Curriculum vitae - Chad M. Eliason

Education

The University of Akron 2014
Ph.D. Integrated Bioscience

The University of Akron 2006
M.S. Education

Baldwin-Wallace University 2002
B.S. Biology

Appointments

Field Museum of Natural History 2016-
Bass Postdoctoral Fellow, Division of Birds
Advisor: Shannon J. Hackett

The University of Texas at Austin 2014-2016
Postdoctoral Scholar, Jackson School of Geosciences
Advisor: Julia A. Clarke

Publications

In Revision/Review

19 Kingsley EP, **Eliason CM**†, Riede T, Li Z, Hiscock TW, Farnsworth M, Thomson SL, Goller F, Tabin CJ, Clarke JA. Identity and novelty in the avian syrinx. In revision at *PNAS*.

18 **Eliason CM** and Clarke JA. Metabolic physiology explains macroevolutionary trends in the melanic color system across amniotes. In revision at *Biology Letters*.

Published or in press

17 Li Z, Clarke JA, **Eliason CM**, Stidham TA, Deng T, Zhou Z. Vocal specialization through tracheal elongation in an extinct Miocene pheasant from China. Accepted at *Scientific Reports*.

16 Dongyu H, Clarke JA, **Eliason CM**, Qiu R, Li Q, Shawkey MD, Zhao C, D'Alba L, Jiang J, Xu X. 2018. A bony-crested Jurassic dinosaur with iridescent plumage highlights complexity in early paravian evolution. *Nature Communications* 9. ***(Received extensive media coverage, including Reuters, Discover Magazine, and National Geographic)***

15 **Eliason CM**, Hudson L*, Watts T*, Garza H*, Clarke JA. Exceptional preservation and the fossil record of tetrapod integument. 2017. *Proceedings of the Royal Society B* 284:20170556. ***(Highlighted in National Science Foundation's Science 360 News)***

14 D'Alba L, Torres R, Waterhouse G, **Eliason CM**, Hauber M, Shawkey MD. 2017. What does the eggshell cuticle do? A functional comparison of eggshell cuticles. *Physiological and Biochemical Zoology* 90:588-599.

13 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-100 science stories of the year)

12 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.

11 **Eliason CM**, Shawkey MD, Clarke JA. 2016. Evolutionary shifts in the melanin-based color system of birds. *Evolution* 70:445-455.

10 **Eliason CM**, Maia R, Shawkey MD. 2015. Modular color evolution in ducks facilitated by a complex nanostructure. *Evolution* 69:357-367.

9 **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)***

8 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.

7 **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.

6 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.

5 **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)***

4 **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)***

3 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.

2 **Eliason CM**, Shawkey MD. 2010. Rapid, reversible response of iridescent feather color to ambient humidity. *Optics Express* 18:21284-92.

1 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,* †*contributed equally*)

Grants and fellowships

2016 Bass Postdoctoral Fellowship, Field Museum of Natural History, 2016-2018 ($95,000)

2015 NSF REU Supplement - Collaborative Research: Phylogenomics of palaeognathous birds and the genomic basis of flightlessness, 2015-2016 ($6771)

2011 The University of Akron, Tiered Mentoring Research Program ($1000)

Invited talks

2018 Morphological and functional diversification in the beaks and feathers of birds, Evolutionary

Morphology Seminar, University of Chicago, March 1.

2017 Mechanisms and evolution of signal traits in birds, Price lab talk, University of Chicago, September 13.

2017 Feathers, fossils, and signal evolution in birds, Armour lecture, Field Museum of Natural History, April 26.

2015 Diversity of form and function in the avian integument, Department seminar series, University of Texas Austin, March 12.

2014 Form-function relationships in iridescent bird feathers: optical and evolutionary implications, Department seminar series, Baldwin-Wallace University, April 25.

2013 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.

Contributed presentations

2018 Papendieck A, Cheah YH, **Eliason CM**, Clarke JA. Mapping Research and Writing Mentorship Assemblages in a Mixed Cohort Course-based Research Experience. International Conference on Learning Sciences, June 23-30.†

2018 Takano OM, Bates JM, Dumbacher JP, Marks BD, Moyle RG, Peterson AT, Wieczorek J, Winkler DW, James HJ, Steadman DW, **Eliason CM**, Stanley EL, Blackburn DC. Inside the Birds of the World: CT-scanning fluid-preserved bird collections via the oVert Thematic Collections Network. AOS April 9-14. †

2018 **Eliason CM**, Hackett SJ. Splashing into water: cranial and biomechanical diversity in a cosmopolitan radiation of birds. SICB annual meeting, January 3-7.‡

2017 **Eliason CM**, Andersen M, Hackett SJ. Can we use biogeography models to understand plumage evolution in birds? Society for the Study of Evolution annual conference, June 23-27.†

2016 **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, September 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 Riede T, **Eliason, CM**, Miller EH, Goller F, Clarke JA. Coos, booms, and hoots: the evolution of closed-mouth vocal behavior in birds. Societ for the Study of Evolution annual conference. Austin, TX. June 17-21.‡

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 **Eliason CM**, Shawkey MD, Clarke JA. Evidence for early shifts in the melanin-based color system of birds. Society for Integrative and Comparative Biology annual conference. Portland, OR, USA. January 3-7.‡

2015 **Eliason CM**, Shawkey MD, Clarke JA. Melanosome shape and color diversity in palaeognathous birds. Evolution conference. Norman, OK. July 28-August 2.‡

2014 **Eliason CM**, Maia R, Shawkey MD. Modular color evolution facilitated by a complex nanostructure in birds. Society for the Study of Evolution annual conference, Rayleigh NC,

June 20-24.‡

2013 Hsiung B-K, **Eliason CM**, Shawkey MD, Blackledge TA. Nanostructural basis for blue color in tarantulas. 19th International Congress of Arachnology. Taiwan. June 23-28.†

2013 **Eliason CM**, Maia R, Shawkey MD. Optics and evolution of iridescence in the wings of ducks. Society for Integrative and Comparative Biology Annual Meeting, San Francisco, CA. January 3-7.‡

2012 **Eliason CM**, Maia R, Shawkey MD. Evolvability of photonic heterostructures in dabbling ducks. Evolution annual meeting. Ottawa, Ontario. July 6-10.†

2011 **Eliason CM**, Maia R, Shawkey MD. Sexual selection and the evolution of colorful wing patches in ducks. Evolution annual meeting. Norman, OK. June 17-21.†

2011 **Eliason CM**, Shawkey MD. Rapid, reversible response of iridescent feather color to ambient humidity. Society for Integrative and Comparative Biology Annual Meeting, Salt Lake City, UT. January 3-7.‡

(†*poster,* ‡*talk*)

Teaching and mentorship

Co-instructor

The University of Texas at Austin
Research methods, data analysis and visualization in paleobiology (Fall 2016)

The University of Akron
Programming and Applied Statistics using R (12h workshop, Fall 2013)

Teaching assistant

The University of Akron
Comparative Vertebrate Morphology (Fall 2012)
Microbiology (Spring 2005, Summer 2005, Fall 2010, Spring 2012)
Ornithology (Fall 2011)
Principle of Biology (Fall 2009, Spring 2010)
Genetics (Fall 2005)

Guest lecturer

The University of Texas at Austin
Language and Communication Across Species (1h class, Oct 31, 2016)

The University of Akron
Ornithology (3h class, Fall 2014)
Electromagnetism and Light (1h class, Fall 2012, 2013)

Research mentor

Field Museum of Natural History
Supervised 10-week long NSF REU research project (Summer 2018)
Supervised undergraduate research in geometric morphometrics (Summer 2017)

The University of Texas at Austin

Supervised 10+ undergraduates in paleontology research (2014-2016)

The University of Akron
Supervised independent undergraduate thesis projects (2010, 2013)

Students supervised: Chance Mitan, Jean-Pierre Iskandar, Jessica Valdes (Denver Museum of Natural History), Hector Garza, Leslie Jordan, Paul Viola (UT Austin), Jenny Le, James Hall, Victor Gonzalez, Rebecca Van Houten, Mitchell Riegler (Virginia Tech MS candidate), Adele Anderson (Brown University graduate), Kris Menghi (Purdue), Lauren Mellenthin (Iowa State University)

Service to profession

Departmental and society service

2018 Judge for student Wake Awards, Society for Integrative and Comparative Biology Annual Meeting
2015 Session Chair, Society for the Study of Evolution Annual Meeting
2012 Interviewer for the Honors College scholarship program, The University of Akron
2011 Session Chair, Society for Integrative and Comparative Biology Annual Meeting

Reviewer

2010- Evolution, Proceedings B, PLoS One, Ecology and Evolution, PeerJ, Journal of Anatomy, Behavioral Ecology and Sociobiology, Journal of Applied Spectroscopy, Optics Express, African Journal of Ecology

Synergistic activity

Community outreach

2017 Field Museum of Natural History, “Speed Science” event, December 11
2017 Park View Elementary School, Science Olympiad program, December 8 (3h)
2017 Evanston Bird Club “How birds make colorful feathers, and why it matters”, September 26
2017 Field Museum of Natural History, “Speed Science” event, September 14
2017 Field Museum of Natural History, donor outreach event, September 7
2017 Field Museum of Natural History, Members’ Night outreach event, May 18
2017 Field Museum of Natural History, High school “talk to a scientist” event, April 19

Blogging

2018 Facebook Livestream event on reconstruction of color in extinct dinosaurs, January 23
2017 Feather blog (https://www.fieldmuseum.org/science/blog/feathers-and-our-feathered-friends)
2017 Facebook post on brain shape in birds, July 18
2017 Facebook Livestream event on feather coloration, Feb 14

High school mentorship

2012 Volunteer judge, Buchtel High-School Science Fair, Akron, OH
2005 Volunteer judge, Science and Technology EXPO, Akron, OH
2005 Research mentor, K-12 “Science Buddies” Program, Akron, OH

References

Julia A. Clarke
Department of Geological Sciences
The University of Texas at Austin
2305 Speedway, Stop C1160
Austin, Texas 78712
tel:512-232-7563
em:julia_clarke@jsg.utexas.edu

Shannon J. Hackett
Life Sciences and Pritzker Lab
Field Museum of Natural History
1400 South Lake Shore Drive
Chicago, IL 60605
tel:312-665-7729
em:shackett@fieldmuseum.org

Matthew D. Shawkey
Department of Biology
Ghent University
K.L. Ledeganckstraat 35, 9000 Gent
em:Matthew.Shawkey@UGent.be

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