Kenji Thomas Hayashi

Curriculum Vitae – October 2018

Ph.D. Student
Department of Ecology and Evolutionary Biology
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Research Interests

I am broadly interested in plant community ecology and biogeography. I am particularly interested in understanding the drivers of the coexistence, community assembly, and geographic distributions of plant species, across multiple spatial scales. I aim to explore these topics from the perspectives of functional traits, niche concepts, population dynamics, and metacommunity processes. My recent research examines the functional structure of subalpine meadow communities along an elevational gradient in the Colorado Rocky Mountains.

Education

Ph.D. **Ecology and Evolutionary Biology, University of California, Los Angeles**
Expected June 2023
Department of Ecology and Evolutionary Biology
Advisor: Nathan Kraft

B.S. **Biology (Ecology and Evolutionary Biology), Brown University**, May 2018
Honors in the Biological Sciences
Honors Thesis: "Functional traits, elevation, and the assembly of Rocky Mountain meadow communities"
Advisors: Brian Enquist (University of Arizona), Dov Sax

Publications

Journal Articles:

1. Miller, E.C., **Hayashi, K.T.**, Song, D. & Wiens, J.J. (2018) Explaining the ocean's richest biodiversity hotspot and global patterns of fish diversity. *Proceedings of the Royal Society B: Biological Sciences*, 285, 20181314.

- Press coverage in The New York Times: "Why Southeast Asia and Australia's coral reefs became so rich in species"
- Invited blog post in OBIS Use Cases: "High species richness in the Central Indo-Pacific explained by time and many colonization events"

Grants & Fellowships

2018-2022	Steven A. Vavra Fellowship, University of California, Los Angeles
2018-2019	Palevsky Fellowship, University of California, Los Angeles
2017	Barclay Scholarship, Rocky Mountain Biological Laboratory
2016	BrownConnect LINK Award, Brown University

Honors & Awards

2018	Honors in the Biological Sciences, Brown University
2018	Elected to Sigma Xi as Associate Member, Brown University Chapter

Presentations

1. Hayashi, K.T. "Functional traits, elevation, and the assembly of Rocky Mountain meadow communities." Oral presentation. Brown University, Department of Ecology and Evolutionary Biology, Undergraduate Thesis Talks, Providence, RI, April 2018.

Teaching

2017	Teaching Assistant, BIOL0480 Evolutionary Biology, Brown University
2016	Teaching Assistant, BIOL1470 Conservation Biology, Brown University
2016	Teaching Assistant, JAPN0050 Intermediate Japanese, Brown University
2015	Teaching Assistant, JAPN0040 Intermediate Japanese, Brown University

Mentorship

2017-2018	Biology Peer Advisor, Brown University

Other Research Experience

Honors Thesis, Brown University (September 2017 – May 2018)
Independent research project examining trait-based community assembly in subalpine meadow communities along an elevational gradient in the Colorado Rocky Mountains. Collected plant functional trait data in the field, curated trait data in R, and analyzed the structure of

multidimensional functional trait space. Continuation of summer research at RMBL. Advisors: Brian Enquist (University of Arizona), Dov Sax (Brown University).

Undergraduate Researcher, Enquist Lab, RMBL (June 2017 - August 2017)
Conducted an independent research project at the Rocky Mountain Biological Laboratory as part of the RMBL Full-Time Independent Research program. Undertook field work for 10 weeks to collect plant functional trait data at multiple subalpine meadow sites along an elevational gradient. Assisted in field work for plant community transplant experiment and community carbon flux measurements. Continued independent project as undergraduate honors thesis. Advisors: Brian Enquist (University of Arizona), Lorah Patterson (University of Arizona).

Undergraduate Researcher, Sax Lab, Brown University (September 2016 – May 2017)
Contributed to a meta-analysis exploring the impacts of exotic species on ecosystem functioning, with a focus on primary productivity in grasslands. Main responsibility was conducting a primary literature search for published data on plant community composition and productivity. Collaborators: Kathryn Amatangelo (The College at Brockport, SUNY), Dov Sax (Brown University).

Research Assistant, Sax Lab, Brown University (October 2015 - September 2016)
Assisted in ongoing research to evaluate the fundamental niche space of plants and to construct a trait-based predictive framework for assessing their climate tolerances. Utilized online databases (e.g. GBIF, herbaria) to collect information on localities of adventive and federally listed plants across the United States. PI: Dov Sax (Brown University).

Undergraduate Researcher, Wiens Lab, University of Arizona (June 2016 - August 2016)
(1) Took part in a research project evaluating the roles of the timing and rates of macroevolutionary processes (colonizations, diversification) in shaping species richness patterns in marine fishes. Primary responsibilities included delineation of marine biogeographic regions, collection of distributional data for focal species, and assistance with implementation of analyses (e.g. ancestral range reconstructions). Now published in *Proceedings of the Royal Society B*. Lead Author: Elizabeth Miller (University of Arizona). (2) Conducted a literature search for morphological and geographic information of squamates globally and performed preliminary ancestral character reconstructions to assess global patterns of squamate limb-reduction events. Advisor: John Wiens (University of Arizona).

Field/Lab Assistant, Matter Lab, University of Cincinnati (June 2015 - August 2015)
(1) Assisted in 6 weeks of field work for research on metapopulation dynamics of the Rocky Mountain Apollo butterfly (*Parnassius smintheus*). Responsibilities included mark-recapture surveys, host plant counts, and data entry. PI: Stephen Matter (University of Cincinnati). (2) Performed metapopulation dynamics experiments in *Paramecium caudatum* microcosms to examine the link between local population extinctions and metapopulation synchrony. PI: Megan Lamkin (University of Cincinnati).

Outreach & Service

2018 Invited blog post for OBIS Use Cases ("High species richness in the Central Indo-Pacific explained by time and many colonization events"). Summarized the results of Miller et al. (2018) "Explaining the ocean's richest biodiversity gradient and global patterns of fish diversity" and discussed the role of OBIS data in the study.

Membership in Professional Societies

- Sigma Xi: The Scientific Research Honor Society, Brown University Chapter