

## *Curriculum Vitae*

### **Bradley Evan Carlson, Ph.D.**

Byron K. Trippet Assistant Professor of Biology  
Wabash College

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#### **Professional Experience**

2014 - present      Byron K. Trippet Assistant Professor of Biology, Wabash College

#### **Education**

2009-2014      PhD in Ecology, minor in Statistics, The Pennsylvania State University,  
University Park, PA  
Advisor: Dr. Tracy Langkilde  
Dissertation: The evolutionary ecology of intraspecific trait variation in  
larval amphibians

2008      B.S. in Biology, Bethel University, St. Paul, MN  
*Summa cum laude*, Honors Graduate  
Thesis: Temperature and desiccation effects on the antipredator behavior  
of *Centruroides vittatus* (Scorpiones: Buthidae)

#### **Research Interests**

*Evolutionary ecology* – phenotypic diversity, local adaptation, trait integration

*Behavioral ecology* – phenotypic plasticity, predator-prey interactions, personality traits

*Community ecology* – trait-mediated indirect interactions, predation, aquatic ecology

*Zoology* – herpetology, arachnology, comparative morphology

## **Publications**

(\*co-author was undergraduate)

Kashon\*, EAF, and BE Carlson. 2018. Consistently bolder turtles maintain higher body temperatures in the field but may experience greater predation risk. *Behavioral Ecology and Sociobiology* 72:9.

Carlson, BE, and T Langkilde. 2017. Body size variation in aquatic consumers causes pervasive community effects, independent of mean body size. *Ecology and Evolution* 7:9978-9990.

Lambert, MR, Carlson, BE, Smylie, MS, and L Swierk. 2017. Ontogeny of sexual dichromatism in the explosively breeding Wood Frog. *Herpetological Conservation and Biology* 12:447-456.

**Media coverage:** InsideEcology.com

(<https://insideecology.com/2018/02/12/amphibians-that-change-colour/>)

Carlson, BE, and T Langkilde. 2016. The role of resources in microgeographic variation in Red-spotted Newt (*Notophthalmus v. viridescens*) morphology. *Journal of Herpetology* 50:442-448.

Carlson, BE, CJ Thawley, and SP Graham. 2016. Natural History of the Valley and Ridge Salamander (*Plethodon hoffmani*): Demography, Movement, Microhabitats, and Abundance. *Herpetological Conservation and Biology* 11:315-327.

Carlson, BE, Newman\*, J, and T Langkilde. 2015. Food or fear: the response of tadpoles to injured conspecifics depends on hunger. *Hydrobiologia* 743:299-308.

Carlson, BE, and T Langkilde. 2014. Predation risk in tadpole populations shapes behavioural responses of prey but not strength of trait-mediated indirect interactions. *Oikos* 123:1519-1527.

Carlson, BE, McGinley\*, S, and MP Rowe. 2014. Meek males and fighting females: sexually-dimorphic antipredator behavior and locomotor performance is explained by morphology in bark scorpions. *PLOS ONE* 9: e97648.

**Media coverage:** LiveScience.com, ScienceNews.org

Brossman\*, K, Carlson, BE, Stokes, A, and T Langkilde. 2014. Eastern newt (*Notophthalmus viridescens*) larvae alter morphological but not chemical defenses in response to predator cues. *Canadian Journal of Zoology* 92:279-283.

Carlson, BE, and T Langkilde. 2014. No evidence of selection by predators on tadpole boldness. *Behaviour* 151:23-45.

Carlson, BE, and T Langkilde. 2013. Personality traits are expressed in Bullfrog tadpoles during open-field trials. *Journal of Herpetology* 47: 378-383.

Brossman\*, KH, Carlson, BE, Swierk, LN, and T Langkilde. 2013. Aquatic tail size carries over to the terrestrial phase without impairing locomotion in eastern red-spotted newts (*Notophthalmus v. viridescens*). *Canadian Journal of Zoology* 91:7-12.

Carlson, BE, and T Langkilde. 2013. A common marking technique affects tadpole behavior and predation risk. *Ethology* 119:167-177.

Carlson, BE and MP Rowe. 2009. Temperature and desiccation effects on the antipredator behavior of *Centruroides vittatus* (Scorpiones: Buthidae). *Journal of Arachnology* 37:321-330.

***Natural history notes:***

Carlson, BE. Accepted. *Terrapene carolina* (Eastern box turtle). Resistance to egg predation. *Herpetological Review*.

Carlson, BE. 2016. *Lithobates sylvaticus* (Wood frog). Melanistic larva. *Herpetological Review* 47:439.

Carlson, BE, and WS Parker. 2016. Resurrected records: “new” reptile occurrence records for Montgomery County, Indiana. *The Journal of North American Herpetology* 2016:19-22.

Carlson, BE, Williams\*, J, and Langshaw\*, J. 2014. Is synchronized ecdysis in wild rat snakes (*Pantherophis alleghaniensis*) linked to humidity? *Herpetology Notes* 7:471-473.

Carlson, BE. 2014. *Notophthalmus viridescens*: diet. *Herpetological Review* 45:475.

Carlson, BE. 2014. *Lithobates sylvaticus*: egg predation. *Herpetological Review* 45:279.

Carlson, BE. 2014. *Lithobates catesbeianus*: habitat. *Herpetological Review* 45:304-305.

Thawley, CJ and BE Carlson. 2013. Geographic distribution: *Hyla versicolor* (gray treefrog). *Herpetological Review*. 44: 621.

***In preparation/in review:***

Mettler, CA, and BE Carlson. Suppression of Litter Decomposition by *Alliaria petiolata* Requires a Bacterial Soil Community. Submitted.

O'Brien, M.A., Slimmer, S, Camacho, K, Jones, J, Carlson, BE, Tennessen, JB, and T Langkilde. Prior experience with experimental environment affects tadpole response to predator cues. In preparation.

Flock, T, Jones, TE, and BE Carlson. Elevated circulating octopamine increases antipredator aggression in bark scorpions (*Centruroides* spp.) In preparation.

BE Carlson. Intra- and interspecific variation in defensive behavior, locomotor performance, and morphology in scorpions. In preparation.

Belden, AJ, Pich, J, and BE Carlson. Boldness in turtles is consistent in response to humans and natural predators. In preparation.

## **Presentations**

### *Invited seminars:*

Wabash College, Biology Department Seminar. 2018

Indiana State University, Biology Department Seminar. 2017

Purdue University, Ecolunch Seminar Series. 2016

Penn State University, Langkilde Lab guest speaker. 2016.

DePauw University, Biology Department Seminar. 2015.

### *Conference presentations:*

Carlson, BE. 2017. "The ecology of personality in box turtles." Joint Meeting of Ichthyology and Herpetology. Austin, TX.

Carlson, BE. 2016 "Morphological constraints on sprint performance as drivers of anti-predator behavior in scorpions". Invited symposium speaker in *Locomotion and Kinematics: From joints and legs to whole-body performance* symposium at International Congress of Arachnology. Golden, CO.

Carlson, BE. 2016. "The status of the Eastern Box Turtle population at Allee Woods, Indiana, and the behavioral ecology of personality in Box Turtles". Box Turtle Conservation Workshop. Urbana, IL.

Carlson, BE, and T Langkilde. 2014. " Pervasive effects of size variation in tadpoles on pond communities." Society for Integrative and Comparative Biology Annual Meeting. Austin, TX.

Carlson, BE, and T Langkilde. 2013. "Ecological causes and consequences of variation in tadpole behavior." Ecological Society of America Annual Meeting. Minneapolis, MN.

Carlson, BE, and T Langkilde. 2013. "Behavioral variation among tadpole populations: ecological causes and consequences." Society for Integrative and Comparative Biology Annual Meeting. San Francisco, CA.

\* **Best Student Paper** - Oral Presentation, Division of Animal Behavior

BE Carlson and T Langkilde. 2012. "Personality across ontogeny in an amphibian." Society for Integrative and Comparative Biology Annual Meeting. Charleston, SC.

*Conference papers:*

Mina, O, Gall, HE, Carlson, BE, and T Langkilde. 2014. "A preliminary assessment of endocrine disrupting compounds in vernal ponds in central Pennsylvania." 2014 ASABE and CSBE/SCGAB Annual International Meeting. Paper no. 141910944. doi: 10.13031/aim.20141910944

*Poster presentations:*

Carlson, BE. 2017. "Hormonal correlates of personality in box turtles." Joint Meeting of Ichthyologists and Herpetologists. Austin, TX.

Carlson, BE, McGinley, S, and MP Rowe. 2013. "Morphological and behavioral sexual dimorphism in scorpions as compensation for locomotor costs of reproduction." Society for Integrative and Comparative Biology Annual Meeting. San Francisco, CA.

BE Carlson, K Brossman, LN Swierk, and T Langkilde. 2011. "A tail of two newts: Aquatic tail size carries over but does not impair terrestrial locomotion in eastern newts (*Notophthalmus v. viridescens*)." Ecological Society of America Annual Meeting. Austin, TX.

BE Carlson and T Langkilde. 2011. "Does spatial variation in prey resources influence morphological variation among subpopulations of eastern newts?" Ecological Society of America Mid-Atlantic Chapter Annual Meeting. Montclair, NJ.

BE Carlson and MP Rowe. 2008. "Antipredator behaviors and thermal relations in *Centruroides vittatus* (Scorpiones: Buthidae)." Sigma Xi Research Conference. Washington, D.C.

*Other presentations:*

Sugar Creek Association of Wabash Men Luncheon. 2018. Crawfordsville, IN.

Wabash College Ides of August. 2017. Crawfordsville, IN.

Wabash College Ides of August. 2016. Crawfordsville, IN.

## Teaching Experience

### At Wabash College:

*BIO213 Ecology*. Instructor and course designer. 16-28 students. (4x)

*BIO313 Advanced Ecology*. Instructor and course designer. Included Spring Break immersion trip to Everglades. 7-11 students. (2x)

*FRT15P – Freshman Tutorial: Monsters*. Instructor and course designer. 11 students.

*BIO221 Comparative Vertebrate Anatomy*. Instructor and course designer. 15-17 students. (2x)

*BIO112 – General Biology II*. Instructor. 16-21 students (laboratory section), 45-62 students (lecture). (4x)

*BIO 401 Senior Seminar: Pace-of-life syndromes: behavior, physiology, and life history*. Instructor and course designer. 5 students.

*BIO 401 Senior Seminar: Predators and stress hormones*. Instructor and course designer. 5-6 students. (2x)

### At The Pennsylvania State University (as graduate student):

*Mammalian Anatomy*. Laboratory Teaching Assistant.

*Reptiles and Amphibians*. Guest Lecturer. Topic: “Ecology and Behavior of Larval Amphibians”.

*Wildlife Behavior*. Guest Laboratory Coordinator. Topic: Evaluation of boldness as a personality trait in terrestrial isopods.

*Wildlife Behavior*. Guest Lecturer (one week). Topic: “Sexual Selection and Mate Choice”.

*Reptiles and Amphibians*, Guest Lecturer. Topics: “Ecology and Behavior of Larval Amphibians” and herpetological field trips to Rock Springs and Scotia Barrens. (3x)

*Structure and Function of Organisms*. Guest Lecturer. Topic: "Bigfoot and Scientific Thinking".

*Experimental Field Biology*. Guest Lecturer. Topic: "Ecological Statistics".

*Biology: Basic Concepts and Biodiversity*. Graduate Teaching Assistant. (6 laboratory sections over 3 years).

*Additional teaching development:*

- 2010-2013 Co-leader and developer of Langkilde Lab Undergraduate Discussion Group at Penn State, directed towards cultivating intellectual scientific abilities and professional development (up to ~30 students per semester)
- 2010-2012 BIOL 602 Supervised Experience in College Teaching, including instruction in pedagogy (3 semesters)

**Student Mentorship**

*At Wabash College:*

Travis Flock – *Scorpion defensive tactics, morphology, and burrowing behaviour; box turtle behavioural ecology* (summer intern, independent study student, volunteer; 1 manuscript in progress; Currently graduate student at University of South Florida)

Brady Boles – *Box turtle behavioural ecology* (summer intern; Currently medical student at Indiana University)

William Robinson – *Box turtle behavioural ecology; amphibian defensive behavior* (summer intern, independent study)

Free Kashon – *Box turtle behavioural ecology* (summer intern; 1 manuscript in progress; Currently graduate student at Arkansas Tech University)

Shaun Khoo – *Scorpion defensive behaviour; box turtle behavioural ecology* (WISE student, summer intern)

Nick Brown – *Box turtle coloration* (WISE student)

Nick Morin – *Thermal dependence of mosquito/amphibian interactions* (independent study)

Bilal Jawed – *Thermal dependence of mosquito/amphibian interactions* (independent study; Currently medical student at Indiana University)

Joseph Pich – *Box turtle behavioural ecology and data logger development* (summer intern)

AJ Belden – *Box turtle behavioural ecology and data logger development* (summer intern)

Lindsay Hagadorn – *Box turtle behavioural ecology* (summer volunteer intern)

Charles Mettler – *Invasive plant ecology* (independent study)

Justin Harmeson – *Introductory GIS* (independent study)

Chaz Rhodes – *Box turtle behavioural ecology and coloration* (summer intern)

Keith Klein – *Box turtle behavioural ecology and coloration* (summer intern)

*At The Pennsylvania State University:*

Supervised (or co-supervised) 25 undergraduate research assistants at Penn State University

- 2 students funded by MURE (Minority Undergraduate Laboratory Research Experience)
- 1 student funded by WISER (Women in Science and Engineering Research)
- 10 students conducted independent projects

Kelly Brossman - *Phenotypic plasticity and flexibility in newts* (2 published papers, M.S. in Ecology)

Matthew Ridgway - *Adaptive color change in tadpoles*

Dan Knapp - *Adaptive color change in tadpoles*

Shannen McGinley - *Sexually dimorphic aggression in scorpions* (1 published paper)

Alex Pianovich - *Population differences in susceptibility of scorpions to invasive fire ants*

Jett Peng - *Ontogeny of sexual dichromatism in wood frogs*

Jillian Newman - *Hunger and the response to alarm cues in tadpoles* (1 manuscript in review)

Danielle Rosenberg - *Size- and species-specific predation risk and behavioral responses in tadpoles* (Honors Thesis, 1 manuscript in preparation, now in veterinary school)

Jason Langshaw - *Responses of two plethodontid salamanders to conspecific and congeneric odor cues* (1 manuscript in revision)

Jared Moroskie - *First observations of courtship in Plethodon hoffmani*

15 additional students served as research assistants:

Brent Storm, Maria Utrecho, Edward Owen, Courtney Brenner, Justin Malloy, Lauren Moyer, Dayna Ukwuoma, Andrew Watts, Marie Noah, Jennie Williams, Drake McGregor, Aaron Jacobs, Hannah Herriott, Tommy Cerri, Dan Fricker

## **Grants**

2013 NSF Doctoral Dissertation Improvement Grant - \$19,370

Penn State Ecology Program Travel Award - \$200



- PSU Biology Student Travel Grant - \$250
- 2012 PSU Biology Student Travel Grant - \$250
- 2011 Animal Behavior Society Student Research Award - \$981
- ASIH Gaige Award - \$500
- 2010 Sigma Xi Grant-in-Aid - \$400

*Grants Awarded to Supervised Undergraduates:*

- 2017 Wabash College Undergraduate Research Grant to Charles Mettler - \$350
- 2016 Wabash College Undergraduate Research Grant to William Robinson - \$295
- Wabash College Undergraduate Research Travel Grant to Free Kashon, Shaun Khoo, and William Robinson - \$262
- 2012 Eberly College of Science Undergraduate Research Award to Jett Peng - \$333
- Eberly College of Science Undergraduate Research Award to Danielle Rosenberg - \$333
- 2011 Eberly College of Science Undergraduate Research Award to Alex Pianovich - \$540
- Eberly College of Science Undergraduate Research Award to Dan Knapp - \$540
- Penn State Discovery Grant to Kelly Brossman - \$2500
- 2010 Eberly College of Science Undergraduate Research Award to Kelly Brossman - \$400
- Eberly College of Science Undergraduate Research Award to Matt Ridgway - \$302

*Other Funding:*

- 2014 Experiment.com crowdfunding for “Using turtle dogs to study wildlife diseases” (S. Kimble, M. Allender, B. Carlson, and R. Williams) - \$2636

**Honors, Awards, and Fellowships**

- 2013 Research Assistantship - Intercollege Graduate Degree Program in Ecology, The Pennsylvania State University. \$19,000.
- Best Student Paper - Oral Presentation, Division of Animal Behavior, SICB 2013 Annual Meeting. \$250
- 2012 Honorable Mention - American Society of Naturalists Student Research Award
- Huck Institutes of the Life Sciences Fellowship. The Pennsylvania State University. \$19,000

- 2010, 2011      Honorable Mention – NSF Graduate Research Fellowship
- 2009-2010      Herbert J. Bailey Endowed Graduate Fellowship. The Pennsylvania State University. \$5,000
- University Graduate Fellowship. The Pennsylvania State University. \$38,000.
- Ecology Graduate Award. The Pennsylvania State University. \$5,000.
- Funds for Excellence in Graduate Recruitment. The Pennsylvania State University. \$2,500.
- 2009            NSF Graduate Fellowship Incentive Award. The Pennsylvania State University. \$1,000.
- 2009            Paul J. Christian Award for Excellence in Scholarship. Bethel University, \$150.
- 2007-2008      Biology Scholarship. Bethel University. St. Paul, MN.
- 2005-2008      President's Scholarship. Bethel University. St. Paul, MN.

### **Service**

- 2017-present   Faculty advisor for Marine Life Club
- 2017-present   Participant in Quantitative Literacy working group
- 2017            Mentor for Speaking Science program students
- 2017            WLAIP module instructor
- 2016-present   Member/Chair of Environmental Concerns Committee
- 2016-present   Member of Academic Policy Committee
- 2016-2017      Secretary for Division I meetings
- 2016            Organized spring seminar series for Biology Department
- 2016            Hosted animal behaviour activity for student recruitment
- 2015-present   Member of Institutional Animal Care and Use Committee
- 2015-16        Member of Institutional Review Board
- 2014-present   Member of Newcomers Potluck Committee
- 2014-2015      Faculty advisor to Wabash College ONE Campaign Club
- 2013-2014      Ecology Spring Seminar Series organizing committee (planning series, inviting speakers, managing speaker schedules)
- 2012, 2013      Curriculum Committee Representative for Ecology Graduate Student Organization

### **Academic Advising**

Served as academic advisor for 6 students

Served as Doris Duke Conservation Scholar mentor

### **Outreach Activities**

- 2018 Visited Rainbows and Rhymes Preschool with animals to discuss herp biology
- 2017 Led “Reptile and Amphibian Study” Merit Badge class for Boy Scouts
- 2017 Served via email correspondence as scientific consultant for BBC nature documentary mini-series “Wild Metropolis”
- 2013 Gave presentation on arthropod ecology and behavior to inmates at Centre County Correctional Facility
  - Assisted with SEECoS research experience for high school students
  - Judge at Penn State Undergraduate Exhibition
- 2012 Gave presentation on arthropod behavior to inmates at Centre County Correctional Facility
  - Children's science outreach at Discovery Space
- 2011 Children's science outreach hosted by WPSU studio
  - Presentation on Pennsylvania herpetofauna at Bellefonte Children's Garden Club
  - Judge at Pennsylvania Junior Academy of Sciences
  - Sharing research with visiting high school science students
  - Video-chatting with middle school science students in St. Louis, MO

### **Peer-reviewer**

*Amphibia-Reptilia, Animal Behaviour, Asian Fisheries Science, Axios review service, Behavioral Ecology, Behavioral Ecology and Sociobiology, Copeia, Ethology, Evolutionary Biology, Herpetologica (2), The Herpetological Journal, Herpetological Review, Hydrobiologia (3), Journal of the Arkansas Academy of Science, National Science Foundation, Nature Education, Oecologia (2), PLOS ONE, Proceedings of the Royal Society B, SSAR volunteer manuscript reviewer for non-English speaking authors (3), Wildlife Society Bulletin*

### **Professional Memberships**

Society for the Study of Amphibians and Reptiles

Tri-Beta Biological Society

## References

### **Dr. Patrick Burton**

Colleague and Department Chair  
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### **Dr. Tracy Langkilde**

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### **Dr. Matthew P. Rowe**

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