

Joel H. Nitta

PROJECT RESEARCH ASSOCIATE

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)

Teaching Certified Software Carpentry Instructor

Experience

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

Tokyo, Japan

PROJECT RESEARCH ASSOCIATE

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

2022	Japan Society for the Promotion of Science Kakenhi (Grant-in-Aid for Early-Career Scientists) , \$31,000	Tokyo, Japan
2019	Smithsonian Institution Barcode Initiative , \$8,000	Washington, DC
2016	Japan Society for the Promotion of Science Kakenhi , \$21,000	Tsukuba, Japan
2015	Pteridological Section of the Botanical Society of America Warren H. Wagner, Jr. Student Travel Award , \$500	Edmonton, Canada
2015	National Science Foundation Doctoral Dissertation Improvement Grant , \$13,000	Cambridge, MA
2013	Garden Club of America Award in Tropical Botany , \$5,500	Cambridge, MA
2012	American Society of Plant Taxonomists Research Grant for Graduate Students , \$850	Cambridge, MA
2012	Systematics Association Systematics Research Fund , \$2,350	Cambridge, MA
2012	Society of Systematic Biologists Graduate Student Research Award , \$1,900	Cambridge, MA
2008	University of Tokyo Academic Research Grant, International , \$1,500	Tokyo, Japan

Honors

2022	The Young Scientist Award , Japanese Society for Plant Systematics	Tokyo, Japan
2021	Best Oral Presentation , Japanese Society for Plant Systematics	Tokyo, Japan
2008	Japanese Government (Monbukagakusho: MEXT) Scholarship , University of Tokyo	Tokyo, Japan
2007	Phi Beta Kappa Society , University of California, Berkeley	Berkeley, CA
2007	Departmental Citation , Department of Integrative Biology, University of California, Berkeley	Berkeley, CA
2002	Regents and Chancellor's Scholar , University of California, Berkeley	Berkeley, CA

Publications

JOURNAL ARTICLES

Identifying cryptic fern gametophytes using DNA barcoding: A review

J. H. NITTA, S. M. CHAMBERS

Applications in Plant Sciences (2022) In Press

Spatial phylogenetics of Japanese ferns: Patterns, processes, and implications for conservation

J. H. NITTA, B. D. MISHLER, W. IWASAKI, A. EBIHARA

American Journal of Botany (2022) In Press

Ecophysiological differentiation between life stages in filmy ferns (Hymenophyllaceae)

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

Journal of Plant Research 134 (2021) pp. 971–988

A taxonomic and molecular survey of the pteridophytes of the Nectandra Cloud Forest Reserve, Costa Rica

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

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 227 (2020) pp. 1885–1899

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 craneflies (Diptera, Limoniidae, *Dicranomyia*): Implications for biogeography and species formation

J. H. NITTA, P. O'GRADY

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

Presentations

ORAL

Phylogenetic systematics and community assembly processes in ferns

J. H. NITTA

21st Annual Meeting of the Japanese Society for Plant Systematics (*In Japanese*)

- Young Scientist Award Lecture

Online

2022

The open fern tree of life: Towards a continuously updated global fern phylogeny

J. H. NITTA, W. IWASAKI

20th Annual Meeting of the Japanese Society for Plant Systematics (*In Japanese*)

- Best Oral Presentation Award

Online

2021

Intergenerational niche differentiation in filmy ferns

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

85th Annual Meeting of the Botanical Society of Japan (*In Japanese*)

Hachioji, Japan (online)

2021

Exploring dimensions of biodiversity in Japanese ferns

J. H. NITTA, B. MISHLER, W. IWASAKI, A. EBIHARA

84th Annual Meeting of the Botanical Society of Japan (*In Japanese*)

Nagoya, Japan (online)

2020

Exploring dimensions of biodiversity in Japanese ferns

J. H. NITTA, B. MISHLER, W. IWASAKI, A. EBIHARA

Botanical Society of America Conference

Anchorage, AK (online)

2020

Biogeography of Polynesian pteridophytes in a global context

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

3rd Annual Digital Data Conference

New Haven, CT

2019

Sequence capture of Eupolypod II ferns: Applications at deep and shallow phylogenetic levels

J. H. NITTA, A. EBIHARA

18th Annual Meeting of the Japanese Society for Plant Systematics (*In Japanese*)

Hachioji, Japan

2019

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

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

7th Asian Symposium of Ferns and Lycophytes

Taipei, Taiwan

2018

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

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

16th Annual Meeting of the Japanese Society for Plant Systematics (*In Japanese*)

Kyoto, Japan

2017

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

J. H. NITTA

Japan Pteridological Society Meeting (*In Japanese*)

• Invited speaker

Noda, Japan

2017

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

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

19th International Botanical Congress

Shenzhen, China

2017

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

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

19th International Botanical Congress

Shenzhen, China

2017

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

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

Next Generation Pteridology Conference

Washington, DC

2015

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

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

Botanical Society of America Conference

Edmonton, Canada

2015

POSTER

The taxastand R package for resolving species names rapidly and accurately

J. H. NITTA, W. IWASAKI

21st Annual Meeting of the Japanese Society for Plant Systematics (*In Japanese*)

Online

2022

canaper: Categorical analysis of neo- and paleo-endemism in R

J. H. NITTA

Botanical Society of America Conference

Online

2021

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

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

17th Annual Meeting of the Japanese Society for Plant Systematics (*In Japanese*)

Kanazawa, Japan

2018

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

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

81st Annual Meeting of the Botanical Society of Japan (*In Japanese*)

Noda, Japan

2017

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

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

Botanical Society of America Conference

Edmonton, Canada

2015

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

J. H. NITTA, C. C. DAVIS

9th Plant Biology Initiative Conference

Cambridge, MA

2014

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

J. H. NITTA, C. C. DAVIS

7th Plant Biology Initiative Conference

Cambridge, MA

2012

Reticulate evolution in the *Crepidomanes minutum* species complex

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

41st Species Biology Conference (*In Japanese*)

Hachioji, Japan

2009

Community Activity

VOLUNTEER ROLES

- 2022 - **Subject Editor**, *PhytoKeys*
- 2020 - **Editorial Board Member**, *Journal of Plant Research*
- 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*