

Elizabeth A. Karan

PH.D. CANDIDATE
DEPT. OF ECOLOGY AND EVOLUTIONARY BIOLOGY
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EDUCATION

UNIVERSITY OF CALIFORNIA, LOS ANGELES; LOS ANGELES, CA
PH.D. IN ECOLOGY AND EVOLUTIONARY BIOLOGY, 2017–PRESENT
HARVARD COLLEGE; CAMBRIDGE, MA
A.B. ORGANISMIC AND EVOLUTIONARY BIOLOGY, 2016

RESEARCH EXPERIENCE

PH.D. CANDIDATE, ALFARO LAB; LOS ANGELES, CA 2021–PRESENT
PH.D. STUDENT, ALFARO LAB; LOS ANGELES, CA 2017– 2020

Research areas include: fish macroevolution, phylogenetic comparative methods, reef fish color pattern evolution, hyper-spectral imaging, computer vision, and machine learning. Ph.D.
Advisor: Prof. Michael Alfaro.

UNDERGRADUATE RESEARCHER, LAUDER LAB; CAMBRIDGE, MA 2015–2016

Worked towards completion of undergraduate research thesis, “The scales of cnidarian associated fishes and their functional implications”. Thesis Advisor: Prof. George V. Lauder.

RESEARCH ASSISTANT, RADCLIFFE RESEARCH PARTNERSHIP; CAMBRIDGE, MA 2015

Worked on a project investigating the utility of fossilized nacre as a paleothermometer. Principal Investigator: Prof. Pupa Gilbert.

VOLUNTEER, MUSEUM OF COMPARATIVE ZOOLOGY; CAMBRIDGE, MA 2014–2016

Duties included identifying and sorting larval specimens, measuring specimens, and updating the online database. Worked under the supervision of the collection manager, Karsten E. Hartel.

RESEARCH ASSISTANT, OPERATION WALLACEA; WAKATOBI N.P., INDONESIA 2014

Assisted on projects including: anemonefish cohabitation, sponge photosynthesis, mangrove fiddler crab ecology, reef diversity surveillance, and impacts of burrowing sponges

PUBLICATIONS

DK Wainwright, **EA Karan**, DC Collar. Evolutionary patterns of scale morphology in damselfishes (Pomacentridae). *Biological Journal of the Linnean Society*. 02 December 2021.

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, M Perillo, ME Alfaro. It's not just a phase: evolutionary and functional consequences of sexually dimorphic color pattern diversity in labrid fishes. *Society of Integrative and Comparative Biology*. Virtual meeting. January 2021.

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

GRANTS AND FELLOWSHIPS

ESA STUDENT SECTION REAL/BROWN STUDENT AWARD 2020
EEB DEPARTMENTAL RESEARCH AWARD 2019
NATIONAL SCIENCE FOUNDATION GRADUATE RESEARCH FELLOWSHIP 2019
UCLA IRVING AND JEAN STONE FELLOWSHIP 2017
HARVARD DEAN'S SUMMER RESEARCH AWARD 2015
MUSEUM OF COMPARATIVE ZOOLOGY GRANT FOR UNDERGRADUATE RESEARCH 2015
HARVARD COLLEGE RESEARCH PRIZE 2015
DAVID ROCKEFELLER INTERNATIONAL EXPERIENCE GRANT 2014

SKILLS

COMPUTER LANGUAGES

C, Python, R, PHP, HTML, JavaScript

SOFTWARE

TensorFlow, Adobe Suite, BayesTraits, RevBayes, BEAST, Astral, POY, phyutility,
SequenceMatrix, Geneious, MountainsMap, Igor, ImageJ, Linux server administration

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 AND COURSE SUPPORT

INSTRUCTOR, GE CLUSTER 70CW: EVOLUTION OF INTELLIGENCE SPRING 2019
Constructed all course material, lead a small seminar of 22 students

TEACHING ASSISTANT, CLUSTER 70B: EVOLUTION OF COMOS AND LIFE B WINTER 2019
Lead discussion and lab sections

TEACHING ASSISTANT, CLUSTER 70A: EVOLUTION OF COMOS AND LIFE A FALL 2018
Lead discussion and lab sections

TEACHING ASSISTANT, EEB 116: CONSERVATION BIOLOGY SPRING 2018
Lead discussion sections, created quiz material and learning activities

LEADERSHIP AND OUTREACH

EEB GRADUATE EDUCATION TASK FORCE 2020-2021
Developed a set of recommendations to improve Diversity, Equity and Inclusion in EEB
Graduate Education; paid position

JUDGE, LOS ANGELES COUNTY SCIENCE & ENGINEERING FAIR 2019, 2020 (VIRTUAL)

Evaluated middle and high school projects in Animal Physiology (2019) and Ecology (2020)

VOLUNTEER, EXPLORING YOUR UNIVERSE 2019

Organized and administered interactive science learning activities for children

VOLUNTEER, AWISE STEM DAY AT UCLA 2019

Organized and administered interactive science learning activity for young girls

COORDINATOR, EEB COMMITTEE: SEMINAR AND ECO EVO PUB 2018 – 2019

Scheduled and organized biweekly graduate student presentations

LANGUAGES

ENGLISH – NATIVE SPEAKER

GERMAN – INTERMEDIATE PROFICIENCY (SPEAKING, READING, WRITING)

SPANISH – BASIC (SPEAKING, READING, WRITING)

INDONESIAN – BASIC (SPEAKING)