Taruna A. Schuelke

Ecology, Evolution, and Marine Biology | University of California, Santa Barbara

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EDUCATION

University of California, Santa Barbara – Ph.D.; Ecology, Evolution, and Marine Biology; *In progress*

University of New Hampshire – M.Sc.; Genetics with an emphasis on bioinformatics and genomics; 2016

University of California, Davis – B.Sc., Genetics 2010

RESEARCH EXPERIENCE

Ecology, Evolution, and Marine Biology, University of California — Santa Barbara, CA

Graduate Researcher, advisor: Dr. Elizabeth Wilbanks — 09/2018 – Present

Tentative dissertation title: Investigating the Roles of Microbes in Fulfilling Their Host's Nutritional Needs.

Department of Nematology, University of California — Riverside, CA

Research Specialist, supervisor: Dr. Holly Bik — 09/2016 – 09/2018

- Managed a newly founded research laboratory that focused on studying metazoan diversity using metabarcoding and metagenomic approaches.
- Liaised with collaborators to manage and coordinate research projects and prepare scientific publications.
- Trained and supervised personnel in molecular techniques as well as computer programming; cultivated a positive, professional, and learning environment.

Molecular, Cellular and Biomedical Sciences, University of New Hampshire — Durham, NH

Graduate Researcher, advisors: Dr. Matthew MacManes and Dr. Kirk Broders — 08/2014 – 05/2016

Thesis title: Understanding the Evolution of Pathogenicity Within *Geosmithia*.

- Assembled and annotated *de novo* genomes and transcriptomes.
- Worked on a team that developed an open source protein aligner for functionally profiling whole metagenomic data and published a manuscript presenting the software.

Evolution and Ecology, University of California — Davis, CA

Undergraduate Researcher, advisor: Dr. Artyom Kopp — 01/2007 – 05/2010

Project title: Elucidating the Genetic Basis of Coloration Differences in *Drosophila ananassae*.

- Trained with a research team of mathematics, physics and biology undergraduate students, developing an epidemiological model to study the dynamics of measles in the United Kingdom.

PUBLICATIONS

- Guangxi W, **Schuelke TA**, Gloria I, Broders K. 2020. The genome of the butternut canker pathogen, *Ophiognomonia clavigignenti-juglandacearum* shows an elevated number of genes associated with secondary metabolism and protection from host resistance responses in comparison with members of the Diaporthales. *PeerJ* 8: e9265.
- Pereira T, De Santiago A, **Schuelke TA**, Hardy S, Bik HM. 2020. The impact of intragenomic rRNA variation on metabarcoding derived diversity estimates: a case study from marine nematodes. *eDNA*. 00: e77.
- Nascimento FJA, Dahl M, Deyanova D, Lyimo LD, Bik HM, **Schuelke TA**, Pereira TJ, Björk M, Creer S, Gullström M. 2019. Above-below surface interactions mediate effects of seagrass disturbance on meiobenthic diversity, nematode and polychaete trophic structure. *Communications Biology*. 2:362.
- Zhou D, Feng H, **Schuelke TA**, Santiago AD, Zhang Q, Zhang J, Luo C, Wei L. 2019. Rhizosphere Microbiomes from Root Knot Nematode Non-infested Plants Suppress Nematode Infection. *Microbial Ecology*. https://doi.org/10.1007/s00248-019-01319-5.
- **Schuelke TA**, Pereira TJ, Hardy SM, Bik HM. 2017. Nematode-associated Microbial Taxa Do Not Correlate With Host Phylogeny, Geographic Region or Feeding Morphology in Marine Sediment Habitats. *Molecular Ecology* 27(8): 1930-1951.

- **Schuelke TA**, Woeste K, Broders K, MacManes MD. 2016. Comparative Genomics of Pathogenic and Nonpathogenic Beetle-Vectored Fungi in the Genus *Geosmithia*. *Genome Biology and Evolution* 9(12): 3312-3327.
- Westbrook A, Ramsdell J, **Schuelke TA**, Normington L, Bergeron R, Thomas W, MacManes MD. 2017. PALADIN: Protein Alignment for Functional Profiling Whole Metagenome Shotgun Data. *Bioinformatics* 33(10): 1473-1478.
- **Schuelke TA**, Westbrook A, Broders K, Woeste K, MacManes MD. 2016. *De novo* Genome Assembly of *Geosmithia morbida*, the Causal Agent of Thousand Cankers Disease. *PeerJ* 4: e1952.
- Schraiber JG, Kaczmarczyk AN, Kwok R, Park M, Silverstein R, Rutaganira FU, **Aggarwal T**, Schwemmer MA, Hom CL, Grosberg RK, Schreiber SJ. 2012. Constraints on the Use of Lifespan-Shortening Wolbachia to Control Dengue Fever. *J. Theor. Biol.* 297: 26-32.

HONORS AND AWARDS

- Schmidt Family Fountain Research Accelerator Award ($8,000), UC Santa Barbara, 2020
- Excellence in Teaching Award Nominee, UC Santa Barbara, 2020
- New Hampshire Agricultural Experiment Station, Research Award ($5,546), University of New Hampshire, 2016
- Research and Teaching Assistantships, University of New Hampshire, 2014-2016
- Society for Developmental Biology 69th Annual Meeting, Albuquerque, NM, 2010
  - Sponsored by the Society for Developmental Biology to present my undergraduate research at annual conference.
- Annual Biomedical Research Conference for Minority Students, Phoenix, AZ, 2009
  - Received an award for *The Best Presentation* in Developmental Biological Sciences.
- Dean's List, Biological Sciences, 2008

TEACHING EXPERIENCE

University of California, Santa Barbara — Santa Barbara, CA
Teaching Assistant — 09/2019 – Present

- Teach ecology and evolution courses; duties included preparing discussion plans, grading written assignments and exams, assisting students during recitations, and fostering a positive learning environment.

University of New Hampshire — Durham, NH
Teaching Assistant — 01/2015 – 05/2016

- Taught introductory biology (Bio 412 & Bio 411) and genetics (Gen 604); duties included preparing lesson plans, grading assignments, assisting students during labs and recitations, and fostering a positive learning environment.

District of Columbia Public Schools — Washington, DC
High School Science Teacher — 08/2010 – 08/2012

- Taught biology and environmental science to high school students in a low-income, inner-city school.
- Enforced strict standards and provided individual pathways for success.
- Implemented research-based instructional strategies to raise student achievement.
- Acquired funding for two grants through DonorsChoose.org to provide interactive and effective lessons for students.
- Organized student field trips to the White House.

QUALIFICATIONS & SKILLS

- Proficient in the Linux/UNIX environment and computational languages such as Python, bash, R, and HTML.
- Proficient with HPCC platforms, HPCC architecture, job scheduling, and data storage.
- Familiar with Java and database management systems such as MySQL and Oracle.
- 10+ years of experience in molecular biology research.
- Exceptional writing, verbal and interpersonal skills; highly organized and meticulous; independent and critical thinker who thrives in fast-paced, collaborative, and individual professional settings.