

# Joel H. Nitta

SPECIALLY APPOINTED ASSISTANT PROFESSOR

Department of Biological Sciences, Graduate School of Science, The University of Tokyo

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*Studying biology at the intersection of ecology and evolution from species to the globe*

## Education

### Harvard University

Cambridge, MA

PHD IN ORGANISMIC AND EVOLUTIONARY BIOLOGY

Nov. 2016

- Advisor: Prof. Charles C. Davis
- Dissertation: Ecology and Evolution of the Ferns of Moorea and Tahiti, French Polynesia

### University of Tokyo

Tokyo, Japan

MS IN BIOLOGICAL SCIENCES

Mar. 2010

- Advisor: Prof. Motomi Ito
- Thesis: Reticulate Evolution in the *Crepidomanes minutum* Species Complex (Hymenophyllaceae)

### University of California, Berkeley

Berkeley, CA

BA IN INTEGRATIVE BIOLOGY AND JAPANESE LANGUAGE

May 2007

- Advisor: Prof. Brent D. Mishler
- Honor's Thesis: The Filmy Ferns of Moorea, French Polynesia: A Case Study in Integrative Taxonomy
- Highest Honors in Integrative Biology
- Highest Distinction in General Scholarship

## Skills

**Field** Pteridophyte species identification, botanical specimen collection, field survey design

**Lab** DNA extraction, PCR, Sanger DNA sequencing, next-gen DNA sequencing (sequence capture), gel electrophoresis, cloning

**Programming** R, Docker, Git, bash

**Languages** English (native), Japanese (fluent), Spanish (beginner)

## Experience

### Department of Biological Sciences, Graduate School of Science, The University of Tokyo

Tokyo, Japan

SPECIALLY APPOINTED ASSISTANT PROFESSOR

Apr. 2020 -

- Providing analytical support for various -omics projects.

### Department of Botany, National Museum of Natural History, Smithsonian Institution

Washington, DC, USA

PETER BUCK POSTDOCTORAL RESEARCH FELLOW

Jan. 2019 - Mar. 2020

- Assembled a global dataset to analyze the biogeographical history of ferns and lycophytes in the tropical Pacific.

### Department of Botany, National Museum of Nature and Science

Tsukuba, Japan

JAPAN SOCIETY FOR THE PROMOTION OF SCIENCE POSTDOCTORAL RESEARCH FELLOW

Nov. 2016 - Dec. 2018

- Applied next-generation DNA sequencing to reconstruct the evolutionary history of the *Thelypteris angustifrons* fern species complex.

### Harvard University Herbaria

Cambridge, MA

CURATORIAL FELLOW

Jan. 2016 - Jun. 2016

- Updated organization of pteridophytes to reflect current understanding of phylogeny.

### Harvard University

Cambridge, MA

GRADUATE STUDENT INSTRUCTOR

Jan. 2014 - May 2014

- Taught lab section of OEB 52, Biology of Plants.

## Harvard University

GRADUATE STUDENT INSTRUCTOR

- Taught lab section of OEB 52, Biology of Plants.

Cambridge, MA

Jan. 2013 - May 2013

## Moorea Biocode Project

RESEARCH STAFF

- Oversaw collection of all fern species on island of Moorea, French Polynesia.
- Developed guide and key to Moorean ferns (<http://ucjeps.berkeley.edu/moorea/>).

Moorea, French Polynesia

Apr. 2010 - Aug. 2011

## O'Grady Lab, Environmental Science, Policy, and Management, UC Berkeley

UNDERGRADUATE RESEARCH APPRENTICE

- Conducted phylogenetic analysis of evolutionary history and biogeography of endemic Hawaiian *Dicranomyia* (craneflies).

Berkeley, CA

Jan. 2006 - Aug. 2006

## Student Learning Center, UC Berkeley

BIOLOGY TUTOR

- Tutored students in general biology and received training to lead study groups.

Berkeley, CA

Jan. 2006 - May 2006

## Grants & Awards

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2019	<b>Smithsonian Institution Barcode Initiative</b> , \$8,000	Washington, DC
2016	<b>Japan Society for the Promotion of Science Kakenhi</b> , \$21,000	Tsukuba, Japan
2015	<b>Pteridological Section of the Botanical Society of America Warren H. Wagner, Jr. Student Travel Award</b> , \$500	Edmonton, Canada
2015	<b>National Science Foundation Doctoral Dissertation Improvement Grant</b> , \$13,000	Cambridge, MA
2013	<b>Garden Club of America Award in Tropical Botany</b> , \$5,500	Cambridge, MA
2012	<b>American Society of Plant Taxonomists Research Grant for Graduate Students</b> , \$850	Cambridge, MA
2012	<b>Systematics Association Systematics Research Fund</b> , \$2,350	Cambridge, MA
2012	<b>Society of Systematic Biologists Graduate Student Research Award</b> , \$1,900	Cambridge, MA
2008	<b>University of Tokyo Academic Research Grant, International</b> , \$1,500	Tokyo, Japan

## Honors

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2008	<b>Japanese Government (Monbukagakusho: MEXT) Scholarship</b> , University of Tokyo	Tokyo, Japan
2007	<b>Phi Beta Kappa Society</b> , University of California, Berkeley	Berkeley, CA
2007	<b>Departmental Citation</b> , Department of Integrative Biology, University of California, Berkeley	Berkeley, CA
2002	<b>Regents and Chancellor's Scholar</b> , University of California, Berkeley	Berkeley, CA

## Publications

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### JOURNAL ARTICLES

#### Life in the canopy: Community trait assessments reveal substantial functional diversity among fern epiphytes

J. H. NITTA, J. E. WATKINS, C. C. DAVIS

*New Phytologist* (2020). *In press*

#### An update and reassessment of fern and lycophyte diversity data in the Japanese archipelago

A. EBIHARA, J. H. NITTA

*Journal of Plant Research* 132 (2019) pp. 723–738

#### Growth dynamics of independent gametophytes of *Pleurosoriopsis makinoi* (Polypodiaceae)

A. EBIHARA, J. H. NITTA, Y. MATSUMOTO, Y. FUKAZAWA, M. KURIHARA, H. YOKOTE, K. SAKUMA, O. AZAKAMI

*Bulletin of the National Museum of Nature and Science, Series B (Botany)*, Tokyo 45 (2019) pp. 77–86

#### Virtual issue: Ecology and evolution of pteridophytes in the era of molecular genetics

J. H. NITTA, A. EBIHARA

*Journal of Plant Research* 132 (2019) pp. 719–721

#### Keeping an eye on coloration: Ecological correlates of the evolution of pitcher traits in the genus *Nepenthes* (Caryophyllales)

K. J. GILBERT, **J. H. NITTA**, G. TALAVERA, N. E. PIERCE  
*Biological Journal of the Linnean Society* 123 (2018) pp. 321–337

***Microsorium* × *tohieaense* (Polypodiaceae), a new hybrid fern from French Polynesia, with implications for the taxonomy of *Microsorium***

**J. H. NITTA**, S. AMER, C. C. DAVIS  
*Systematic Botany* 43 (2018) pp. 397–413

**Life cycle matters: DNA barcoding reveals contrasting community structure between fern sporophytes and gametophytes**

**J. H. NITTA**, J.-Y. MEYER, R. TAPUTUARAI, C. C. DAVIS  
*Ecological Monographs* 87 (2017) pp. 278–296

**The separation of generations: Biology and biogeography of long-lived sporophyteless fern gametophytes**

J. B. PINSON, S. M. CHAMBERS, **J. H. NITTA**, L.-Y. KUO, E. B. SESSA  
*International Journal of Plant Sciences* 178 (2017) pp. 1–18

**A plastid phylogeny and character evolution of the Old World fern genus *Pyrrosia* (Polypodiaceae) with the description of a new genus: *Hovenkampia* (Polypodiaceae)**

X.-M. ZHOU, L. ZHANG, C.-W. CHEN, C.-X. LI, Y.-M. HUANG, D.-K. CHEN, N. THI, D. CICUZZA, R. KNAPP, T. TAM, **J. H. NITTA**, X.-F. GAO, L.-B. ZHANG  
*Molecular Phylogenetics and Evolution* 114 (2017) pp. 271–294

**Fern species richness and abundance are indicators of climate change on high-elevation islands: evidence from an elevational gradient on Tahiti (French Polynesia)**

R. POUTEAU, J.-Y. MEYER, P. BLANCHARD, **J. H. NITTA**, M. TEROROTUA, R. TAPUTUARAI  
*Climatic Change* 138 (2016) pp. 143–156

***Antrophyum solomonense* (Pteridaceae), a new species from the Solomon Islands, and its systematic position based on phylogenetic analysis**

C.-W. CHEN, **J. H. NITTA**, M. FANERII, T. Y. A. YANG, F. PITISOPA, C. W. LI, W.-L. CHIOU  
*Systematic Botany* 40 (2015) pp. 645–651

**A survey of the fern gametophyte flora of Japan: Frequent independent occurrences of noncordiform gametophytes**

A. EBIHARA, A. YAMAOKA, N. MIZUKAMI, A. SAKODA, **J. H. NITTA**, R. IMAICHI  
*American Journal of Botany* 100 (2013) pp. 735–743

**Reticulate evolution in the *Crepidomanes minutum* species complex (Hymenophyllaceae)**

**J. H. NITTA**, A. EBIHARA, M. ITO  
*American Journal of Botany* 98 (2011) pp. 1782–1800

**Pteridophytes of Mo’orea, French Polynesia: additional new records**

**J. H. NITTA**, J.-Y. MEYER, A. R. SMITH  
*American Fern Journal* 101 (2011) pp. 36–49

**Molecular species identification with rich floristic sampling: DNA barcoding the pteridophyte flora of Japan**

A. EBIHARA, **J. H. NITTA**, M. ITO  
*PLoS ONE* 5 (2010) e15136

**The Hymenophyllaceae of the Pacific area. 2. *Hymenophyllum* (excluding subgen. *Hymenophyllum*)**

A. EBIHARA, **J. H. NITTA**, K. IWATSUKI  
*Bulletin of the National Museum of Nature and Science. Series B, Botany* 36 (2010) pp. 43–59

**New Records of *Polyphlebium borbonicum*, an African Filmy Fern, in the New World and Polynesia**

A. EBIHARA, **J. H. NITTA**, D. LORENCE, J.-Y. DUBUISSON  
*American Fern Journal* 99 (2009) pp. 200–206

**Hemi-epiphytism in *Vandenboschia collariata* (Hymenophyllaceae)**

**J. H. NITTA**, M. J. EPPS  
*Brittonia* 61 (2009) pp. 392–397

**Exploring the utility of three plastid loci for biocoding the filmy ferns (Hymenophyllaceae) of Moorea**

**J. H. NITTA**  
*Taxon* 57 (2008) 725–2E

**Mitochondrial phylogeny of the endemic Hawaiian crane flies (Diptera, Limoniidae, *Dicranomyia*): Implications for biogeography and species formation**

J. H. NITTA, P. O'GRADY

*Molecular Phylogenetics and Evolution* 46 (2008) pp. 1182–1190

**Distribution, ecology, and systematics of the filmy ferns (Hymenophyllaceae) of Moorea, French Polynesia**

J. H. NITTA

*Biology and Geomorphology of Tropical Islands* 16 (2006) pp. 177–199

## Presentations

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### ORAL

**Biogeography of Polynesian pteridophytes in a global context**

New Haven, CT

J. H. NITTA, A. WHITE, W. WAGNER, E. SCHUETTPELZ

2019

3rd Annual Digital Data Conference

**Applying next-generation DNA sequencing to resolve the *Thelypteris angustifrons* species complex (Thelypteridaceae)**

Taipei, Taiwan

J. H. NITTA, N. NAKATO, A. EBIHARA

2018

7th Asian Symposium of Ferns and Lycophytes

**Fern community assembly on Moorea and Tahiti: Comparing gametophytes and sporophytes**

Kyoto, Japan

J. H. NITTA, J.-Y. MEYER, R. TAPUTUARAI, C. C. DAVIS

2017

16th Annual Meeting of the Japanese Society for Plant Systematics

**Fern flora of Moorea and Tahiti, French Polynesia: Community analysis using DNA barcodes**

Noda, Japan

J. H. NITTA

2017

Japan Pteridological Society Meeting

• Invited speaker

**Life in the canopy: Comparative and community phylogenetic analyses of epiphytic growth in ferns**

Shenzhen, China

J. H. NITTA, J. E. WATKINS, N. M. HOLBROOK, C. C. DAVIS

2017

19th International Botanical Congress

**Unraveling the evolutionary history of the *Parathelypteris angustifrons* species complex (Thelypteridaceae)**

Shenzhen, China

J. H. NITTA, N. NAKATO, A. EBIHARA

2017

19th International Botanical Congress

**Life cycle matters: Divergent patterns of community structure between fern sporophytes and gametophytes**

Washington, DC

J. H. NITTA, J.-Y. MEYER, R. TAPUTUARAI, C. C. DAVIS

2015

Next Generation Pteridology Conference

**Life cycle matters: Divergent patterns of community structure between fern sporophytes and gametophytes**

Edmonton, Canada

J. H. NITTA, J. E. WATKINS, N. M. HOLBROOK, C. C. DAVIS

2015

Botanical Society of America Conference

### POSTER

**DNA barcode analysis of the pteridophyte flora of Nectandra Cloud Forest Reserve, Costa Rica.**

Kanazawa, Japan

J. H. NITTA, A. EBIHARA, A. R. SMITH

2018

17th Annual Meeting of the Japanese Society for Plant Systematics

**A new hybrid fern species of *Microsorium* (Polypodiaceae) from Moorea, French Polynesia**

Noda, Japan

J. H. NITTA, S. AMER, C. C. DAVIS

2017

81st Annual Meeting of the Botanical Society of Japan

**Comparative ecophysiology of the filmy ferns (Hymenophyllaceae) of Moorea, French Polynesia**

Edmonton, Canada

J. H. NITTA, J. E. WATKINS, N. M. HOLBROOK, C. C. DAVIS

2015

Botanical Society of America Conference

**Investigating the role of a cryptic life stage in fern community assembly**

Cambridge, MA

J. H. NITTA, C. C. DAVIS

2014

9th Plant Biology Initiative Conference

**Investigating drivers of community assembly in the ferns of Moorea, French Polynesia: An ecological and evolutionary approach**

Cambridge, MA

J. H. NITTA, C. C. DAVIS

2012

7th Plant Biology Initiative Conference

**Reticulate evolution in the *Crepidomanes minutum* species complex**

Hachioji, Japan

J. H. NITTA, A. EBIHARA, M. ITO

2009

41st Species Biology Conference

## Community Activity

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### VOLUNTEER ROLES

2018 - **Team Member**, Software Carpentry Japanese translation team

2017 - **Subject Editor**, *Phytotaxa*

### SOCIETY MEMBERSHIP

American Fern Society, American Society of Plant Taxonomists, Botanical Society of Japan, Ecological Society of America, Japanese Society for Plant Systematics

### JOURNALS REVIEWED

*Acta Botanica Gallica*, *American Fern Journal*, *American Journal of Botany*, *Annals of Botany*, *AoB PLANTS*, *Australian Systematic Botany*, *Biology Letters*, *Botanical Journal of the Linnean Society*, *Botany Letters*, *Brittonia*, *Journal of Ecology*, *Molecular Phylogenetics and Phylogeny*, *Plant Species Biology*, *Phytotaxa*, *PLoS ONE*, *Taxon*