
- Shawkey MD, D'Alba L, Wozny J\*, **Eliason CM**, Koop JAH, Jia L. 2011. Structural color change following hydration and dehydration of iridescent mourning dove (*Zenaida macroura*) feathers. *Zoology (Jena)* 114:59-68.
- 2010 **Eliason CM**, Shawkey MD. 2010. Rapid, reversible response of iridescent feather color to ambient humidity. *Optics Express* 18:21284-92.
- 2007 Blackledge TA, **Eliason CM**. 2007. Functionally independent components of prey capture are architecturally constrained in spider orb webs. *Biology Letters* 3:456-458.
- (\*undergraduate co-author)

## In Revision/Review

D'Alba L, Torres R, Waterhouse G, **Eliason CM**, Hauber M, Shawkey MD. What does the eggshell cuticle do? A functional comparison of eggshell cuticles. For *Physiological and Biochemical Zoology*.

**Eliason CM**, Hudson L\*, Watts T\*, Garza H\*, Clarke JA. Exceptional preservation and the fossil record of tetrapod integument. For *Proceedings B*.

Dongyu H, Clarke JA, **Eliason CM**, Qiu R, Li Q, Shawkey MD, Zhao C, D'Alba L, Jiang J, Xu X. A bony-crested Jurassic dinosaur with iridescent plumage highlights complexity in early paravian evolution. For *Science*.

## Grants and Fellowships

- 2016 Field Museum Interdisciplinary Postdoctoral Scientist fellowship, 2016-2018 (**PI**, \$94,000)
- NSF REU Supplement - Collaborative Research: Phylogenomics of palaeognathous birds and the genomic basis of flightlessness, 2016-2017 (**Senior Personnel**, \$6771)
- 2011 The University of Akron, Tiered Mentoring Research Program (**Co-PI**, \$1000)

## Invited Talks

- 2016 Integrative approaches to understanding acoustic diversity and syrinx evolution in birds  
Language and Communication Across Species course, The University of Texas at Austin
- 2015 Diversity of form and function in the avian integument  
Department Seminar Series, The University of Texas at Austin
- 2014 Linking form and function to understand the evolution of complex traits in birds  
PI Meeting (“NSF EAR 1355292 Collaborative Research: Phylogenomics of palaeognathous birds and understanding the evolution of flightlessness”), Harvard University, Boston, MS, USA. June 30, 2014
- Form-function relationships in iridescent bird feathers: optical and evolutionary implications  
Department Seminar Series, Baldwin-Wallace University, Berea, OH, USA. April 25, 2014.
- 2013 Linking form and function to understand color diversity in birds  
Introductory Physics Course, The University of Akron
- Linking form and function to elucidate the evolution of iridescent colors in birds  
Physiological and Functional Advances in Avian Coloration Symposium, American Ornithological Union Meeting. Chicago, IL. August 13-17, 2013.
- 2012 Diversity of structural colors in birds  
Introductory Physics Course, The University of Akron

## Contributed Presentations (most recent 3 of 12; †poster, ‡talk):

**Eliason CM**, Hudson L, Watts T, Garza H, Clarke JA. Exceptional preservation and the fossil record of tetrapod integument. Geological Society of America annual meeting, Sept 25-28, 2016.†

Riede T, **Eliason CM**, Miller EH, Goller F, Clarke JA. Coos, booms, and hoots: the evolution of closed-mouth vocal behavior in birds. International Congress of Vertebrate Morphology annual conference. Washington D.C. June 29 - July 3, 2016.‡

**Eliason CM**, Clarke JA. Pipelines and methods for visualization and analysis of phenomic data. Society for the Study of Evolution annual conference. Austin, TX. June 17 - 21, 2016.†

## Teaching and Mentorship

### *Instructor*

[The University of Texas at Austin](#)

2016 Research methods, data analysis and visualization in paleobiology  
Developed statistical workshops in R, facilitated active learning and student peer-review.

[The University of Akron](#)

2013 Programming and Applied Statistics using R (12 hour workshop)

### *Teaching Assistant*

[The University of Akron](#)

2012 Comparative Vertebrate Morphology

2010-2012 Microbiology

2011 Ornithology

2009-2010 Principle of Biology

2005 Genetics

2005 Microbiology

### *Research Mentor*

[The University of Texas at Austin](#)

2014-2016 Supervised undergraduate research (8 undergraduates, 1 McNair Scholar)

[The University of Akron](#)

2010-2013 Advised and supervised undergraduate of two undergradates (Jean-Pierre Iskandar, Chance Mitani)

### *Guest Lecturer*

[The University of Akron](#)

2014 Ornithology (3h class)

## **Professional Service and Outreach**

### *Reviewer*

Proceedings B, PLoS One (2), Ecology and Evolution, Journal of Anatomy, Behavioral Ecology and Sociobiology (2), Journal of Applied Spectroscopy, Optics Express (2)

### *Departmental and Society Service*

2015 Society for the Study of Evolution Annual Meeting, July 2015.

2012 Volunteer Science Fair Judge, Buchtel High-School, Akron, OH

2011-2012 Interviewer for the Honors College scholarship program, The University of Akron

2011 Society for Integrative and Comparative Biology Annual Meeting, January 2011.

2005 Volunteer Science Fair Judge, Science and Technology EXPO, Akron, OH

2005 Research mentor, K-12 "Science Buddies" Program, Akron, OH

## **Selected Media Coverage**

New Research Debunks The Dinosaur's Roar (NPR Weekend Edition, July 2016)

Dinosaurs didn't roar. They cooed, according to scientists (CBC Radio, July 2016)

Dinosaurs May Have Cooed Instead of Roared, Scientists Find (Time, July 2016)

Bird feathers with lotus effect (Frankfurter Allgemeine Zeitung, March 2012)

Light of nature: nanostructures [in] duck feathers glisten (Spiegel Online Science, October 2012)

Flashed by a duck (ScienceNOW, April 2012)

## **Society Membership**

Society for the Study of Evolution

## References

Matthew D. Shawkey  
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