

DAVID M. DELANEY

Postdoctoral Researcher

Curriculum vitae
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**Department of Natural Resource Ecology and
Management**

Iowa State University

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EMPLOYMENT

Postdoctoral Researcher, Iowa State University, USA 2023–present
Advisors: Stephen Dinsmore & Tyler Harms

Project: Partnered with the Iowa Department of Natural Resources to advance survey design and analytic techniques to better estimate the number of deer in each of Iowa's 99 counties. This work is focused on long-term (~1980–present) nocturnal spotlight surveys. Partnered with multiple stakeholders to quantitatively assess the positive and negative economic and societal impacts of white-tailed deer across the state.

Postdoctoral Researcher, University of Colorado Boulder, USA 2020–2023
Advisor: Andrew McAdam
Project: Developed modeling techniques for the analysis of correlated response variables to better understand the ecology and evolution of red squirrel reproduction and aging. Developed three grant proposals that sought National Science Foundation funding for the Kluane Red Squirrel Project. Mentored graduate and undergraduate students from four research labs that collaborate as a part of the Kluane Red Squirrel Project.

EDUCATION

Doctor of Philosophy in Ecology and Evolutionary Biology, Iowa State University, USA (2015–2020)

Dissertation: Causes and consequences of variation in maternal investment strategies

Advisor: Fredric Janzen

Master of Science in Biology, University of Alabama at Birmingham, USA (2013–2015)

Thesis: The effects of inter-age class competition on habitat use in a territorial lizard

Advisor: Daniel Warner

Bachelor of Science in Biological Sciences, Eastern Illinois University, USA (2008–2012)

Research: Life-history characteristics of a population of Ring-necked Snakes

Advisor: Stephen Mullin

DATA, ANALYTIC, AND TECHNOLOGICAL SKILLS – proficient in the following

<u>Analytic programs</u>	<u>Graphing software</u>	<u>Field technology</u>
R	R	Radiotelemetry
SAS	SigmaPlot	Thermal loggers (iButton)
JMP	JMP	Accelerometers (HOBO)
ArcMap	Excel	Camera Traps
ArcGIS Pro		PIT tags
MARK		Medical cautery units
Excel		
<u>Modeling experience</u>		<u>Data management programs</u>
Experimental & study design		R
General and generalized linear mixed models		Microsoft Excel
Selection analysis		SQL
Mark-recapture analysis via MARK and RMark		Github
Cormack-Jolly-Seber		ArcMap
Nest Survival		ArcGIS Pro
Repeatability and heritability		
Bayesian hierarchical analysis		
MCMCglmm (multivariate)		
JAGS		
Spatial analysis with R package adehabitatHR		
Accelerometer data analysis		
Distance Sampling & modeling		
N-mixture models		

PUBLICATIONS

Peer-Reviewed Journal Articles

*Denotes undergraduate coauthor

18. Petrullo, L, **DM Delaney**, S Boutin, AG McAdam, JE Lane, R Boonstra, R Palme, B Dantzer. 2022. The glucocorticoid response to environmental change is not specific to agents of selection in wild red squirrels. *Hormones and Behavior* 146:105262.
17. Haines, JA¹, **DM Delaney**¹, AE Wishart, AG McAdam, DW Coltman, JE Lane, B Dantzer, S Boutin. 2022. Sex-specific effects of capital resources on reproductive timing and success in red squirrels. *Behavioral Ecology and Sociobiology* 76:142.
¹ Co-first authors
16. Martinig, AR, HJ Karst, ER Siracusa, EK Studd, AG McAdam, B Dantzer, **DM Delaney**, JE Lane, P Pokharel, S Boutin. 2022. Animal personality: a comparison of standardized assays and focal observations in North American red squirrels. *Animal Behaviour* 190:221–232.
15. Fargevieille, A, AM Reedy, A Kahrl, TS Mitchell, AM Durso, **DM Delaney**, PR Pearson, RM Cox, and DA Warner. 2022. Propagule size and sex ratio influence colonisation dynamics after experimental introduction of a non-native lizard. *Journal of Animal Ecology* 91:845–857.

14. Hinsley, C*, **DM Delaney**, and FJ Janzen. 2021. Use of accelerometers to monitor subterranean movement is challenging in small reptile nests. *Herpetological Review* 51:702–707.
13. **Delaney, DM**, LA Hoekstra, and FJ Janzen. 2021. Age predicts risky investment better than residual reproductive value. *American Naturalist* 4:461–472.
12. **Delaney, DM**, LA Hoekstra, and FJ Janzen. 2020. Becoming creatures of habit: among- and within-individual variation in nesting behaviour shift with age. *Journal of Evolutionary Biology* 33:1614–1624.
11. **Delaney, DM**, and FJ Janzen. 2020. Risk-sensitive maternal investment: an evaluation of parent-offspring conflict over nest site choice in the wild. *Animal Behaviour* 163:105–113.
10. Murphy*, KM, BL Bodensteiner, **DM Delaney**, JT Strickland, and FJ Janzen. 2020. Nest temperatures predict nest emergence of Painted Turtle (*Chrysemys picta*) offspring. *Chelonian Conservation and Biology* 19:72–77.
9. **Delaney, DM**. 2019. Antipredation behavior covaries with body size in Neotropical snakes. *Amphibia-Reptilia* 40:437–445.
8. Janzen, FJ, **DM Delaney**, TS Mitchell, and DA Warner. 2019. Do covariances between maternal behavior and embryonic physiology drive sex-ratio evolution under environmental sex determination? *Journal of Heredity* 110:411–421.
7. **Delaney, DM**, and FJ Janzen. 2019. Offspring dispersal ability covaries with nest-site choice. *Behavioral Ecology* 30:125–133.
6. **Delaney, DM**, FJ Janzen, and DA Warner. 2017. Nesting stage and distance to refuge influence terrestrial nesting behavior of Painted Turtles (*Chrysemys picta*). *Canadian Journal of Zoology* 95:837–841.
5. **Delaney, DM**, and DA Warner. 2017. Effects of age- and sex-specific density on behavior and survival in a territorial lizard (*Anolis sagrei*). *Animal Behaviour* 129:31–41.
4. **Delaney, DM**, and DA Warner. 2017. Adult male density influences juvenile microhabitat use in a territorial lizard. *Ethology* 123(2):157–167.
3. **Delaney, DM**, and DA Warner. 2016. Age- and sex-specific variations in microhabitat and macrohabitat use in a territorial lizard. *Behavioral Ecology and Sociobiology* 70(6):981–991.
2. **Delaney, DM**, MB Lovern, and DA Warner. 2016. Does reduced perch availability affect reproduction in the brown anole? An experimental test in the laboratory. *Journal of Herpetology* 5(2):227–232.
1. Hileman, ET, DR Bradke, **DM Delaney**, and RB King. 2015. Protection by association: implications of scent trailing in neonate Eastern Massasaugas (*Sistrurus catenatus*). *Herpetological Conservation and Biology* 10(2):654–660.

Peer-Reviewed Notes

7. **Delaney, DM**, S Tiatragul, and DA Warner. 2023. *Anolis sagrei*. Arboreal nesting. *Herpetological Review*. In press.
6. **Delaney, DM**, R Brandt, CM Beaumont*, and DA Warner. 2021. *Anolis sagrei*. Egg-carrying behavior. *Herpetological Review* 52(3):643.
5. **Delaney, DM**, CD Cates, and DA Warner. 2014. *Anolis sagrei*. *Gopherus polyphemus* burrow commensalism. *Herpetological Review* 45(4):694.

4. Cates, CD, **DM Delaney**, AM Buckelew*, AM Durso, SS French, AM Reedy, and DA Warner. 2014. *Anolis sagrei*. Cannibalism. *Herpetological Review* 45(3):491.
3. Cates, CD, **DM Delaney**, AM Buckelew*, AM Durso, SS French, AM Reedy, and DA Warner. 2014. *Anolis sagrei*. Egg predation. *Herpetological Review* 45(3):491–492.
2. **Delaney, DM**, CD Cates, AM Buckelew*, Daniel M Delaney*, AM Durso, SS French, AM Reedy, and DA Warner. 2014. *Anolis sagrei*. Prey stealing behavior. *Herpetological Review* 45(2):324–325.
1. **Delaney, DM**, AM Reedy, TS Mitchell, AM Durso, KP Durso*, AJ Morrison*, and DA Warner. 2013. *Anolis sagrei*. Nest-site choice. *Herpetological Review* 44(2):314.

In Review

Petrullo, L¹, **DM Delaney**¹, S Boutin, JE Lane, AG McAdam, B Dantzer. A future food boom rescues the negative effects of cumulative early-life adversity on lifespan in a small mammal. In review.

¹ Co-first authors

Harris, JP, TM Harms, KE Kinkead, PW Frese, **DM Delaney**, EM Buckardt, and SJ Dinsmore. Broad-scale predictions of herpetofauna occupancy and colonization in an agriculturally dominated landscape. In review.

Addis, EA, **DM Delaney**, EI Hunter, MC Mawer, TS Mitchell, PR Pearson, JE Pruett, S Tiatragul, CE Wilmes, DA Warner. Thermal conditions during winter have varied effects on hatchling survival in a Northern population of painted turtles. In review.

In Preparation (draft available)

Delaney, DM, B Dantzer, J Lane, S Boutin, and AG McAdam. Permissive and anticipatory environmental effects shape the offspring size and number tradeoff in a wild mammal with consequences for maternal longevity. In prep.

Delaney, DM, B Dantzer, J Lane, S Boutin, and AG McAdam. Bivariate-response models are better suited to characterize variation in multivariate life histories than traditional univariate-response methods. In prep.

Kariatsumari, K, **DM Delaney**, M Oli, B Dantzer, J Lane, S Boutin, AG McAdam. Age-specific response to a resource pulse drive pace-of-life in wild red squirrels. In prep.

Gilbert, AL, A Fargevielle, **DM Delaney**, AM Durso, JM Hall, AF Kahrl, TS Mitchell, PR Pearson, AM Reedy, RM Cox, DA Warner. Spatiotemporal variation in natural selection after island colonization in an invasive lizard. In prep.

Delaney, DM, AG Klahs*, E Argueta*, AL Carter, and FJ Janzen. Location within nests influences the thermal environment experienced by developing embryos. In prep.

PRESENTATIONS AT SCIENTIFIC MEETINGS

Oral Presentations

2023: Iowa Department of Natural Resources, Wildlife Research Unit Meeting, Ames, Iowa. The role of resource pulses on reproduction and survival in North American red squirrels.

2023: Luncheon Meeting, Ames, Iowa. On the analysis of life-history tradeoffs when covariates or random effects exist.

2022: Kluane Red Squirrel Project Webinar, virtual. Multiple axes of the environment drive differential patterns of selection on red squirrel life-history traits.

- 2021: Kluane Red Squirrel Project Working Group Meeting, virtual. Bivariate-response modeling for the analysis of life-history tradeoffs.
- 2021: Society for Integrative and Comparative Biology, virtual. Age predicts risky investment better than residual reproductive value in a long-lived vertebrate.
- 2020: Kluane Red Squirrel Project Working Group Meeting, virtual. How do environmental variation, individual physiology, and genetic structure interact to shape phenotypic expression?
- 2019: Society for Integrative and Comparative Biology, Tampa, Florida. Risk-sensitive maternal investment: evaluating parent-offspring conflict over nest-site choice.
- 2018: International Society for Behavioral Ecology, Minneapolis, Minnesota. Offspring dispersal ability underpins maternal investment strategies.
- 2018: Iowa Association of Naturalists, Comanche, Iowa. Thirty years of turtle camp: the painted turtle's canvas.
- 2018: ISU Ecology and Evolutionary Biology Symposium, Ames, Iowa. Can offspring dispersal ability influence maternal investment strategies?
- 2018: 3-minute Theses of Ecology, Evolution, and Organismal Biology, Ames, Iowa. Costs and benefits of variation in maternal investment strategies.
- 2018: Society for Integrative and Comparative Biology, San Francisco, California. Can offspring dispersal ability influence maternal investment strategies?
- 2017: Society for Integrative and Comparative Biology, New Orleans, Louisiana. Density of adult lizards (*Anolis sagrei*) and time-of-day influence how juveniles orient themselves on arboreal perches.
- 2016: The Wildlife Society Winter Meeting (Iowa Chapter), Ames, Iowa. Nesting stage and distance to refuge, but not distance to predators, influences terrestrial nesting behavior in an aquatic turtle.
- 2015: Alabama Academy of Science, Livingston, Alabama. Does inter-age class competition influence habitat use in a territorial lizard?
- 2015: UAB Graduate Student Research Days, Birmingham, Alabama. Does inter-age class competition influence habitat use in a territorial lizard?
- 2015: Society for Integrative and Comparative Biology, West Palm Beach, Florida. Does inter-age class competition influence habitat use in a territorial lizard? – Selected to compete in the Division of Animal Behavior's Best Student Presentation Competition.
- 2014: Joint Meeting of Ichthyologists and Herpetologists, Chattanooga, Tennessee. Do adults drive variation in juvenile perching behaviors in a territorial lizard?
- 2014: UAB Graduate Student Research Days, Birmingham, Alabama. Do adults drive variation in juvenile perching behaviors in a territorial lizard? – 2nd Place

Poster Presentations

- 2019: Evolution, Providence, Rhode Island. Age is a good proxy for residual reproductive value in predicting investment behavior in a turtle.
- 2019: ISU Ecology and Evolutionary Biology Symposium, Ames, Iowa. Residual reproductive value does not equal age: methodology for more directly estimating RRV.
- 2016: ISU Ecology and Evolutionary Biology Symposium, Ames, Iowa. Nesting stage and distance to refuge, but not distance to predators, influences terrestrial nesting behavior in an aquatic turtle.

- 2016: Society for Integrative and Comparative Biology, Portland, Oregon. Nesting stage and distance to refuge, but not distance to predators, influences terrestrial nesting behavior in an aquatic turtle.
- 2014: Alabama Academy of Science, Alabama. Patterns of antipredation behavior in a Neotropical snake community.
- 2014: UAB Darwin Day Poster Session, Alabama. Patterns of antipredation behavior in a Neotropical snake community.
- 2012: Midwest Partners in Amphibian and Reptile Conservation, Ohio. Life-history characteristics of a population of Ring-necked Snakes (Colubridae: *Diadophis*) occupying anthropogenic habitat.
- 2012: World Congress of Herpetology, British Columbia, Canada. Life-history characteristics of a population of Ring-necked Snakes (Colubridae: *Diadophis*) occupying anthropogenic habitat.

GUEST AND INVITED LECTURES

- 2021: Walla Walla University Department of Biology Seminar. Causes and consequences of variation in maternal investment strategies in turtles.
- 2020: UCB Statistics Class. Use of general and generalized linear mixed models to assess risk-sensitive maternal investment.
- 2019: ISU Herpetology Class. Causes and consequences of variation in maternal investment strategies.
- 2018: ISU Herpetology Class. Costs and benefits of variation in maternal investment strategies.
- 2018: ISU Herpetology Class. Reptile Mating Systems.
- 2017: ISU Amphibian and Reptile Club. Does dispersal ability of offspring constrain maternal investment in snapping turtles?
- 2017: ISU Herpetology Class. Costs and benefits of variation in maternal investment strategies.
- 2017: ISU Amphibian and Reptile Club. Reptile research in the Pacific Northwest.
- 2016: ISU Herpetology Class. Antipredation behavior and habitat use in reptiles.
- 2016: ISU Amphibian and Reptile Club. Patterns of antipredation behavior in a Neotropical community of snakes.
- 2014: UAB Alpha Lambda Delta Honors Society. Research: How it can get you where you want to go.

TEACHING EXPERIENCE

Instructor of record

- Controversies in Natural Resource Management – Iowa State University
1 semester
- Herpetology Lab – Iowa State University
3 semesters

Teaching Assistantships

- Herpetology Lab – Iowa State University
1 semester
- Principles of Biology II Lab – Iowa State University
2 semesters

Fundamentals of Human Physiology Lab – Iowa State University

1 semester

Introductory Biology II Lab – University of Alabama at Birmingham

2 semesters

Introductory Biology I Lab – University of Alabama at Birmingham

2 semesters

MENTORSHIP

Listed are students mentored

Graduate Student Researchers

Katherine Kariatsumari - Age-specific responses to a resource pulse drive population growth and pace-of-life in red squirrels. Conducted 2021-2023 at UCB. Manuscript in preparation.

Undergraduate Student Researchers

Cecilia Hensley – Do thermal conditions influence hatching and subsequent activity within nests? Conducted in 2019 through ISU. Manuscript published in *Herpetological Review*.

Abby Klahs & Estefany Argueta – Does location within a nest influence the thermal environment experienced by turtle embryos? Conducted in 2018 through ISU. Abby helped conceive the project and collect data as an REU student. Estefany cleaned and formatted the data and began writing the paper as a McNair scholar. Manuscript in preparation.

Kaitlyn Murphy – How do nest thermal conditions influence emergences behaviors in a turtle? Conducted in 2016 & 2017 through ISU as an REU student. Manuscript published in *Chelonian Conservation and Biology*.

Sydney Pulliam – Does female age influence the balance of investing into reproduction vs safety when exposed to elevated risk? Conducted in 2017 as a George Washington Carver intern through ISU.

Dalton Williams – Characterization of the thermal conditions experienced by a turtle outside of its native range. Conducted in 2015 through UAB.

Agam Dhawan – Does adult density and/or sex ratio affect the growth of juvenile lizards? Conducted in 2013 & 2014 through UAB.

Undergraduate Students Teaching Assistants

Marie Peng – Principles of Biology Lab, ISU, 2020

Kelsi Hagerty – Herpetology Lab, ISU, 2017

Madison Sharp & Sarah Baas – Fundamentals of Human Physiology Lab, ISU, 2017

Amanda Kindred – Herpetology Lab, ISU, 2016

High School Student Researchers

Shelby Truckenbrod and Michael Cupicciotti – Turbo turtles: does female age and/or size influence locomotor ability or escape behavior? Conducted during the 2018 NSF funded program Turtle Research and Education in Ecology through ISU.

Isaiah Lieberenz and Nathan Kutok – Are there costs to living in an environment with cacti? Conducted during the 2016 NSF funded program Turtle Research and Education in Ecology through ISU.

High School Student Classwork

Valorie Bohl – Valorie emailed me in 2017 as a student at Valley High School (Iowa) for suggestions on controversial issues in zoology to write an essay about in her Advanced Composition class. She researched and wrote on the issues holding us back, both technologically and ethically, from cloning woolly mammoths.
I attended an Undergraduate Mentor Training Workshop in 2018 at ISU

FIELD WORK EXPERIENCE

Collectively spent more than 18 months conducting field research and tent camping at field sites in FL, OR, WA, IL, IA, CO, Yukon (Canada)

Have (and am comfortable) trapping, handling, and collecting tissue from the following:

- Reptiles (snakes, lizards, and turtles)
- Amphibians (frogs and salamanders)
- Small mammals (squirrels, mice, racoons, opossums)
- Insects (aquatic and terrestrial)

Good at identifying Midwestern trees

Beginner at identifying Midwestern prairie plants

ORGANIZATIONAL AFFILIATIONS

The Wildlife Society
Practical Farmers of Iowa
Society for Integrative and Comparative Biology
American Society of Naturalists

RESEARCH AND TRAVEL SUPPORT

2018: International Society for Behavioral Ecology Travel Award (\$500)
2018: ISU EEB Professional Development Grant (\$500)
2017: ISU GPSS Professional Development Grant (\$180)
2017: Society for Integrative and Comparative Biology Charlotte Mangum Student Support
2016: ISU GPSS Professional Development Grant (\$180)
2016: Society for Integrative and Comparative Biology Charlotte Mangum Student Support
2015: ISU GPSS Professional Development Grant (\$180)
2015: Society for Integrative and Comparative Biology Charlotte Mangum Student Support
2015: Alabama Academy of Science Travel Grant (\$26)
2014: UAB Department of Biology Travel Grant (\$400)
2014: UAB Ireland Travel Grant (\$1,000)
2014: UAB Department of Biology Travel Grant (\$384)
2014: Sigma Xi Grant-in-Aid (\$700)
2014: Alabama Academy of Science Research Grant (\$200)
2012: Arzeni Tropical Biology Award (\$1,000)
2012: Errett & Mazie Warner Award in Zoology (\$1,700)

2012: EIU Biological Sciences Undergraduate Research Grant (\$210)

2011: Embarras Valley Quail Unlimited Scholarship (\$342)

2009: EIU Biological Sciences Undergraduate Research Grant (\$250)

PROFESSIONAL AND SERVICE ACTIVITIES

Journal Referee for –

Biological Journal of the Linnean Society (x2), *Journal of Zoology* (x4), *Canadian Journal of Zoology* (x5), *Journal of Experimental Zoology A* (x3), *Integrative and Comparative Biology*, *Quarterly Review of Biology*, *Breviora*, *Journal of Mammalogy*, *Journal of Herpetology*, *Herpetologica*, *Herpetological Review* (x2), *Life: The Excitement of Biology* (x3), *Herpetological Conservation and Biology* (x4), *Herpetology Notes* (x2), *Asian Herpetological Research*, *PeerJ*, and *Animal Biology* (x2)

Participant, Diversity, Equity, and Inclusion workshop at CU Boulder (2021)

Session chair, SICB annual meeting (2021)

Poster judge, Division of Animal Behavior, SICB (2021)

Participant, Graduate Peer Inclusion Workshop, ISU (2018)

Participant, Project LEA/RN Workshop (Learning Enhancement Action/Resource Network), ISU (2018)

Social Co-chair, Graduate Research in Evolutionary Biology and Ecology, ISU (2018–2019)

Facilities Committee Representative, Graduate Student Organization, ISU (2018–2019)

Associate Editor, Writers' Guild of ISU (2017–2018)

Secretary – Graduate Student Organization, ISU (2016–2017)

Anole Annals Contributor (since 2015)

Outreach presentation – St. Cecilia STEM Club (2015)

Science Fair Judge, Avondale Alabama Middle School (2015)

Graduate Student Committee Member, Herpetologists' League (2014–2016)

Conservation Committee Member, American Society for Ichthyologists and Herpetologists (2014–2015)

Graduate Student Association Senator, UAB (2014–2015)

Mentor, Society for the Study of Amphibians and Reptiles Mentorship Program (2014)

Darwin Day Event Student Organizer, UAB (2014)

Undergraduate Research Expo Judge, UAB (2014)

Reviewer, Gorgas Scholarship, Alabama Academy of Science (2014)

Field Events Coordinator - Marine and Field Biology Club, UAB (2013–2015)

Field assistant, Species Survival Plan for the Eastern Massasauga Rattlesnake, Michigan (2013)

REFERENCES

Steve Dinsmore (Postdoc advisor)
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Ames, Iowa, USA

Andrew McAdam (Postdoc advisor)
Andrew.McAdam@colorado.edu
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Fred Janzen (Ph.D. advisor)
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Kellogg Biological Station
Hickory Corners, Michigan, USA

Dan Warner (M.S. advisor)
Dan.Warner@auburn.edu
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Auburn, Alabama, USA

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Amy Toth (Ph.D. committee member)
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