

## **YOEL E. STUART, PH.D.**

Assistant Professor of Evolutionary Biology  
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### **EDUCATION**

2013 Ph.D., Organismic and Evolutionary Biology, Losos Lab, Harvard University  
2006 B.S., Evolution, Ecology, and Biodiversity, with Highest Honors, U. California at Davis

### **PROFESSIONAL APPOINTMENTS**

2019-Present Assistant Professor, Dept. of Biology, Loyola University Chicago  
2018-2019 Principal Investigator, U. Texas at Austin  
2013-2018 Postdoc and Research Associate, Bolnick Lab, U. Texas at Austin  
2006-2007 Laboratory Technician, Grosberg Lab, U. California at Davis

### **PUBLICATIONS** (\* denotes undergraduate advisee; † denotes Loyola student)

#### **2020**

**Stuart, Y.E.**, M.P. Travis, and M.A. Bell. *In Press*. Inferred genetic architecture underlying evolution in a fossil stickleback lineage. *Nature Ecology and Evolution*.  
Kamath, A., N.C. Herrmann, K. Gotanda, K.C. Shim, J. LaFond, G. Cottone\*†, H. Falkner, T.S. Campbell, and **Y.E. Stuart**. *Accepted*. Repeated character displacement in the midst of background evolution in island populations of *Anolis* lizards. *Evolution*.  
Bolnick, D.I., E.J. Resetarits, K. Ballare, **Y.E. Stuart**, W.E. Stutz. *Accepted*. Scale-dependent effects of host patch traits on species composition in a stickleback parasite metacommunity. *Ecology*.  
Paccard, A., D. Hanson, **Y.E. Stuart**, F.A. von Hippel, M. Kalbe, T. Klepaker, S. Skúlason, B.K. Kristjánsson, D.I. Bolnick, A.P. Hendry, and R.D.H. Barrett. 2020. Repeatability of adaptive radiation depends on spatial scale: regional versus global replicates of stickleback in lake versus stream habitats. *J. Heredity* 111: 43-56. [10.1093/jhered/esz056](https://doi.org/10.1093/jhered/esz056)  
Bolnick, D.I., E.J. Resetarits, K. Ballare, **Y.E. Stuart**, W.E. Stutz. 2020. Host patch traits have scale-dependent effects on diversity in a stickleback parasite metacommunity. *Ecography* 43: 990-1002. [10.1111/ecog.04994](https://doi.org/10.1111/ecog.04994).  
Maciejewski, M, C. Jiang, **Y.E. Stuart**, and D.I. Bolnick. 2020. Microhabitat contributes to microgeographic divergence in threespine stickleback. *Evolution* 74: 749-763. [10.1111/evo.13942](https://doi.org/10.1111/evo.13942)  
Haines, G., **Y.E. Stuart**, D. Hanson, T. Tasneem, D.I. Bolnick, H.C.E. Larsson, and A.P. Hendry. Adding the third dimension to parallel evolution of morphology and function: an exploration based on parapatric lake-stream stickleback. *In review at Ecology and Evolution*

#### **2019**

**Stuart, Y.E.** 2019. Divergent uses of ‘parallel evolution’ during the history of *The American Naturalist*. *American Naturalist*, 193: 11-19. [10.1086/700718](https://doi.org/10.1086/700718).  
Rennison, D.J., **Y.E. Stuart**, D.I. Bolnick, and C.L. Peichel. 2019. Ecological factors and morphological traits are associated with repeated genomic differentiation between lake and

stream stickleback. *Philosophical Transactions of the Royal Society B*, 374: 20180241. [10.1098/rstb.2018.0241](https://doi.org/10.1098/rstb.2018.0241).

## **2018**

Bolnick, D.I., R.D.H. Barrett, K.B. Oke, D.J. Rennison, and **Y.E. Stuart**. 2018. (Non)Parallel Evolution. *Annual Reviews of Ecology, Evolution, and Systematics*, 49: 303-330. [10.1146/annurev-ecolsys-110617-062240](https://doi.org/10.1146/annurev-ecolsys-110617-062240).

## **2017**

**Stuart, Y.E.**, T. Veen, J.N. Weber, D. Hanson, M. Ravinet, B.K. Lohman, \*C.J. Thompson, T. Tasneem, A. Doggett, \*R. Izen, \*N. Ahmed, R.D.H. Barrett, A.P. Hendry, C.L. Peichel, and D.I. Bolnick. 2017. Contrasting effects of environment and genetics generate a continuum of parallel evolution. *Nature Ecology and Evolution*, 1: 0158. [10.1038/s41559-017-0158](https://doi.org/10.1038/s41559-017-0158).

**Stuart, Y.E.**, S.A. Inkpen, R. Hopkins, and D.I. Bolnick. 2017. Character displacement is an evolutionary pattern. So, what causes it? *Biological Journal of the Linnean Society*, 121: 711-715. [10.1093/biolinnean/blx013](https://doi.org/10.1093/biolinnean/blx013).

Kolbe, J.J., J. Wegener, **Y.E. Stuart**, U. Milstead, K. Boronow, A. Harrison, & J.B. Losos. 2017. An incipient invasion of brown anole lizards (*Anolis sagrei*) into their own native range in the Cayman Islands – a case of cryptic back-introduction. *Biological Invasions*, 19: 1989-1998. [10.1007/s10530-017-1432-2](https://doi.org/10.1007/s10530-017-1432-2).

Weber, J.N., G. Bradburd, **Y.E. Stuart**, W. E. Stutz, and D.I. Bolnick. 2017. Partitioning the effects of isolation by distance, environment, and physical barriers on genomic divergence between parapatric threespine stickleback. *Evolution*, 71: 342-356. [10.1111/evo.13110](https://doi.org/10.1111/evo.13110).

\*Ahmed, N.I., \*C.J. Thompson, D.I. Bolnick, and **Y.E. Stuart**. 2017. Brain morphology of the threespine stickleback (*Gasterosteus aculeatus*) varies inconsistently with respect to habitat complexity: a test of the clever foraging hypothesis. *Ecology and Evolution*, 7: 3372-3380. [10.1002/ece3.2918](https://doi.org/10.1002/ece3.2918).

\*Thompson, C.J., \*N.I. Ahmed, T. Veen, C.L. Peichel, A.P. Hendry, D.I. Bolnick, and **Y.E. Stuart**. 2017. Many-to-one form-to-function mapping weakens parallel morphological evolution. *Evolution*, 71: 2738-2749. [10.1111/evo.13357](https://doi.org/10.1111/evo.13357).

## **2016**

Ingram, T., A. Harrison, D.L. Mahler, M.R. Castañeda, R.E. Glor, A. Herrel, **Y.E. Stuart**, and J.B. Losos. 2016. Comparative tests of the role of dewlap size in *Anolis* lizard speciation. *Proceedings of the Royal Society B*, 283: 20162199. [10.1098/rspb.2016.2199](https://doi.org/10.1098/rspb.2016.2199).

\*Izen, R., **Y.E. Stuart**, Y. Jiang, and D.I. Bolnick. 2016. Coarse- and fine-grained phenotypic divergence in threespine stickleback from alternating lake and stream habitats. *Evolutionary Ecology Research*, 17: 437-457.

Mohammadi, A, M. Kaboli, S. Ashrafi, M. Mofidi-Neyestanak , Y. Masoud, A. Rezaei, and **Y.E. Stuart**. 2016. Trophic niche partitioning between two rock nuthatches (*Sitta tephronota* & *Sitta neumayer*) in a contact zone in Iran. *Journal of Zoology*, 299: 116-124. [10.1111/jzo.12329](https://doi.org/10.1111/jzo.12329).

Clark, G., J. Russell, P. Enyeart, B. Gracia, A. Wessel, I. Jarmoskaite, D. Polioudakis, **Y.E. Stuart**, T. Gonzalez, A. MacKrell, S. Rodenbusch, G. Stovall, J.T. Beckam, M. Montgomery, T. Tasneem, J. Jones, S. Simmons, and S. Roux. 2016. Science educational outreach

programs that benefit students and scientists. *PLOS Biology*, 14: e1002368. [10.1371/journal.pbio.1002368](https://doi.org/10.1371/journal.pbio.1002368).

Dawson, M.N., A.C. Algar, L.R. Heaney, and **Y.E. Stuart**. 2016. Biogeography of Islands, Lakes, and Mountaintops; Evolutionary. In *The Encyclopedia of Evolutionary Biology*. vol. 1, pp. 203-210. Kliman, R.M. (ed). Oxford: Academic Press.

### **2015**

**Stuart, Y.E.** 2015. Depredación de un polluelo de *Tityra Carirroja* (*Tityra semifasciata*) por el Tucán Pico Negro (*Ramphastos ambiguus*). *Zeledonia*, 19: 37-38.

Klaczko, J., and **Y.E. Stuart**. 2015. Hemipenial allometry in *Anolis grahami*. *Journal of Herpetology*, 49: 462-467. [10.1670/13-152](https://doi.org/10.1670/13-152).

\*Kamath, A., and **Y.E. Stuart**. 2015. Movement rates of the lizard *Anolis carolinensis* (Squamata: Dactyloidae) in the presence and absence of *Anolis sagrei* (Squamata, Dactyloidae). *Breviora*, 546: 1-7. [10.3099/0006-9698-546.00.1](https://doi.org/10.3099/0006-9698-546.00.1).

### **2014**

**Stuart, Y.E.**, T.S. Campbell, P.A. Hohenlohe, R.G. Reynolds, L.J. Revell, and J.B. Losos. 2014. Rapid evolution of a native species following invasion by a congener. *Science*, 346: 463-466. [10.1126/science.1257008](https://doi.org/10.1126/science.1257008).

### **2013**

**Stuart, Y.E.** and J.B. Losos. 2013. Ecological character displacement: glass half full or half empty? *Trends in Ecology and Evolution*, 28: 402-408. [10.1016/j.tree.2013.02.014](https://doi.org/10.1016/j.tree.2013.02.014)

**Stuart, Y.E.**, D. Bolnick, and R. Hopkins. 2013. The unifying wedge. *Evolution*. [Book review of *Evolution's Wedge*, by D.W. Pfennig and K.S. Pfennig.] [10.1111/evo.12282](https://doi.org/10.1111/evo.12282).

\*Kamath A., **Y.E. Stuart**, and T. S. Campbell. 2013. Behavioral partitioning by the native lizard *Anolis carolinensis* in the presence and absence of the invasive *Anolis sagrei* in Florida. *Breviora*, 535: 1-10. [10.3099/MCZ8.1](https://doi.org/10.3099/MCZ8.1).

### **2012**

**Stuart, Y.E.**, J.B. Losos, and A.C. Algar. 2012. The island-mainland species turnover relationship. *Proceedings of the Royal Society of London B*, 279: 4071-4077. [10.1098/rspb.2012.0816](https://doi.org/10.1098/rspb.2012.0816).

**Stuart, Y.E.**, N. Dappen, and N. Losin. 2012. Inferring predator behavior from attack rates on prey-replicas that differ in conspicuousness. *PLoS ONE* 7: e48497. [10.1371/journal.pone.0048497](https://doi.org/10.1371/journal.pone.0048497).

**Stuart, Y.E.**, M.A. Landestoy, D.L. Mahler, D. Scantlebury, A.J. Geneva, P.S. VanMiddlesworth\*, and R.E. Glor. 2012. Two new introduced populations of *Anolis porcatus* in the Dominican Republic. *IRCF Reptiles & Amphibians: Conservation and Natural History*, 19: 71-75.

### **2010**

Dawson, M. N., R.K. Grosberg, **Y.E. Stuart**, and E. Sanford. 2010. Population genetic analysis of a recent range expansion: mechanisms regulating the poleward range limit in the volcano barnacle *Tetraclita rubescens*. *Molecular Ecology*, 19: 1585-1605. [10.1111/j.1365-294X.2010.04588.x](https://doi.org/10.1111/j.1365-294X.2010.04588.x).

**TEACHING**Loyola University Chicago*Evolution (BIOL 319)* Spring 2020*Ecology (BIOL 265)* Spring 2020*Scientific Logic (BIOL 495)* Fall 2019

A graduate level course with an Evolution theme, focused on learning how to read and write scientific papers. Students write either a manuscript based on their thesis work or wrote their thesis proposal.

Previous Teaching

- 2015 Instructor for *Vertebrate Natural History* at University of Texas at Austin. As instructor of record, I designed laboratories, lecture, and field trips, did grading, and carried out administrative responsibilities. My course received an overall rating of 4.7 out of 5, and I received an instructor rating of 4.9 out of 5.
- 2012 Teaching Assistant for *Writing Scientific Papers* at Harvard University. I led discussions of scientific writing and provided feedback on written assignments.
- 2010 Teaching Assistant for *Biostatistics* at Harvard University. I wrote discussion sections, homework, and exam questions. I graded homework and exams.
- 2009 Head Teaching Assistant for *Introductory Evolution for Non-majors* at Harvard University. I designed and led discussion sections and lab exercises, coordinated teaching assistants, organized grades and class lists, and graded exams.
- 2008 Teaching Assistant for *Introductory Evolution for Non-majors* at Harvard University. I led discussion sections and lab exercises, wrote and graded exams and homework.
- 2006 - 2007 Course Evaluator for *Collaborative Learning at the Interface of Math and Biology* at U. of California at Davis. I observed classroom interactions among undergraduate students to help facilitate evaluation of the efficacy of this National Science Foundation funded training program that brought together students in math and biology to work synergistically on biological research.
- 2005 - 2006 Co-designer and Co-instructor for *Understanding the Research University* at U. California at Davis. I helped to develop and teach a freshman course about the structure of a research university while explaining opportunities available to students. The course is now taught as part of the Davis Honors Challenge curriculum and as a freshman seminar.

**STUDENT MENTORING**

I have advised the following students in fieldwork, labwork, analysis, and writing. The (\*) denotes supervision of an independent project that has or will culminate in a student-authored publication.

Loyola University ChicagoMasters

Bryan Galligan (2020 – Present) Bryan is unofficially supervised by me. He is doing a side project in Ecology while he pursues is Masters in Philosophy.

Tristan Kosciuch, MS Bioinformatics (2020 – Present)

*Undergraduates*

\* Raheyma Siddiqui (2019 – Present)

\* Allison Ozark (2019 – Present)

\* Ethan Elazegui (2019 – Present)

Sophia Janidlo (2019 – Present)

Jason Tien (2020 – Present)

Rebecca Sullivan (2020 – Present)

Musharrat Islam (2020 – Present)

Chauncey Lawson-Weinert (2020 – Present)

Ola Abughoush (2020 – Present)

Aaron Myrold (2020 – Present)

Anu Chaudhary (2020)

Previous Mentoring

2018 - Present Jacquelyn Salguero. Undergraduate Honors. U. Texas at Austin.\*

2016 - 2018 Amy Starzak. Undergraduate. U. Texas at Austin.

2017 - 2018 Alexis Roberts. Undergraduate. U. Texas at Austin.

2013 - 2018 Cole Thompson. Undergraduate, U. Texas at Austin.\*

2013 - 2017 Newaz Ahmed. Undergraduate, U. Texas at Austin.\*

2015 - 2016 Laura Tanter, Undergraduate, U. Texas at Austin

2015 - 2016 Oluwaseun Banjoko. Undergraduate, U. Texas at Austin.

2013 - 2015 Rebecca Izen. Undergraduate, U. Texas at Austin.\*

2010 - 2012 Don Lyman. Non-traditional student, Harvard University.

2011 Jillian Newman. Undergraduate, Northeastern University.

2011 Paul VanMiddlesworth. Undergraduate, Harvard University.

2009 - 2010 Ambika Kamath. Undergraduate, Amherst College.\*, \*

2010 Maureen Stimola. Undergraduate, Columbia University.

2010 Andres Ramirez. Undergraduate, Harvard University.

2009 Hannah Lyons-Galante. Undergraduate, Harvard University.

2008 Tim Treuer. Undergraduate, Harvard University.

**GRANTS, HONORS, AWARDS**

2020 Effects of radiation on life history in “resurrected” *Daphnia* lineages exposed to fallout from 1950s atmospheric nuclear testing. NSF DEB 2028775 (\$199,978)

Co-PI: Matthew Walsh (U. Texas Arlington)

2020 Mulcahy Fellowship. Ethan Elazegui. (\$2,000)

2019 Research Support Grant. Loyola University Chicago. (\$10,000)

2015 Is (non)parallel evolution driven by (non)parallel selection? NSF (\$1,074,784)

2014 Research Experience for Teachers Supplement, NSF (\$9,825)

2014 Research Experience for Undergraduates Supplement, NSF (\$7,725)

2012 Finalist, W.D. Hamilton Award for Outstanding Student Presentation, SSE Meeting

2011 Doctoral Dissertation Improvement Grant, NSF (\$15,000)

2011 Putnam Expedition Grant, Museum of Comparative Zoology (\$5,140)

2011 Graduate Research Fellow Int. Travel Award, NSF (\$1,000)

- 2010 Kenneth Miyata Field Research Award, Museum of Comparative Zoology (\$7,205)
- 2009 Robert A. Chapman Memorial Scholarship, Harvard University (\$5,000)
- 2009 Grant-in-Aid of Research, Sigma Xi (\$1,000)
- 2009 Gaige Fund Award, American Society of Ichthyologists and Herpetologists (\$500)
- 2009 Kenneth Miyata Field Research Award, Museum of Comparative Zoology (\$5,073)
- 2008 Summer Research Grant, Graduate Student Council, Harvard University (\$1,000)
- 2008 Summer Research Grant, David Rockefeller Center, Latin American Studies (\$1,000)
- 2008 Student Research Award, Organization for Tropical Studies (\$496)
- 2008 Kenneth Miyata Field Research Award, Museum of Comparative Zoology (\$450)
- 2007 Graduate Research Fellowship Award, NSF (\$100,000)
- 2006 The University Medal, U. California at Davis
- 2006 Student of the Year, College of Biological Sciences, U. California at Davis
- 2006 Departmental Citation, Evolution and Ecology, U. of California at Davis
- 2005 Regents Scholar, University of California (\$7,500)
- 2005 Biological Invasions IGERT Undergraduate Fellow, U. California at Davis
- 2004 Regents Scholar, University of California (\$7,500)
- 2004 - 2005 President, Davis Men's Crew Club, U. California at Davis
- 2002 - 2006 Davis Honors Challenge program, U. California at Davis

## OUTREACH

- 2014 - 2019 Presenter for *Present Your Ph.D. Thesis to a 12-year Old*. I presented grade level-appropriate data from my scientific research in Austin Independent School District grade school classrooms, to over 400 middle-school students. I have developed an inquiry-based lesson plan for the students based on my research.
- 2015 Developer of a college classroom lesson plan for the Encyclopedia of Life: a writing activity for students to contribute species pages to EOL.
- 2015 Science Consultant and Designer for a “*Science in the Classroom*” activity, which is an annotated paper and lesson plan based on my research, developed by *Science* magazine and Howard Hughes Medical Institute, targeting high school and college students.
- 2015 Adviser for U. Texas's *Admitted Students Call Project*, designed to reverse instances of admitted, underrepresented minority students deciding not to attend. I called 10 such students to encourage them to attend and take part in campus activities.
- 2014 - 2015 Science Consultant for a hands-on *Mystery Science* lesson plan for 7-8 year old students about evolution and natural selection. This plan based on my *Anolis* lizard work, and published online. Students play a simulation game based on my work ‘Lizard Island.’ The simulation shows an example of how nature, not human beings, can slowly change the appearance of an animal using the process of selection. This lesson plan has reached about 220 teachers and 3000 third graders to date.
- 2014 Science Consultant for *Quantas Magazine*. I provided commentary and context for an article written for the lay public about character displacement.
- 2011 - 2014 Major Contributor for *Anole Annals*. I have written over thirty blog posts about scientific news and research regarding anoles.

- 2013 Science Consultant for a short film called *Lizards in an evolutionary tree*, which is part of the Howard Hughes Medical Institute's "The Origin of Species" film series. It can be found online at: <http://www.hhmi.org/biointeractive/origin-species-lizards-evolutionary-tree>. I discussed the evolution of *Anolis* with Director Dan Levitt.
- 2013 Science Consultant for "Wild Wisdom" column in *AMC Outdoors*. Gave scientific advice for a column in the Appalachian Mountain Club's member magazine intended for lay audiences.
- 2012 Activity Leader for Harvard Medical School "*Explorations: discovering paths to biomedical science*" program. Taught middle school students evolutionary concepts through hands-on activities using lizards and snakes.

### INVITED TALKS

- 2020 EvMorph, University of Chicago, Committee on Evolutionary Biology (talk\*)
- 2018 Evolution II, Symposium titled "How predictable is evolution?", Montpellier, France
- 2018 Osher Lifelong Learning Institute (Public Lecture) titled "Evolution is Fast Now", University of Texas at Austin, USA.
- 2018 American Society of Naturalists, Symposium titled "150 years of *The American Naturalist*", Asilomar, CA, USA.
- 2017 Colloquium Series, U. Texas at Arlington, USA.
- 2016 Population Biology Seminar, U. Texas at Austin, USA.
- 2015 International Society for the History, Philosophy, and Social Science of Biology, Symposium titled "Natural experiments." Montreal, Quebec, CAN.
- 2014 Biology Seminar, Trinity University, San Antonio, USA.
- 2013 Population Biology Seminar, University of Texas, Austin, USA.
- 2012 7<sup>th</sup> World Congress of Herpetology, Vancouver, British Columbia, CAN.

### CONTRIBUTED TALKS/POSTERS (\*first author)

- 2020 Swiss (poster)
- 2020 American Society of Naturalists, Asilomar, CA, USA (talk\*)
- 2017 Society of Molecular Biology and Evolution, Austin, TX, USA (talk)
- 2016 Society for the Study of Evolution, Austin, TX, USA (talk\*, talk, poster)
- 2014 American Society of Naturalists, Asilomar, CA, USA (poster\*)
- 2012 First Joint Congress on Evolutionary Biology, Ottawa, CAN (talk\*)
- 2011 Society for the Study of Evolution, Norman, OK, USA (talk\*)
- 2011 Organismic & Evolutionary Biology Graduate Symposium, Cambridge, MA USA (talk\*)
- 2010 Florida Academy of Sciences, Fort Pierce, FL, USA (talk\*)
- 2009 Society of Integrative and Comparative Zoology, Boston, MA, USA (talk\*)

### SYMPOSIA ORGANIZED

- 2018 Evolution II, "The molecular basis of convergent evolution: shared and unique features" with Drs. Marie Semon and Darrin Hulsey, Montpellier, France.

### PEER REVIEW

*Molecular Ecology* (2), *The American Naturalist* (5), *Herpetology Notes* (2), *Evolution* (7), *Basic and Applied Ecology*, *Evolutionary Ecology*, *Journal of Biogeography* (2), *Herpetologica*, *PLOS ONE*, *Journal of Herpetology*, *Copeia*, *Global Ecology and Biogeography* (2), *BMC Evolutionary Biology*, *Journal of Evolutionary Biology* (2), *Proceedings of the Royal Society B* (3), *Scientific Reports*, *Biological Journal of the Linnean Society*, *Trends in Ecology and Evolution*, *Functional Ecology*, *Nature Communications* (2), *J. Tropical Ecology*, *Nature Ecology and Evolution* (5), *Diversity and Distributions*, *Zoological Letters*, *Journal of Heredity*, *Israel Journal of Ecology and Evolution*. Ad hoc reviewer for NSF. External reviewer for National Geographic (2). External reviewer for Deutsche Forschungsgemeinschaft (German Research Foundation).