

# COLIN M. DONIHUE

Department of Biology | Washington University | St. Louis, MO  
colindonihue@gmail.com | +1 207 299 3515 | www.colindonihue.com

## RESEARCH FOCUS

I am an evolutionary ecologist studying the drivers and consequences of variation in animal functional traits. In particular, my research focuses on predicting changes in behavioral, morphological, and performance traits as a result of changes in ecological context. My field research in Southern Europe, the West Indies, East Africa, and North America makes use of direct manipulative studies and landscape-scale natural experiments. My work generates fundamental insights into eco-evolutionary dynamics and critical applied lessons for conservation in human-dominated landscapes.

## EDUCATION

- 2011 – 2016 School of Forestry and Environmental Studies, Yale University, New Haven, CT  
Ph.D. Conservation Ecology and Evolutionary Biology  
Dissertation title: “Drivers of functional trait variation in *Podarcis erhardii*, the Aegean Wall Lizard”
- 2015 – 2016 Dept. of Organismic and Evolutionary Biology, Harvard University, Cambridge, MA  
Visiting Scholar Host: Dr. Jonathan Losos
- 2009 – 2011 School of Natural Resources & Environment, University of Michigan, Ann Arbor, MI  
M.Sc. Natural Resources and Environmental Studies
- 2004 – 2008 Carleton College, Northfield, MN  
B.A. Biology major with a focus in Ecology

## ACADEMIC POSITIONS

- 2020 Postdoctoral Research Associate, Washington University in St. Louis
- 2020 Visiting Instructor, Colby College (January 2020)
- 2017 – 2020 NSF Postdoctoral Fellow, Harvard University (2017 – 2018), Washington University in St. Louis (2019 – 2020). Sponsoring scientist: Dr. Jonathan Losos
- 2018 Visiting Scholar, Functional Evolution Group: Muséum National d’Histoire Naturelle. Paris, France. Sponsoring scientist: Dr. Anthony Herrel
- 2016 Postdoctoral Researcher, Harvard University, Dr. Jonathan Losos’ Lab

## PUBLICATIONS IN REVIEW

Manuscripts available upon request:

- M. Vasilopoulou-Kampitsi, J. Goyens, **C.M. Donihue**, P. Pafilis, A. Herrel, R. Van Damme, P. Aerts. Intersexual differences in manoeuvrability in the Aegean wall lizard (*Podarcis erhardii*). Accepted, pending revisions: *Journal of Zoology*
- E. D’Agostino\*, **C.M. Donihue**, J.B. Losos, A.J. Geneva. Assessing the effects of genetic divergence and morphology on Anolis lizard mating.” Accepted, pending revisions: *Breviora*

- **C.M. Donihue**, J.C. Daltry, S. Challenger, A. Herrel. Population increase and changes in behavior and morphology in the Redonda ground lizard (*Pholidoscelis atratus*) following the successful removal of alien rats and goats. In Review: *Integrative Zoology*

## PUBLICATIONS

\*undergraduate & †graduate students under my supervision; §authors contributed equally

1. **C.M. Donihue**, A. Kowaleski, J.B. Losos, A. Algar, S. Baeckens, R.W. Buchkowsky, A.-C. Fabre, H.K. Frank, A.J. Geneva, R.G. Reynolds, J.A. Velasco, J.J. Kolbe, D.L. Mahler, A. Herrel. 2020. Hurricane effects on neotropical lizards span geographic and phylogenetic scales. *Proceedings of the National Academy of Sciences*
2. Lambert, M.R., and **C.M. Donihue**. 2020. Urban biodiversity management using evolutionary tools. *Nature Ecology & Evolution*.
3. **C.M. Donihue**, A. Herrel, J. Martín, J. Foufopoulos, P. Pafilis, S. Baeckens. 2020. Rapid and repeated divergence of animal chemical signals in an island introduction experiment. *Journal of Animal Ecology* 00:1–10.
4. A. Rabe, N. Herrmann, K. Culbertson, **C.M. Donihue**, S. Prado-Irwin. 2020. Post-hurricane shifts in the morphology of island lizards. *Biological Journal of the Linnean Society*, blaa022
5. Pafilis, P., A. Herrel, G. Kapsalas, M. Vasilopoulou-Kampitsi, A.-C. Fabre, J. Foufopoulos, **C.M. Donihue**. 2019. Habitat shapes thermoregulation of Mediterranean lizards introduced to replicate experimental islets. *Journal of Thermal Biology* 84, 368–374.
6. Dufour, C.M.S., **C.M. Donihue**, J.B. Losos, A. Herrel. 2019. Parallel increases in grip strength in two species of *Anolis* lizards after a major hurricane on Dominica. *Journal of Zoology*.
  - Cover Photo
  - *press*: The BBC, National Geographic – France, New Scientist, Big Think
  - *video*: MSN Videos
7. **Donihue, C.M.**, A. Herrel, A-C Fabre, A. Kamath, A.J. Geneva, T.W. Schoener, J.J. Kolbe, J.B. Losos. 2018. Hurricane-induced selection on the morphology of an island lizard. *Nature* 560, 88-91.
  - *press*: Nature, National Geographic, The New York Times, The Atlantic, Smithsonian Magazine, The Associated Press, PRI's The World, The BBC, Scientific American, Le Figaro, The Weather Channel, The Independent, The Telegraph, Le Monde, Popular Science, Axios
  - *video*: [150,000+ views] National Geographic, Nature Videos, The Associated Press, The Weather Channel, Zeste de Science (French CNRS)
8. Itescu, Y., R. Schwarz, **C.M. Donihue**, et al. 2018. Inconsistent patterns of body size evolution in co-occurring island reptiles. *Global Ecology and Biogeography* 2018:00: 1-13.
9. **Donihue, C.M.** 2016. Aegean wall lizards switch foraging modes, diet, and morphology in a human-built environment. *Ecology and Evolution* 6: 7433-7442.
  - Recommended by Faculty of 1000 (F1000)

10. **Donihue, C.M.** 2016. Microgeographic variation in locomotor traits among lizards in a human-built environment. *PeerJ* 4, e1776.
  - *video*: ScienceVio
11. **Donihue, C.M.**, K.M. Brock, J. Foufopoulos, A. Herrel. 2015. Feed or fight: What drives bite force differences in the Aegean Wall Lizard, *Podarcis erhardii*, across the Greek Cyclades? *Functional Ecology* 30(4): 556-575.
  - *press*: BLink, Sage Magazine
  - *video*: [2,000+ views] Functional Ecology
12. Schmitz, O.J., R.W. Buchkowski, K.T. Burghardt, & **C.M. Donihue**. 2015. Functional traits and trait-mediated interactions: Connecting community-level interactions with ecosystem functioning. *Advances in Ecological Research* 52: 319-343.
13. **Donihue<sup>§</sup>, C.M.**, M.R. Lambert<sup>§</sup>. 2014. Adaptive evolution in urban ecosystems. *AMBIO*. DOI: 10.1007/s13280-014-0547-2
  - Recommended by Faculty of 1000 (F1000)
  - *video*: [1,000,000+ views] MinuteEarth
14. Sagonas, K., P. Pafilis, P. Lymberakis, **C.M. Donihue**, A. Herrel, & E.D. Valakos. 2014. Insularity affects head morphology, bite force and diet in a Mediterranean lizard. *Biological Journal of the Linnean Society* 112(3): 469-484.
15. Brock K.M., **C.M. Donihue**, & P. Pafilis. 2014. Novel records of frugivory and ovophagy in *Podarcis* lizards from East Mediterranean Islands. *North-Western Journal of Zoology* 10(1): 223-225.
16. **Donihue, C.M.**, J. Foufopoulos, C. Riginos, L. Porensky, & R.M. Pringle. 2013. Glade cascades: Indirect legacy effects of pastoralism enhance the abundance and spatial structuring of arboreal fauna. *Ecology* 94(4): 827-837.
  - *press*: ScienceDaily

## PEER-REVIEWED NATURAL HISTORY CONTRIBUTIONS

17. **Donihue, C.M.**, G. Giller, A. Herrel. 2017. An unusual meal for the Redonda Ground Lizard. *Herpetological Review* 48(3): 655.
18. **Donihue, C.M.** 2017. *Podarcis siculus*: A breeding population in Boston's Fenway Victory Gardens. Geographic Distribution Notes: *Herpetological Review*.
  - *press*: Earth Island Journal
19. Mossman\*, A., K. Culhane\*, Z. Miller\*, K. Brock, P. Pafilis, & **C.M. Donihue**. 2016. An extreme new record of *Natrix natrix* from a Mediterranean Islet in Greece. *Herpetozoa*.
20. Lambert, M.R., B.A. Goldfarb, G.J. Watkins-Colwell, & **C.M. Donihue**. 2016. *Podarcis siculus* (Italian Wall Lizard). Habitat, invasion of suburban Winchester County, New York. *Herpetological Review*.
  - *press*: The Last Word on Nothing

21. Goldfarb, B.A., M.R. Lambert, **C.M. Donihue**, & G.J. Watkins-Colwell. 2016. *Podarcis siculus* in Winchester County NY. Geographical Distribution Notes: *Herpetological Review*.
22. **Donihue, C.M.**, M.R. Lambert, & G.J. Watkins-Colwell. 2015. *Podarcis sicula*: Natural history of the invader as it reaches Connecticut. *Herpetological Review* 46(2): 260-261.
  - *press*: The New York Times, The Beaker, Greenwich Time
23. **Donihue, C.M.**, M.R. Lambert, & G.J. Watkins-Colwell. 2014. *Podarcis sicula*: The first population found in New England. Geographical Distribution Notes: *Herpetological Review* 45(4): 661-662.

## OTHER CONTRIBUTIONS

24. **Donihue, C.M.**, A. Herrel. 2019. "A report on *Anolis nubilus* from the now rat-free island of Redonda." *Anolis Newsletter VII*, pp. 63-66. Eds. Stroud, J.T., Geneva, A.J., Losos, J.B. Washington University, St. Louis MO. DOI: 10.7936/gig3-h168.
  - *press*: Scientific American
  - *video*: Antigua Barbuda Today
25. Jens De Meyer, **C.M. Donihue**, D. Scantlebury, J. Ng, R. E. Glor, J.B. Losos, & A. J. Geneva. 2019. Protocol for setting up and rearing a successful lizard room. *Anolis Newsletter VII*, pp. 37-62. Eds. Stroud, J.T., Geneva, A.J., Losos, J.B. Washington University, St. Louis MO.
26. **Donihue, C.M.**, B. Kazez. Illustrating a free, open-source method for quantifying locomotor performance with sprinting Aegean wall lizards. *PeerJ PrePrint*. 2:e701v1  
<http://dx.doi.org/10.7287/peerj.preprints.701v1>

## INVITED TALKS, POSTERS, AND PRESENTATIONS

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| 2020 | <p><b>Ecology and Evolutionary Biology: University of Kansas</b>, Lawrence KS<br/>         Talk Title: <i>Hurricanes to humans: Drivers of trait changes in the Anthropocene</i></p> <p><b>Biology Department Seminar: Colby College</b>, Waterville ME<br/>         Talk Title: <i>Hurricanes to humans: Drivers of trait changes in the Anthropocene</i></p>   |
| 2019 | <p><b>MassPARC: Partners in Reptile and Amphibian Conservation</b>, Westborough, MA<br/>         Talk Title: <i>Italian Wall Lizards in Boston</i></p> <p><b>Biology Department Seminar: University of Florida</b>, Gainesville, FL<br/>         Talk Title: <i>Hurricanes to humans: Drivers of trait changes in the Anthropocene</i></p> <p><b>St. Louis Ecology, Evolution, and Conservation Retreat</b>, Lewis and Clark CC, IL<br/>         Talk Title: <i>Hurricane effects on anoles span geographic and phylogenetic scales</i></p> <p><b>Living Earth Collaborative Seminar Series</b>, Washington University, St. Louis, MO<br/>         Talk Title: <i>Experimental evolution in the wild: Lessons for conservation in a rapidly changing world</i></p> |
| 2018 | <p><b>Department Seminar Series: FunMorph Lab</b>, University of Antwerp, Belgium<br/>         Talk Title: <i>Natural selection in the wild: Plasticity and Evolution in Island Lizards</i></p> <p><b>Joint Congress on Evolutionary Biology</b>, Montpellier, France<br/>         Poster Title: <i>How does an adaptive radiation begin? Contingency and determinism in Anolis sagrei ecological speciation</i></p>   |

**2nd Symposium on Mediterranean Lizards**, Tel Aviv, Israel

Talk Title: *Megabites: Rapid increase in lizard bite force following replicated introduction to small Greek Islets*

**7th Anole Symposium**, Miami, FL

Talk Title: *Hurricane-induced Adaptive Shifts in the Morphology of an Island Lizard*

Poster Title: *Reporting on the Reptiles of Redonda*

**Conservation Seminar Series**, St. John's, Antigua and Barbuda

Talk Title: *Conservation in a Rapidly Evolving World*

2017 **NSF Postdoctoral Fellows Conference**, Cambridge, MA

Poster Title: *Rapid Evolution of Lizard Form and Function*

**New England Herpetological Society**, Weymouth, MA

Invited Talk Title: *Italian Wall Lizards in New England*

2016 **Carleton College Biology Department**, Northfield, MN

Invited Talk Title: *Lizard Ecology and Evolution in the Anthropocene*

2015 **Ecological Society of America Annual Meeting**, Baltimore, MD

Talk Title: *Human land use with cascading ecological effects: an examination of hunting mode switching in Podarcis erhardii and associated effects on insect populations*

2014 **21st Century Naturalists: The American Society of Naturalists**, Asilomar, CA

Talk Title: *Human Impacts on Lizard Adaptability and Ecological Dynamics in the Greek Archipelago*

**Yale Forestry and Environmental Studies Doctoral Seminar**, New Haven, CT

Talk Title: *Context Dependence in the Aegean Wall Lizard*

2013 **Yale Forestry and Environmental Studies Doctoral Seminar**, New Haven, CT

Talk Title: *Human impacts on lizard adaptation and ecological dynamics in the Greek archipelago*

2012 **Student Conference on Conservation Science**, New York City, NY

Workshop leader for 40 conference attendees

Workshop Title: *Harnessing Social Media for Conservation Science*

2011 **Student Conference on Conservation Science**, New York City, NY

Poster Title: *Interaction Cascades in Anthropogenic Glades: How Pastoral Practices Increase the Abundance of Native Species in an African Savanna*

**Ecological Society of America Annual Meeting**, Austin, TX

Talk Title: *Interaction Cascades in Anthropogenic Glades: Adding habitat heterogeneity in an otherwise homogenous landscape across multiple spatial scales and trophic levels.*

2010 **Discovery Day at the Mpala Research Centre**, Laikipia, Kenya

Talk Title: *Interaction Cascades in Anthropogenic Glades*

**International Conference on Pastoralism and Climate Change Adaptation in Africa**, Egerton University, Kenya

Talk Title: *Mpala Research Centre: A Case Study in Pastoralism as a Coupled Human-Natural System*

## GRANTS, FELLOWSHIPS, AND HONORS

2017	<b>NSF Postdoctoral Fellowship in Biology</b>	\$250,440
	36 months of funding for research at Harvard University, Washington University in St. Louis, and the Paris Natural History Museum.	
2015	<b>Ecological Society of America Early Career Mentoring Fellow</b>	\$200
	Selected among hundreds of applicants for individual mentorship during the 2015 ESA meeting in Baltimore, MD.	
	<b>Yale Institute for Biospheric Studies Dissertation Improvement Grant</b>	\$3,000
	<i>Putting trait variation in context: understanding the impact of lizard hunting mode switching in human contexts.</i>	
2014	<b>Yale College Undergraduate Research Fellowships</b>	\$16,500
	Summer research fellowships to support undergraduate research assistants K. Culhane, A. Mossman, and Z. Miller.	
	<b>Yale Institute for Biospheric Studies Dissertation Improvement Grant</b>	\$4,000
	<i>What drives context-dependent trait variability in Greek lizards?</i>	
	<b>Crowdfunding with Experiment.com</b>	\$4,600
	<i>Are Greek lizards adapting to live with humans?</i>	
2013	<b>National Geographic Waitt Foundation Grant</b>	\$12,000
	<i>Anthropogenic Impacts on Lizard Adaptability and Ecosystem Functioning in the Greek Archipelago.</i>	
2011	<b>Yale Institute for Biospheric Studies Fellowship</b>	\$5,000
	<i>Functional Convergence in Island Lizard Communities.</i>	
	<b>Samuel Trask Dana Award</b>	
	<i>"...to the graduate student in the school judged most outstanding on the basis of scholarship and service."</i>	
2010	<b>University of Michigan Experiential Learning Fund</b>	\$6,000
	<i>Integrative Experiential Learning and Research in Mpala, Kenya.</i> With Dr. J. Foufopoulos, Dr. R. Hardin, W. DePuy and K. Yurco	
	<b>Rackham Graduate Student Research Grant</b>	\$1,500
	<i>Interaction Cascades in Anthropogenic Glades</i>	
	<b>Natural Resources and Environment Master's Thesis Grant</b>	\$1,000
	<i>Interaction Cascades in Anthropogenic Glades</i>	
2009	<b>Joel Heinen Graduate Student Fund Recipient</b>	\$1,000
2007	<b>Elected to Sigma Xi, the scientific research society</b>	
2004	<b>Named a Carleton Scholar</b>	
	<i>"...in recognition of outstanding qualities of scholarship, character and promise."</i>	

## PROFESSIONAL SERVICE AND OUTREACH

### STUDENTS UNDER MY SUPERVISION

Washington University, St. Louis: Benjamin Krasnoff (2019)

Harvard University: Master's Student: Raphaël Scherrer (2016); Undergraduate Students: Annelie Herrmann (2017-2018); Vanessa Lam (2017-2018); Emmanuel d'Agostino (2017-2019)  
Yale University: Kathryn Culhane (2014-2016); Angus Mossman (2014), Zachary Miller (2014)

## REVIEWER

National Science Foundation, National Geographic Grants

Nature, Functional Ecology, Evolution, Behavioral Ecology, Biological Invasions, Biology Reviews, Biology Letters, Ecology and Evolution, Copeia, Journal of Urban Ecology, PeerJ, Biological Journal of the Linnean Society (2), Journal of Morphology (2), Journal of Anatomy, Acta Ethologica (2), Food Webs, Integrative and Comparative Biology, Journal of Herpetology, Canadian Field Naturalist, Journal of Natural History, Acta Herpetologica (3)

## SCIENCE CONSULTANT

Capstone Press, Chicago IL. Consulting reptile expert for *Flying Dragons* by Will Mara; *Bearded Dragons* by Will Mara; *Komodo Dragons* by Jill Sherman

## POPULAR PRESS COVERING MY RESEARCH

National Geographic, The Atlantic, Nature News, New York Times, Smithsonian Magazine, PRI's The World, The Associated Press, The BBC, The Independent, The Conversation, Popular Science, Axios, Atlas Obscura, Popular Mechanics, Mashable, Gizmodo, The Big Think, The Greenwich Time, Earth Island Journal, The Boston Guardian, New Scientist, The Beaker, (e)Science, Yale Peabody Museum, NPR Living on Earth, The Last Word on Nothing Blog, Why Evolution Is True Blog, Wait Wait Don't Tell Me!

## SOCIAL MEDIA AND SCIENCE COMMUNICATION

Award-winning personal science blog [www.colindonihue.com](http://www.colindonihue.com) (320+ posts; 25,000+ visitors to date).  
Twitter and instagram science communication @colindonihue, [200,000+ annual impressions].

## TEACHING EXPERIENCE

- 2020            **Colby College**  
Visiting instructor for “Biodiversity Conservation in an Era of Global Change”  
BI197: January intensive short course for 20 undergraduates.
- 2012 – 2014   **Yale University**  
Teaching fellow for graduate-level course F&ES 550 “Natural Science Research Methods” (Fall 2012, 2013, 2014) and F&ES 740 “Dynamics of Ecological Systems” (Spring 2013)  
F&ES 550: Extensive contact time with first-year Master's students to help in thesis project development.
- 2010            **University of Michigan**  
Graduate Student Instructor for graduate-level course SNRE 509 “Ecology: Science of Context and Interaction.” Sole responsibility for three, two-hour lab sections; included lab lectures, office hours, grading, individual tutoring, and course content review sessions for class of 150 students.
- 2007 – 2008   **Carleton College**

Laboratory Teaching Assistant: One term supervising Population Ecology Lab, one term supervising Environmental Animal Physiology Lab, three terms supervising Introductory Biology labs.

## **PROFESSIONAL DEVELOPMENT**

Mentorship Training Program, Washington University in St. Louis

July 2019

## **PROFESSIONAL MEMBERSHIPS**

Member American Society of Naturalists

December 2014 – Present

Member Ecological Society of America

July 2011 – Present

Associate Member, F1000 Biology

July 2010 – Present

## **SKILLS AND INTERESTS**

**Languages:** French – proficient; Greek and Spanish – basic

**Computer Software:** Advanced abilities with Microsoft Office, Adobe Creative Suite, R, SPSS, and JMP statistical software packages



## **RECOMENDERS**

### **Jonathan Losos**

Director, Living Earth Collaborative  
William H. Danforth Distinguished University Professor  
Department of Biology, Washington University  
Email: losos@wustl.edu  
Phone: +1 (314) 935-3460  
Relationship: Postdoctoral fellowship mentor

### **Oswald Schmitz**

Oastler Professor of Population and Community Ecology  
School of Forestry and Environmental Studies, Yale University  
Email: oswald.schmitz@yale.edu  
Phone: +1 (203) 436-5276  
Relationship: Ph.D. advisor

### **Anthony Herrel**

Directeur de Recherche (DR2)  
Muséum National d'Histoire Naturelle (UMR7179), Paris, France  
Email: anthony.herrel@mnhn.fr  
Phone: +33 14 07 98 120  
Relationship: Postdoctoral fellowship mentor