Elizabeth A. Karan

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Education

9/2017 - present	**PhD student in Ecology and Evolutionary Biology** University of California Los Angeles, Los Angeles, CA USA Courses in evolution, ecology, mathematical and statistical phylogenetics, ecological modeling, writing pedagogy
9/2012 - 5/2016	**A.B. in Organismic and Evolutionary Biology** Harvard University, Cambridge, MA USA Courses in comparative biomechanics, genetics and genomics, invertebrate zoology, herpetology, computer science, statistics, chemistry, animal behavior, vertebrate reproductive biology, systematics Undergraduate thesis title: "The scales of cnidarian associated fishes and their functional implications"

Research Experience

9/2017 - present	**Alfaro Lab**, University of California, Los Angeles; Los Angeles, CA USA PhD student PhD Advisor/Principal investigator: Prof. Michael Alfaro
5/2015 - 5/2016	**Lauder Lab**, Harvard University, Cambridge, MA USA Undergraduate senior thesis research project Project: The relationship between scale morphology and ecology across species Principal investigator: Prof. George V. Lauder
1/2015 - 5/2015	**Radcliffe Research Partnership**, Harvard University, Cambridge, MA USA Research assistant Project: Nacre as a paleothermometer Principal investigator: Prof. Pupa Gilbert
10/2014 – 5/2016	**Harvard Museum of Comparative Zoology Ichthyology Department** Volunteer Worked under the supervision of the collection manager, Karsten E. Hartel Duties: identifying and sorting larval specimens, measuring specimens, updating the online database
Summer 2014	**Operation Wallacea**, Wakatobi N.P., Indonesia Research assistant Projects: Anemonefish cohabitation; sponge photosynthesis; mangrove fiddler crab ecology; reef diversity surveillance; impacts of burrowing sponges

Publications

ME Alfaro, **EA Karan**, ST Schwartz, AJ Shultz. The Evolution of Color Pattern in Butterflyfishes (Chaetodontidae). *Integrative and Comparative Biology*. 11 July 2019.

PUPA Gilbert, KD Bergmann, CE Myers, MA Marcus, RT DeVol, C-Y Sun, AZ Blonsky, J Zhao, **EA Karan**, E Tamre, N Tamura, AJ Giuffre, S Lemer, G Giribet, JM Eiler, AH Knoll. Nacre tablet thickness records formation temperature in modern and fossil shells. *Earth and Planetary Sciences Letters.* 15 February 2017.

Presentations

EA Karan, ST Schwartz. Quantitative Approaches to Studying Color Pattern Evolution. *Claremont-McKenna College* (guest lecture). Claremont, CA. May 2019.

EA Karan, ME Alfaro. Evolution of False Eyespots in Butterflyfishes: Testing Eye Camouflage and Mimicry as Anti-predator Adaptations. *Society of Integrative and Comparative Biology.* Tampa, FL. January 2019.

EA Karan, DK Wainwright, GV Lauder. The scales of cnidarian associated fishes and their functional implications. *Organismic and Evolutionary Biology Senior Thesis Writers' Poster Session.* Harvard Univ. April 2016.

EA Karan, DK Wainwright, DC Collar. A comparative study of damselfish scale morphology. *Society of Integrative and Comparative Biology.* Portland, OR. January 2016.

Awards, Grants, and Fellowships

2019 EEB Departmental Research Award
2019 National Science Foundation Graduate Research Fellowship
2017 UCLA Irving and Jean Stone Fellowship
2016 Kirkland House Donald and Kathleen Pfister Prize
2015 Harvard Dean's Summer Research Award
2015 Museum of Comparative Zoology Grant for Undergraduate Research
2015 Harvard College Research Prize
2014 David Rockefeller International Experience Grant

Skills and Certifications

Computer languages	C, Python, R, HTML, JavaScript
Software	TensorFlow, Adobe Suite, RevBayes, BEAST, Astral, POY, phyutility, SequenceMatrix, Geneious, MountainsMap, Igor, ImageJ
Imaging	Image adjacency and boundary strength analysis, SEM image processing in Photoshop, SEM analysis in wave metrics software, underwater video transects,

	underwater behavior videography, 3D topography reconstruction of fish scales using GelSight
Lab techniques	Dissection, sediment composition gradation, water salinity measurements, water pH measurements, PCR, fish husbandry
Field techniques	Species identification, species collection, underwater reef transects, fish stereo video surveys, invertebrate surveys, benthic surveys, reef rugosity measurements, recording behavioral observations
Certifications	Open Water Diver – PADI

Teaching & Course Support

4/2019 - 6/2019	**GE Cluster 70CW: Evolution of Intelligence** Instructor Construction of course material, lead a small seminar of 22 students
9/2018 - 3/2019	**GE Cluster 70A-B: Evolution of the Cosmos and Life** Teaching Assistant Lead discussion and lab sections, first-year student advising
4/2018 - 6/2018	**Ecology and Evolutionary Biology 116: Conservation Biology** Teaching Assistant Lead discussion sections, created quiz material and learning activities
9/2014 - 5/2015	**Harvard College Bureau of Study Counsel** Tutor Course tutor for Organismic and Evolutionary Biology 10: Foundations of Biological Diversity

Leadership & Outreach

9/2018 - 6/2019	**EEB Committee: Seminar and Eco Evo Pub** Coordinator Scheduling and organizing biweekly student presentations
3/29/2019	**Los Angeles County Science Fair** Judge Evaluated middle and high school projects in Animal Physiology
3/2015 - 5/2016	**Harvard College Ocean Sciences Club** Officer K-12 education and outreach, raising awareness of ocean-related issues on campus

Languages

English	Native speaker
German	Intermediate proficiency (speaking, reading, and writing)
Spanish	Basic (speaking, reading, and writing)
Indonesian	Basic (speaking)