

EVAN ASHTON ESKEW

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CONTACT INFORMATION

EcoHealth Alliance
460 West 34th Street – Suite 1701
New York, NY 10001
eskew@ecohealthalliance.org

EDUCATION

PhD, Graduate Group in Ecology, University of California, Davis

Dissertation Title: “Emerging fungal diseases of wildlife: drivers and defenses”

Major Advisor: Dr. Brian D. Todd

Graduated December 2016

BS, High Honors in Biology, Davidson College

Magna cum laude, Phi Beta Kappa

Graduated May 2011

POSITIONS

December 2016 - Present

Research Scientist

EcoHealth Alliance

September 2011 - December 2016

National Science Foundation Graduate Research Fellow

University of California, Davis

Fall 2007 - May 2011

Research Technician

Davidson College Herpetology Laboratory

May 2010 - August 2010

Undergraduate Research Fellow

Davidson Research Initiative, Davidson College

June 2009 - August 2009

Undergraduate Researcher

Research Experience for Undergraduates (REU) program,
National Science Foundation

May 2008 - August 2008

Undergraduate Research Fellow

Davidson Research Initiative, Davidson College

PEER-REVIEWED PUBLICATIONS

- Eskew, EA**, and KJ Olival. 2018. De-urbanization and zoonotic disease risk. *EcoHealth* 15: 707-712.
- Eskew, EA**, BC Shock, EEB LaDouceur, K Keel, MR Miller, JE Foley, and BD Todd. 2018. Gene expression differs in susceptible and resistant amphibians exposed to *Batrachochytrium dendrobatidis*. *Royal Society Open Science* 5: 170910. [[GitHub repository](#)]
- Guzy, JC, **EA Eskew**, BJ Halstead, and SJ Price. 2018. Influence of damming on anuran species richness in riparian areas: a test of the serial discontinuity concept. *Ecology and Evolution* 8: 2268-2279.
- Eskew, EA**, and BD Todd. 2017. Too cold, too wet, too bright, or just right? Environmental predictors of snake movement and activity. *Copeia* 105: 584-591. [[GitHub repository](#)]
- Plourde, BT, TL Burgess, **EA Eskew**, TM Roth, N Stephenson, and JE Foley. 2017. Are disease reservoirs special? Taxonomic and life history characteristics. *PLoS ONE* 12: e0180716.
- Nowakowski, AJ, SM Whitfield, **EA Eskew**, ME Thompson, JP Rose, BL Caraballo, JL Kerby, MA Donnelly, and BD Todd. 2016. Infection risk decreases with increasing mismatch in host and pathogen environmental tolerances. *Ecology Letters* 19: 1051-1061.
- Meyer, E, **EA Eskew**, L Chibwe, J Schrlau, SL Massey Simonich, and BD Todd. 2016. Organic contaminants in western pond turtles in remote habitat in California. *Chemosphere* 154: 326-334.
- Eskew, EA**, SJ Worth, JE Foley, and BD Todd. 2015. American bullfrogs (*Lithobates catesbeianus*) resist infection by multiple isolates of *Batrachochytrium dendrobatidis*, including one implicated in wild mass mortality. *EcoHealth* 12: 513-518.
- Eskew, EA**, BD Todd, and WA Hopkins. 2014. Extremely low prevalence of *Batrachochytrium dendrobatidis* infection in Eastern Hellbenders (*Cryptobranchus alleganiensis alleganiensis*) in southwest Virginia, USA. *Herpetological Review* 45: 425-427.
- Eskew, EA**, and BD Todd. 2013. Parallels in amphibian and bat declines from pathogenic fungi. *Emerging Infectious Diseases* 19: 379-385.
- Hunt, SD, JC Guzy, SJ Price, BJ Halstead, **EA Eskew**, and ME Dorcas. 2013. Responses of riparian reptile communities to damming and urbanization. *Biological Conservation* 157: 277-284.
- Kern, MM, JC Guzy, SJ Price, SD Hunt, **EA Eskew**, and ME Dorcas. 2012. Riparian-zone amphibians and reptiles within the Broad River Basin of South Carolina. *Journal of the North Carolina Academy of Science* 128: 81-87.
- Eskew, EA**, SJ Price, and ME Dorcas. 2012. Effects of river-flow regulation on anuran occupancy and abundance in riparian zones. *Conservation Biology* 26: 504-512.

- Price, SJ, **EA Eskew**, KK Cecala, RA Browne, and ME Dorcas. 2012. Estimating survival of a streamside salamander: importance of temporary emigration, capture response, and location. *Hydrobiologia* 679: 205-215.
- Eskew, EA**, SJ Price, and ME Dorcas. 2010. Survivorship and population densities of painted turtles (*Chrysemys picta*) in recently modified suburban landscapes. *Chelonian Conservation and Biology* 9: 244-249.
- Eskew, EA**, SJ Price, and ME Dorcas. 2010. Survival and recruitment of semi-aquatic turtles in an urbanized region. *Urban Ecosystems* 13: 365-374.
- Eskew, EA**, JD Willson, and CT Winne. 2009. Ambush site selection and ontogenetic shifts in foraging strategy in a semi-aquatic pit viper, the Eastern cottonmouth. *Journal of Zoology* 277: 179-186.
- Eskew, EA**, SJ Price, and ME Dorcas. 2008. New distribution records for reptiles and amphibians from the Charlotte-metropolitan area of the western Piedmont of North Carolina. *Herpetological Review* 39: 245-246.

GRANTS AND FELLOWSHIPS

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| 2011 - 2015 | National Science Foundation Graduate Research Fellowship |
| 2014 | Signature Research in Genomics Program Award (co-authored with BD Todd) Office of Research. University of California, Davis. \$40,527. |
| 2014 | Wildlife, Fish & Conservation Biology Graduate Student Award
Wildlife, Fish & Conservation Biology Department. University of California, Davis. \$1,000. |
| 2014 | Henry A. Jastro Research Fellowship
Graduate Group in Ecology. University of California, Davis. \$3,000. |
| 2014 | Phil and Karen Drayer Wildlife Health Center Fellowship Award
Karen C. Drayer Wildlife Health Center, School of Veterinary Medicine. University of California, Davis. \$5,000. |

TEACHING EXPERIENCE

Instructor

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| 2019 | EEEB UN3005/GR5005 – Introduction to Statistics for Ecology and Evolutionary Biology [GitHub repository]
Columbia University. Spring semester. |
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- 2014 **WFC 198 – Nature, Wilderness, and Conservation**
University of California, Davis. Winter quarter.

Teaching Assistant

- 2016 **WFC 154 – Conservation Biology**
University of California, Davis. Fall quarter.
Responsibilities: provided feedback on term paper proposals (topic: endangered species recovery plans) and graded final drafts, guest lectured, graded three exams
- 2015 **RST 1H – Sex, Marriage, and Divorce in Medieval and Modern Society**
University of California, Davis. Fall quarter.
Responsibilities: led weekly discussion sections which included content review and writing instruction, graded two essays and final exam
- 2013 **EVE 134L – Herpetology Laboratory**
University of California, Davis. Spring quarter.
Responsibilities: primary lab instructor and grader, administered lab practicals, designed lab activities, organized and led field trips

Invited Lectures

- 2018 **The Hunt for Ecological Drivers: Statistical Modeling in Conservation and Disease Ecology**
Ecology, Evolution and Environmental Biology Department. Columbia University. 4 September.
- 2018 **Estimating Viral Diversity in Wildlife Hosts**
CSIRO Cutting Edge Science Symposium: Advancing ecological modelling for the prediction of emerging infectious disease risk. Canberra, Australia. 1 May.
- 2016 **Emerging Infectious Diseases of Herpetofauna**
Northern California Herpetological Society. Sacramento, CA. 4 March.
- 2015 **Chytridiomycosis (and Other Emerging Wildlife Diseases)**
The Wildlife Society – UC Davis Student Chapter. University of California, Davis. 13 May.
- 2014 **A Plague o’ Both Your Houses! – How Complex Human-Wildlife Interactions Drive Disease Emergence in Both Humans and Wildlife**
Ecological Effects of Global Anthropogenic Change mini-symposium. Folsom Lake College. 22 April.

Guest Lectures

- 2016 **Disease, Extinction, Conservation**
WFC 154 – Conservation Biology. University of California, Davis. 17 October.

- 2015 **Disease and Extinction**
WFC 154 – Conservation Biology. University of California, Davis. 23 October.
- 2015 **Investigating Amphibian Declines**
VME 158 – Infectious Disease in Ecology and Conservation. University of California, Davis. 25 February.
- 2014 **Disease and Extinction**
WFC 154 – Conservation Biology. University of California, Davis. 29 October.
- 2014 **Investigating Amphibian Declines**
VME 158 – Infectious Disease in Ecology and Conservation. University of California, Davis. 5 March.
- 2014 **Introduction to Disease Evolution**
VME 158 – Infectious Disease in Ecology and Conservation. University of California, Davis. 8 January.
- 2013 **Disease and Conservation**
WFC 154 – Conservation Biology. University of California, Davis. 18 October.
- 2013 **Conservation Biology and Disease**
EVE 198 – Undergraduate Seminar Series in Conservation Biology. University of California, Davis. 16 January.
- 2012 ***In Situ* Conservation**
WFC 154 – Conservation Biology. University of California, Davis. 21 November.

Workshops

- 2015 **Instructional Assistant, R Bootcamp**
University of California, Davis. 14 September.
- 2015 **Instructional Assistant, Software Carpentry (R, Git, and the Unix shell)**
University of California, Davis. 6-7 July.
- 2014 **Certificate Recipient, A Learner-Centered Approach to Effective Teaching**
University of California, Davis.

Other Teaching Activities

- 2014 - 2016 **Volunteer Teacher**, Kids into Discovering Science program
University of California, Davis. Winter and spring quarter.

2014 - 2015 **Group Leader**, Graduate Group in Ecology National Science Foundation
Graduate Research Fellowship Workshop
University of California, Davis. Fall quarter.
In 2014: six graduate student mentees; **three received NSF GRF awards**,
one received Honorable Mention.

AWARDS AND HONORS

- 2016 **Second Runner-Up - Herpetologists' League Graduate Research Award**
Joint Meeting of Ichthyologists and Herpetologists. New Orleans, LA. 6-10 July.
- 2016 **First Place**
Signature Research in Genomics Symposium. Davis, CA. 30 June.
- 2015 **Best Talk**
Graduate Student Symposium in Ecology. Davis, CA. 14 February.
- 2011 **Tom Daggy Biology Award**
Awarded by Davidson College Biology Department in recognition of "outstanding academic achievement, leadership and service, and a love of exploring the secrets of life."
- 2011 **Brooks/Cole Cengage Learning Student Research Award in Aquatic Biology**
Association of Southeastern Biologists annual meeting. Huntsville, AL. 13-16 April.
- 2011 **Runner Up - Eugene P. Odom Award**
Association of Southeastern Biologists annual meeting. Huntsville, AL. 13-16 April.
- 2008 **First Runner Up - ASB Student Poster Award**
Association of Southeastern Biologists annual meeting. Spartanburg, SC. 16-19 April.
- 2007 **First Place - Outstanding Oral Presentation in Zoology (Mentored)**
South Carolina Junior Academy of Science. Columbia, SC. 20 April.
- 2007 **First Place - Outstanding Written Presentation in Zoology (Mentored)**
South Carolina Junior Academy of Science. Columbia, SC. 20 April.

Travel Awards

- 2016 **Society for the Study of Amphibians and Reptiles Student Travel Award**
Joint Meeting of Ichthyologists and Herpetologists. New Orleans, LA. 6-10 July.
- 2015 **American Society of Ichthyologists and Herpetologists Graduate Student Travel Award**
Joint Meeting of Ichthyologists and Herpetologists. Reno, NV. 15-19 July.

2011 **David C. Grant Travel Award**

Awarded by Davidson College Biology Department to attend the Joint Meeting of Ichthyologists and Herpetologists. Minneapolis, MN. 6-11 July.

2008 **Society of Wetland Scientists Student Travel Award**

Association of Southeastern Biologists annual meeting. Spartanburg, SC. 16-19 April.

CONFERENCE ACTIVITY

Oral Presentations

Eskew, EA, BC Shock, EEB LaDouceur, K Keel, MR Miller, JE Foley, and BD Todd. 2018. Gene expression differs in susceptible and resistant frogs exposed to the pathogen *Bd*. Student Conference on Conservation Science - New York. New York, NY. 24-26 October.

Eskew, EA. 2018. "We are in between stories": teaching conservation within its deep cultural contexts. Integrative Conservation Conference. Athens, GA. 20-23 September. [[Link to slides](#)]

Eskew, EA, BC Shock, EEB LaDouceur, K Keel, MR Miller, JE Foley, and BD Todd. 2016. Gene expression differs in susceptible and resistant amphibian hosts exposed to the fungal pathogen *Batrachochytrium dendrobatidis*. Amphibian Pathogens Annual Meeting. Tempe, AZ. 12-13 November.

Eskew, EA, MR Miller, JE Foley, and BD Todd. 2016. Comparative transcriptomics of two amphibian host species exposed to the emerging fungal pathogen *Batrachochytrium dendrobatidis*. Joint Meeting of Ichthyologists and Herpetologists. New Orleans, LA. 6-10 July.

Eskew, EA, MR Miller, JE Foley, and BD Todd. 2016. Comparative transcriptomics of two amphibian host species exposed to the emerging fungal pathogen *Batrachochytrium dendrobatidis*. Signature Research in Genomics Symposium. Davis, CA. 30 June.

Eskew, EA. 2016. Comparative transcriptomics of two amphibian host species exposed to the emerging fungal pathogen *Batrachochytrium dendrobatidis*. 17th Annual Bay Area Conservation Biology Symposium. Palo Alto, CA. 7 May.

Eskew, EA. 2016. Amphibians in an age of extinction. UC Davis Grad Slam Competition - Final Round. Davis, CA. 8 April.

Eskew, EA. 2016. Amphibians in an age of extinction. UC Davis Grad Slam Competition - Qualifying Round. Davis, CA. 1 March.

Eskew, EA, MR Miller, JE Foley, and BD Todd. 2015. Both sides of the coin: host and pathogen influence chytridiomycosis disease outcome. Joint Meeting of Ichthyologists and Herpetologists. Reno, NV. 15-19 July.

- Eskew, EA.** 2015. Both sides of the coin: host and pathogen influence disease outcome in an emerging amphibian disease. Graduate Student Symposium in Ecology. Davis, CA. 14 February.
- Eskew, EA, SJ Price, and ME Dorcas.** 2014. Effects of flow regulation on anuran occupancy and abundance in riparian zones. California Aquatic Bioassessment Workgroup - California Chapter Society of Freshwater Science Annual Meeting. Davis, CA. 18-19 November.
- Eskew, EA, SJ Price, and ME Dorcas.** 2011. Effects of flow regulation on anuran occupancy and abundance in riparian zones. Joint Meeting of Ichthyologists and Herpetologists. Minneapolis, MN. 6-11 July.
- Eskew, EA, SJ Price, and ME Dorcas.** 2011. Effects of flow regulation on anuran occupancy and abundance in riparian zones. Association of Southeastern Biologists annual meeting. Huntsville, AL. 13-16 April.
- Eskew, EA, A Krawczak, and SM Whitfield.** 2010. Responses of terrestrial herpetofauna to secondary forest regeneration at La Selva Biological Station, Costa Rica. Association of Southeastern Biologists annual meeting. Asheville, NC. 7-10 April.
- Eskew, EA, SJ Price, and ME Dorcas.** 2009. Survivorship and recruitment of painted turtles (*Chrysemys picta*) in complex suburban landscapes. Association of Southeastern Biologists annual meeting. Birmingham, AL. 1-4 April.
- Eskew, EA, JD Willson, and CT Winne.** 2007. Ambush site selection and ontogenetic shifts in foraging strategy in a semi-aquatic pit viper, the eastern cottonmouth, *Agkistrodon piscivorus*. Written and Oral Presentation. South Carolina Junior Academy of Science. Columbia, SC. 20 April.

Poster Presentations

- Eskew, EA, D Montecino-Latorre, N Randhawa, KJ Olival, P Daszak, JAK Mazet, and The PREDICT Consortium.** 2018. Pregnancy and other drivers of viral detection in bat hosts. The Fifth International One Health Congress. Saskatoon, Canada. 22-25 June.
- Eskew, EA, MR Miller, JE Foley, and BD Todd.** 2016. Comparative transcriptomics of two amphibian host species exposed to the emerging fungal pathogen *Batrachochytrium dendrobatidis*. Signature Research in Genomics Symposium. Davis, CA. 30 June.
- Eskew, EA, SJ Price, and ME Dorcas.** 2011. Survivorship and population densities of painted turtles (*Chrysemys picta*) in recently modified suburban landscapes. Joint Meeting of Ichthyologists and Herpetologists. Minneapolis, MN. 6-11 July.
- Eskew, EA, SJ Price, and ME Dorcas.** 2009. Survivorship and recruitment of painted turtles (*Chrysemys picta*) in complex suburban landscapes. Southeastern Partners in Amphibian and Reptile Conservation annual meeting. Montreat, NC. 19-22 February.

Eskew, EA, JD Willson, and CT Winne. 2008. Ambush site selection and ontogenetic shifts in foraging strategy in a semi-aquatic pit viper, the eastern cottonmouth, *Agkistrodon piscivorus*. Association of Southeastern Biologists annual meeting. Spartanburg, SC. 16-19 April.

Eskew, EA, JD Willson, and CT Winne. 2008. Ambush site selection and ontogenetic shifts in foraging strategy in a semi-aquatic pit viper, the eastern cottonmouth, *Agkistrodon piscivorus*. Southeastern Partners in Amphibian and Reptile Conservation annual meeting. Athens, GA. 21-24 February.

OUTREACH AND PROFESSIONAL ACTIVITIES

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| 2013 - 2016 | Amphibian and Reptile Team Advisor , Wild Campus
University of California, Davis. |
| 2016 | Invited Panelist , SSAR Graduate Student Workshop (“Grant Writing for Students”)
Joint Meeting of Ichthyologists and Herpetologists. New Orleans, LA. 8 July. |
| 2014 - 2015 | Graduate Student Member , Graduate Group in Ecology Awards
Committee
University of California, Davis. |
| 2015 | Herpetology Interpreter , Biodiversity Museum Day
University of California, Davis. 8 February. |

Written Communications

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| 2014 | Conservation Conversations [Link to article]
Ecology Graduate Student Association blog. 21 February. |
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Review Editor

EcoHealth

Referee (Journal Articles)

American Midland Naturalist, Biotropica, BMC Infectious Diseases, Chelonian Conservation and Biology, Copeia, Diversity and Distributions, Ecology, Herpetological Conservation and Biology, Herpetological Journal, Herpetological Monographs, Herpetological Review, Hydrobiologia, Journal of Fish and Wildlife Management, Journal of Herpetology, Journal of Wildlife Management, PLoS Neglected Tropical Diseases, PLoS ONE, Zoologia

Referee (Software)

rOpenSci

MEDIA COVERAGE

2010 Eskew et al. 2009 study (Ambush site selection and ontogenetic shifts in foraging strategy in a semi-aquatic pit viper, the Eastern cottonmouth; *Journal of Zoology* 277: 179-186) covered in *2010 Britannica Book of the Year*

PROFESSIONAL SKILLS

Data manipulation and analysis using R

Hierarchical modeling using Stan

Unix command line and bioinformatics techniques (read processing, *de novo* transcriptome assembly, alignment and quantification)

Survival analyses using Program MARK

Occupancy analyses using Program PRESENCE

Wet-lab techniques (DNA and RNA extraction, quantitative PCR)

Field survey techniques for herpetofauna (opportunistic visual surveys, anuran calling surveys, drift fences, aquatic turtle trapping)

Snake mark-recapture processing (PIT tagging and branding)

Turtle mark-recapture processing (filing of marginal scutes)