

LILIANA D'ALBA ALTAMIRANO, PH.D.

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EDUCATION

- 2007 Ph.D. University of Glasgow, Glasgow, UK.
- 2003 M.Res. Ecology and Environmental Biology, University of Glasgow, Glasgow, UK.
- 2000 B.Sc.(Hons) Biology. Facultad de Ciencias, Universidad Autonoma Estado de Mexico

ACADEMIC AND PROFESSIONAL APPOINTMENTS

- 2013-2015** **Visiting Assistant Professor**, (course developed and taught: Introduction to Biomimicry), The University of Akron, Ohio USA
- 2012-2014** **Visiting Assistant Professor**, (courses taught: Comparative Animal Physiology, Biostatistics, Foundations of Biology, Natural History of Vertebrates, Animal Behavior) The College of Wooster, Ohio USA.
- 2011 spring** **Natural Science Instructor**, University of Akron
- 2009 - 2011** **Postdoctoral research fellow**. Antimicrobial effects of avian incubation. Evolution of color patterns and novel structural colors in birds (Collaborators: Dr. Matt Shawkey). University of Akron, OH, USA.
- 2007-2008** **Postdoctoral research assistant**. Long-term effects of elevated stress hormone levels in early development (Collaborators: Prof. Pat Monaghan, Prof. Neil Evans, Dr. Karen Spencer and Dr. Britt Heidinger). Glasgow University, UK.
- 2004-2007** **Teaching assistant**: Biology First-year level, Invertebrates Third-year level, Animal Physiology First-year level. Statistics First-year Level (University of Glasgow, UK)
- 2002** **Instructor (K-12)**; Ecology and Biology, Estado de Mexico, Mexico.
- 2003** **Research assistant**. Maternal resource allocation and growth of Lesser Black-backed gull chicks (*Larus fuscus*). (Advisor: Prof. Pat Monaghan). University of

Glasgow, UK.

2002 **Field assistant.** Testosterone, colour and reproductive success of Vermilion Flycatcher (*Pyrocephalus rubinus*) males. (Advisors: Dr. Constantino Macias Garcia and Dr. Roxana Torres). Instituto de Ecologia, UNAM.

PUBLICATIONS

* denotes co-supervised undergraduate research student

1. Fecheyr-Lippens DC, Igic B, **D'Alba L**, Hanley D, Waterhouse GIN, Grim T, Hauber ME, Shawkey MD 2015. The cuticle modulates ultraviolet reflectance of avian eggshells. *Biology Open*. doi: 10.1242/bio.012211
2. **D'Alba, L.** and Shawkey M.D. 2015 Mechanisms of antimicrobial defense in avian eggs: A review. *Journal of Ornithology*. doi: 10.1007/s10336-015-1226-1
3. Shawkey M.D., **D'Alba, L.**, Xiao M., Schutte M.* and R. Buchholz. 2014. Ontogeny of an iridescent nanostructure composed of hollow melanosomes. *Journal of Morphology*
4. **D'Alba, L.**, Van Hemert C, Spencer K.A., Heidinger B.J., Gill L., Evans N.P., Monaghan P., Handel C.M., and Shawkey M.D. 2014. Melanin-Based Color of Plumage: Role of Condition and of Feathers' Microstructure. *Integr. Comp. Biol* doi:10.1093/icb/icu094Q.
5. Li, J A. Clarke, K. Gao, C. Zhou, Q. Meng, D. Li, **L. D'Alba** and M.D. Shawkey. 2014 Melanosome evolution indicates a key physiological shift within feathered dinosaurs. *Nature*. doi:10.1038/nature12973
6. **D'Alba, L.**, Jones D.N., Badawy H.T., Eliason C.M., Shawkey M.D. 2014. Antimicrobial properties of a nanostructured eggshell in a bird with a high risk of infection. *Journal of Experimental Biology* 217:1116-1121
7. Field D., **D'Alba, L.**, Vinther J. and Shawkey M.D. 2013. Melanin concentration gradients in extant and fossil feathers. *PloS ONE* . 8(3):e59451
8. Quintana E.*, Manjarrez J.,Martínez-Gómez M., **D'Alba, L.**, Rodríguez-Antolín J., Fajardo V. 2013. Sexual dimorphism in histological characteristics and contractility of the iliofibularis muscle in the lizard *Sceloporus torquatus*. *Acta Zoologica*. doi: 10.1111/azo.12021
9. Li Q., Gao K., Meng Q., Clarke J.A., Shawkey M.D., **D'Alba, L.**, Pei M., Ellison M., A. Norell M., Vinther J. 2012 Reconstruction of Microraptor and the Evolution of Iridescent Plumage. *Science*. 335 (6073): 1215-1219

10. **D'Alba, L.**, Briggs, L.*, Shawkey, M.D. 2012 Relative contributions of pigments and biophotonic nanostructures to natural color production: a case study in Budgerigar (*Melopsittacus undulatus*) feathers. *Journal of Experimental Biology*. 215: 1272-1277.
11. Snyder H. K.*, Rafael Maia R., **D'Alba, L.**, Shultz A.J, Rowe K.M.C., Rowe K.C. Shawkey, M.D. 2012 Iridescent colour production in hairs of blind golden moles (*Chrysochloridae*). *Biology Letters*. doi: 10.1098/rsbl.2011.1168
12. Carney R.M., Vinther J., Shawkey M.D., **D'Alba, L.**, Ackermann J. 2012. New evidence on the colour, ultrastructure, and nature of the isolated *Archaeopteryx* feather. *Nature Communications*. 24:633:637
13. Monaghan P., Heidinger, B.J., **D'Alba, L.**, Spencer, K.A., Evans, N. P. 2012. For better or worse: reduced adult lifespan following early-life stress is transmitted to breeding partners. *Proceedings of the Royal Society B*. 279(1729):709-14
14. **D'Alba, L.**, Van Hemert, C., Handel, C.M., Shawkey, M.D. 2011. A natural experiment on the condition-dependence of achromatic plumage reflectance in black-capped chickadees. *PloS ONE* 6(10): e25877
15. Shawkey M.D., Maia R., **D'Alba L.**, 2011. Proximate bases of silver color in Anhinga (*Anhinga anhinga*) feathers" *Journal of Morphology*. 272, 1399–1407
16. **D'Alba, L.**, Spencer, K.A., Nager R.G. and Monaghan P. 2011 State dependent effects of elevated stress hormones: nest-site quality, corticosterone levels and reproductive performance in the common eider. *General and Comparative Endocrinology*. 172: 218-224
17. **D'Alba, L.**, Saranathan V. Clarke, J.A. Vinther, J.A. Prum, R.O. Shawkey, M.D. 2011 "Colour producing β -keratin nanofibres in blue penguin feathers". *Biology Letters*. 7: 543-6
18. Shawkey M.D., **D'Alba L.**, Wozny J., Eliason C., Koop J. and Jia L. 2011 Structural color change following hydration and dehydration of iridescent mourning dove (*Zenaida macroura*) feathers. *Zoology*. 114: 59-68
19. Maia R., **D'Alba L.**, Shawkey M.D. 2011 What makes a feather shine? A nanostructural basis for glossy black colors in feathers. *Proceedings of the Royal Society B*. 278: 1973-1980 doi: 10.1098/rspb.2010.1637

20. **D'Alba, L.**, Oborn A.*, Shawkey M.D. 2010. Experimental evidence that keeping eggs dry is a mechanism for the antimicrobial effects of avian incubation. *Naturwissenschaften*. 97: 1089-95
21. Clarke J.A., Ksepka D., Salas-Gismondi R., Altamirano A.J., Shawkey M.D., **D'Alba L.**, Vinther J., DeVries J. Baby P. 2010. Fossil evidence for evolution of the shape and color of penguin feathers. *Science* 330: 954-957
22. Spencer, K.A., Heidinger, B.J., **D'Alba, L.**, Evans, N. P. & Monaghan, P. 2010. Then versus now: effect of developmental and current environmental conditions on incubation effort in birds. *Behavioral Ecology*. 21: 999-1004
23. Osorno J.L., Núñez-de la-Mora A., **D'Alba L.** and Wingfield J.C. 2010. Hormonal correlates of breeding behavior in the Magnificent Frigatebird, *Fregata magnificens*. *General and Comparative Endocrinology*. 169: 18-22
24. **D'Alba L.**, Shawkey M.D., Korsten P., Komdeur J. Beissinger S.R. et al. 2010. Differential deposition of antimicrobial proteins in blue tit (*Cyanistes caeruleus*) clutches by laying order and male attractiveness. *Behavioural Ecology and Sociobiology*. 64:1037-1045.
25. Li, Q., Keqin, G., Vinther, J., Shawkey, M.D., Clarke J.A., **D'Alba L.**, Meng, Q., Briggs D.E.G., Prum, R.O. 2010. Plumage color patterns of an extinct non-avian dinosaur. *Science*. 327: 1369-1372
26. **D'Alba L.**, Monaghan P. and Nager R.G. 2010. Local climate change is associated with positive population level effects in an Arctic-nesting duck. *IBIS*. 152: 19-28
27. **D'Alba L.** Monaghan P. and Nager R.G. 2009. Thermal benefits of nest shelter for incubating female eiders. *Journal of Thermal Biology* 34:93-99
28. Bugoni, L., **D'Alba L.**, Furness R.W. 2009 Marine habitat use of wintering spectacled petrels *Procellaria conspicillata* and overlap with longline fishery. *Marine Ecology Progress Series* 374: 273-285
29. Rios-Chelen A., Graves, JA. Torres, R., Serrano-Pinto M., **D'Alba L.**, and Macias-Garcia C. 2008. Intra-specific brood parasitism revealed by DNA micro-satellite analyses in a suboscine bird, the vermilion flycatcher. *Revista Chilena de Historia Natural* 81(1): 21-31
30. **D'Alba L.**, Torres R. 2007. Seasonal egg mass variation and laying sequence in a bird with facultative brood reduction. *The Auk* 124(2): 643–652

31. Verboven N., Evans N.P., **D'Alba L.**, Nager R.G., Blount J.D., Surai P.F., Monaghan P. 2005. Intra-specific interactions influence egg composition in the lesser black-backed gull (*Larus fuscus*). *Behavioural Ecology and Sociobiology* 57 (4): 357-365

GRANTS AND AWARDS

- 2013-2015** National Science Foundation EAR-1146815. "Collaborative Research: Paleocolor-Mechanisms and evolution of plumage color in birds and other dinosaurs" Co-PI with Julia Clarke (U. Texas-Austin) and Matthew Shawkey (U. Akron). \$340,000.
- 2012-2013** National Geographic Waitts Grant . A colorful window to the Tertiary explosion of mammals. Co-PI with Jakob Vinther (University of Bristol, UK) and Matthew Shawkey (U. Akron). \$14,975
- 2011** Jurassic Foundation research grant. Building a comprehensive database for reconstruction of non-avian dinosaur color from fossilized melanosomes. \$3,000
- 2010** AOU post-doctoral travel grant
- 2007** Glasgow Natural History Society Small project grant
- 2005** ASAB travel grant
- 2003** The European commission – ARI program visiting fellowship
- 2003-2005** ORS Universities UK Student Scholarship
- 2002-2006** Conacyt-Mexico Postgraduate scholarship

COMMUNICATIONS PRESENTED AT CONFERENCES

Invited talks

- 2015** St. Mary's College, Moraga, California
- 2014** 26th IOC International Ornithological Conference. Antimicrobial properties of eggshells in an ecological context.
- 2014** Annual Meeting of the Society for Integrative & Comparative Biology. Mechanisms of condition-dependent variation in melanin-based plumage color.
- 2013** Ohio State University, Columbus, Ohio
- 2012** 56th American Chemical Society Annual Meeting. A Microscopic Perspective to Extant and Dinosaur Color.

Regular meetings

- 2014** 15th ISBE International Behavioral Ecology Congress. **D'Alba L.** Antimicrobial properties of eggshells in an ecological context
- 2013** Annual Meeting of the Society for Integrative & Comparative Biology. **D'Alba L.** Badawy H. Jones D. Shawkey M. Antimicrobial egg defense in Australian Brush Turkeys.
- 2012** 14th International Behavioral Ecology Congress. **D'Alba L.** Badawy H. Jones D. Shawkey M. Mechanisms of egg defense in megapodes: avoiding infection in a compost heap.
- 2011** 1st International Symposium on Natural Photonic Structures. **D'Alba, L.** Shawkey M.D. Relative contribution of pigments and structure to color production in budgerigar (*Melopsittacus undulatus*) feathers.
- 2010** 128th COS/AOU/SCO Joint Meeting. **D'Alba, L.** Shawkey M.D. Moisture reduction as a mechanism for the antimicrobial effect of avian incubation.
- 2009** 46th Animal Behavior Society annual meeting. **D'Alba, L.** Antimicrobial defense of early-laid eggs facilitates delayed onset of incubation in eiders.
- 2008** 12th ISBE International Behavioral Ecology Congress. **D'Alba, L.** Effects of nesting conditions on physiological demands of incubation in Common Eiders.
- 2007** 31st Meeting of the Waterbird Society **D'Alba L.** Effects of Nest Structure and Clutch Size on the Breeding Performance and Physiology of Incubating Female Eiders (*Somateria mollissima*)
- 2007** EGI Student Ornithology Conference. **D'Alba, L.** How can climate change affect energetic costs and reproductive success of incubating Common Eiders?
- 2006** 11th ISBE International Behavioral Ecology Congress. **D'Alba, L.** Nager R & Monaghan P. Location location location: spatial nest distribution and incubation success in the Common Eider.
- 2006** 24th IOC International Ornithological Congress **D'Alba, L.** The role of nest site and structure in incubation performance in the Common Eider.
- 2005** 29th IEC Ethological Congress. **D'Alba, L.** Nager R & Monaghan P. Building for success: The role of nest site and structure in incubation performance in the common eider (*Somateria mollissima*).

TECHNICAL SKILLS

- Proficiency in Course management systems: Moodle and Desire2Learn
- Certification in online course development (Instructional Services, UAkron 2014)
- Software: R, ArcView (GIS), SPSS, Microsoft Office, SigmaPlot, Adobe Photoshop
- Statistical methods: generalised linear models, model selection, mixed models, non-parametric statistics, basic spatial statistics (using ArcView).
- Field skills: bird banding, mist-netting, blood sampling, vertebrate surveying methods.
- Lab skills: Training in scanning (JEOL JSM-7301F) and transmission (JEOL JEM-1011) electron microscopy, histological preparation of samples, basic molecular techniques, endocrinology and microbiology.

ACADEMIC SERVICE, & PUBLIC OUTREACH

- Manuscript reviewer for: Behavioral Ecology and Sociobiology, AUK, Biology Letters, PLoS ONE, Waterbirds, IBIS, General and Comparative Endocrinology, Naturwissenschaften, Functional Ecology, Journal Of Avian Biology, Bird Study.
- Membership in Professional Societies: Society for Comparative and Integrative Biology, British Ecological Society; International Society for Behavioral Ecology, The American Ornithologist Union.
- *Contributor to Today's Science: Science News Written Especially for Students, 2014*
- *Biology and zoology judge at Akron Public Schools science fair 2012 and 2013*
- *Festival of Science, University of Glasgow zoology booth, York UK, 2007*

LANGUAGES

Spanish: Native language

English: Fluent in reading, writing and speaking.

French: Some reading and writing ability.

Employment status: U.S. Green Card holder

PROFESSIONAL REFERENCES

- Prof. Marilyn Loveless: Department of Biology, John Gaston Mateer Hall 931 The College of Wooster, Wooster, OH 44691, Tel: 330-263-2022, email: mloveless@wooster.edu
- Prof. Pat Monaghan: Graham Kerr Building, University of Glasgow, G12 8QQ, tel: 0141 330 6640 fax: 0141 330 5971, email: P.Monaghan@bio.gla.ac.uk
- Ruedi Nager: Graham Kerr Building, University of Glasgow, G12 8QQ, tel: 0141 330 5976 fax: 0141 330 5971, email: r.nager@bio.gla.ac.uk
- Dr. Karen Spencer: School of Psychology, University of St. Andrews, Fife KY16 9JP, United Kingdom, tel: +44 (0)1334 46 2096, e-mail: kas21@st-andrews.ac.uk
- Dr. Matthew Shawkey: Department of Biology, University of Akron, Akron, OH 44325-3908, Tel: 330-972-8192, email: shawkey@uakron.edu