

# Nicholas M. Caruso

---

[carusonm@gmail.com](mailto:carusonm@gmail.com) | [carusonm.weebly.com](http://carusonm.weebly.com) | @PlethodoNick

## Research Interests

Broadly, I am interested in understanding the distribution of animals at different spatial (e.g., micro vs. macro) and temporal (e.g., population trends) scales. My current research focuses on determining the uncertainty in terrestrial salamander vital rates (survivorship, growth and reproduction) and the relationship between vital rates and the abiotic and biotic environment. Ultimately, these estimates can be used to determine the sensitivity and elasticity of population growth to changes in vital rates, as well as develop predictive population models under simulated environmental conditions.

## Education

### **PH.D. | EXPECTED GRADUATION 2017 | UNIVERSITY OF ALABAMA**

- Biology
- Dissertation: Range dynamics and range limits of a montane salamander

### **M.S. | MAY 2011 | UNIVERSITY OF MARYLAND, COLLEGE PARK**

- Biology
- Thesis: Environmental variables associated with population changes of plethodontid salamanders in the Great Smoky Mountains National Park, USA

### **B.A. | MAY 2007 | SAINT LOUIS UNIVERSITY**

- Biology: Magna Cum Laude
- Certificate in Conservation

## Publications

### **PUBLISHED**

**Caruso, N.M.** 2015. Surface retreats used among four genera of terrestrial salamanders in the Great Smoky Mountains National Park. *Journal of Herpetology*, doi: 10.1670/13-148

Rissler, L.J., Duncan, S.I. & **Caruso, N.M.** 2014. The relative importance of religion and education on university students' views of evolution in the Deep South and state science standards across the United States. *Evolution: Education and Outreach*, 7, doi:10.1186/s12052-014-0024-1

Muletz, C., **Caruso, N.M.**, Fleischer, R., McDiarmid, R. & Lips, K.R. 2014. Unexpected rarity of the pathogen *Batrachochytrium dendrobatidis* in Appalachian *Plethodon* salamanders: 1957-2011. *PLOS ONE*, 9, e103728.

**Caruso, N.M.** Sears, M., Adams, D.C. & Lips, K.R. 2014. Widespread rapid reductions in body size of Appalachian salamanders in response to climate change. *Global Change Biology*, 20, 1751-1759.

**Caruso, N.M.** & Lips, K.R. 2013. Truly enigmatic declines in terrestrial salamander populations in The Great Smoky Mountains National Park. *Diversity and Distributions*, **19**, 38-48.

Knouft, J.H., **Caruso, N.M.**, Dupre, P., Anderson, K., Trumbo, D. & Puccinelli, J. 2011. Using fine-scale GIS data to assess the relationship between intra-annual environmental niche variability and population density in a local stream fish assemblage. *Methods in Ecology and Evolution*, **2**, 303-311.

### **Teaching Experience**

2013-Present | Human Anatomy and Physiology TA | University of Alabama

2012-2013 | Laboratory Biology T.A. | University Of Alabama

2009-2011 | Human Anatomy and Physiology T.A. | University Of Maryland, College Park

2008-2009 | General Biology T.A. | Southern Illinois University Carbondale

2005-2007 | General Chemistry T.A. | Saint Louis University

2006 | General Ecology T.A. | Saint Louis University

### **Reviewer for following journals**

PLoS ONE; Journal of Herpetology; Herpetological Conservation and Biology; Copeia; African Zoology; Journal of Canadian Zoology; PeerJ; Axios

### **Research Grants, Fellowships, and Awards**

2016 | 1st Runner up Graduate Research Award | Herpetologists' League

2015 | Graduate Council Fellowship | University of Alabama

2015 | Outstanding Research by a Doctoral Student Award | University of Alabama

2015 | Outstanding Teaching by a Graduate Student in Biological Sciences | University of Alabama

2015 | E.E. Williams Grant | Herpetologists' League

2014 | E.O. Wilson Biodiversity Fellowship | University of Alabama

2013 | Smithsonian Graduate Fellowship | Smithsonian Institution

2010 | College of Chemical and Life Sciences Travel Award | University of Maryland, College Park

### **Presentations**

**Caruso, N.M.**, Jacobs, J.J., & Rissler, L.J. (2016) Using a reciprocal transplant experiment to quantify the effects of the abiotic environment on montane salamander life history. Joint Meeting of Ichthyologists and Herpetologists, New Orleans, LA.

**Caruso, N.M.** & Rissler, L.J. (2014) Past and present: life history and population dynamics of *Plethodon montanus*. Alabama Partners in Amphibian and Reptile Conservation, Andalusia, AL.

**Caruso, N.M.** & Rissler, L.J. (2014) Body size and growth in *Plethodon*: Past and Present. Plethodontids 2014, Tulsa, OK

**Caruso, N.M.**, Sears, M.W., Adams, D.C. & Lips, K.R. (2013) Widespread declines in body size in Appalachian *Plethodon* salamanders. Ecological Society of America, Minneapolis, MN

- Kabay, E.H., **Caruso, N.M.** & Lips, K.R. (2013) Timber rattlesnakes may reduce incidence of Lyme disease in the Northeastern United States. Ecological Society of America, Minneapolis, MN
- Caruso, N.M.**, Lips, K.R., Adams, D.C., McDiarmid, R.W. & Fleischer, R.C. (2012) Through the looking glass: widespread declines in body size in Appalachian plethodontid salamanders. World Congress of Herpetology, Vancouver, Canada
- Lips, K.R., **Caruso, N.M.**, Muletz, C.R., McDiarmid, R.W. & Fleischer, R.C. (2012) Spatial, temporal and taxonomic variation in patterns of population declines in Appalachian plethodontid salamanders. World Congress of Herpetology, Vancouver, Canada
- Muletz, C.R., Fleischer, R.C., McDiarmid, R.W., Yarwood, S., **Caruso, N.M.** & Lips, K.R. (2012) It's a small world: geographic, taxonomic and temporal variation in *Plethodon* salamanders' skin microbiome. World Congress of Herpetology, Vancouver, Canada
- Caruso, N.M.** & Lips, K.R. (2010) Resurveying populations of plethodontid salamanders in The Great Smoky Mountains National Park. Joint Meeting of Ichthyologists and Herpetologists, Providence, Rhode Island.
- Caruso, N.M.** & Lips, K.R. (2009) From the tropics to the Appalachians: reconstructing the history of salamander population declines in The Great Smoky Mountains. Integrated Research Challenges in Environmental Biology, Tempe, Arizona
- Camilo, G.R., Henry, R. & **Caruso, N.M.** (2005) Spatial hunting distribution in the Mayangna Sauni Bu territory in the BOSAWAS Bioreserve, Nicaragua. Annual Meeting of the Ecological Society of America, Montreal, Canada.

## **Outreach and Media**

### **EVOLUTION VIEWS IN ALABAMA**

What affects acceptance of evolution? *Pleiotropy*; 29 October 2014

Religion matters more than education when it comes to creationist beliefs; *Epiphenom*; 20 October 2014

### **PLETHODON BODY SIZE (SELECTED NEWS OUTLETS)**

Studying Salamanders to Size up Climate Change; *UA Research Magazine*; 3 Nov 2014

Warming World Shrinks Salamanders; *Science/AAAS*; 25 March 2014

Shrinking of North American Salamanders Linked to Climate Change; *Nature World News*; 25 March 2014

Salamanders Are Shrinking As Their Habitats Warm Up; *NBC News*; 26 March 2014

Salamanders shrinking as their mountain havens heat up; *Science Daily*; 25 March 2014

Climate Change Shrinks Salamanders; *National Geographic*; 27 March 2014

## **RATTLESNAKES AND LYME DISEASE (SELECTED NEWS OUTLETS)**

Science Daily: <http://www.sciencedaily.com/releases/2013/08/130806091815.htm>

Nature World News: <http://www.natureworldnews.com/articles/3355/20130806/timber-rattlesnakes-help-control-spread-lyme-disease.htm>

## **APPALACHIAN SALAMANDERS**

WAMU: [http://wamu.org/news/12/01/20/scientists\\_say\\_amphibian\\_die\\_offs\\_hit\\_area\\_years\\_ago](http://wamu.org/news/12/01/20/scientists_say_amphibian_die_offs_hit_area_years_ago)

## **Invited Talks**

**Caruso, N.M.** (2011) Utilizing historical collection data to understand enigmatic *Plethodon* salamander declines. Ecological Economic Student Groups, University of Maryland, College Park, MD

## **Professional Memberships and Affiliations**

2009-Present | Society for the Study of Amphibians and Reptiles

2012-Present | Herpetologists' League