

JOEL H. NITTA, PH.D.

Postdoctoral Research Fellow
Department of Botany
National Museum of Natural History
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EDUCATION

Harvard University
Ph.D. in Organismic and Evolutionary Biology, November 2016
Advisor: Charles C. Davis
Dissertation: Ecology and Evolution of the Ferns of Moorea and Tahiti, French Polynesia

University of Tokyo
Master of Science in Biological Sciences, March 2010
Advisor: Motomi Ito
Thesis: Reticulate Evolution in the *Crepidomanes minutum* Species Complex (Hymenophyllaceae)

University of California, Berkeley
Bachelor of Arts in Integrative Biology and Japanese Language, May 2007
Advisor: 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

RESEARCH AND TEACHING EXPERIENCE

Peter Buck Postdoctoral Research Fellow
January 2019 – Present
Department of Botany, National Museum of Natural History, Smithsonian Institute
Constructing low-coverage plastomes from herbarium specimens to understand biogeography of ferns in French Polynesia.

Japan Society for the Promotion of Science Postdoctoral Research Fellow
November 2016 – December 2018
Department of Plant Research, National Museum of Nature and Science, Japan
Applied next-generation DNA sequencing to reconstruct the evolutionary history of the *Thelypteris angustifrons* fern species complex.

Curatorial Fellowship, January 2016 – June 2016
Harvard University Herbaria
Updated organization of pteridophytes to reflect current understanding of phylogeny.

Graduate Student Instructor, Spring 2013 and Spring 2014
Harvard University
Taught lab section of OEB 52, Biology of Plants.

Moorea Biocode Field Staff, June 2007 – August 2011
Moorea Biocode Project
Oversaw collection of all fern species on island of Moorea, French Polynesia. Developed guide and key to Moorean ferns (<http://ucjeps.berkeley.edu/moorea/>).

Undergraduate Research Apprentice, January 2006 – August 2006
Undergraduate Research Apprentice Program (URAP)
O'Grady Lab, Environmental Science, Policy, and Management, UC Berkeley
Conducted phylogenetic analysis of evolutionary history and biogeography of endemic Hawaiian *Dicranomyia* (craneflies).

Biology Tutor, January 2006 – May 2006
Student Learning Center, UC Berkeley
Tutored students in general biology and received training to lead study groups.

GRANTS

- 2016 Japan Society for the Promotion of Science Postdoctoral Fellowship Grant (\$21,000)
- 2015 Pteridological Section of the Botanical Society of America Warren H. Wagner, Jr. Student Travel Award (\$500)
- 2015 National Science Foundation Doctoral Dissertation Improvement Grant (\$13,000)
- 2013 Garden Club of America Award in Tropical Botany (\$5,500)
- 2012 American Society of Plant Taxonomists Research Grant for Graduate Students (\$850)
- 2012 Systematics Association Systematics Research Fund (\$2,350)
- 2012 Society of Systematic Biologists Graduate Student Research Award (\$1,900)
- 2008 University of Tokyo Academic Research Grant, International (\$1,500)

AWARDS

- 2008 Japanese Government (Monbukagakusho: MEXT) Scholarship
- 2007 Phi Beta Kappa Society
- 2007 Departmental Citation, Integrative Biology, UC Berkeley
- 2002 Regents and Chancellor's Scholar, UC Berkeley

PUBLICATIONS

Nitta, J.H., Watkins, J.E., Taputuarai, R., Davis, C.C. Life in the canopy: Phylogenetic filtering and morphological canalization in epiphytic ferns. In Prep.

Nitta, J.H., Watkins, J.E., Holbrook, N.M., Wang, T.W., Davis, C.C. Intergenerational niche differentiation in filmy ferns (Hymenophyllaceae). In Prep.

Nitta, J.H., Amer, S., Davis, C.C. *Microsorium* × *tohieaense* (Polypodiaceae), a new hybrid fern from French Polynesia, with implications for the taxonomy of *Microsorium*. 2018. *Systematic Botany* 43(2): 397 – 414.

Gilbert, K.J., **Nitta, J.H.**, Talavera, G., Pierce, N.E. Keeping an eye on coloration: ecological correlates of the evolution of pitcher traits in the genus *Nepenthes* (Caryophyllales). 2018. *Biological Journal of the Linnean Society* 123 (2): 321 – 337.

Zhou, X.-M., Zhang, L., Chen, C.-W., Li, C.-X., Huang, Y.-M., Chen, D.-K., Lu, N.T., Cicuzza, D., Knapp, R., Luong, T. T., **Nitta, J.H.**, Gao, X.-F., Zhang, L.-B. 2017. A plastid phylogeny and character evolution of the Old World fern genus *Pyrrosia* (Polypodiaceae) with the description of a new genus: *Hovenkampia* (Polypodiaceae). *Molecular Phylogenetics and Evolution*. 114: 271 – 294.

Nitta, J.H., Meyer, J.-Y., Taputuarai, R., Davis, C.C. 2017. Life cycle matters: DNA barcoding reveals contrasting community structure between fern sporophytes and gametophytes. *Ecological Monographs*. 87 (2): 278 – 296.

Pinson, J.B., Chambers, S.M., **Nitta, J.H.**, Kuo, L.Y., Sessa, E. 2017. The separation of generations: Biology and biogeography of long-lived, sporophyte-less fern gametophytes. *International Journal of Plant Sciences* 178 (1): 1 – 18.

Pouteau, R., Meyer, J.-Y., Blanchard, P., **Nitta, J.H.**, Terorotua, M., Taputuarai, R. 2016. Fern species richness and abundance are indicators of climate change on high-elevation islands: Evidence from an elevational gradient on Tahiti (French Polynesia). *Climatic Change* 138 (1-2): 143 – 156.

Chen, C.W.*, **Nitta, J.H.***, Fanerii, M., Yang, T.Y.A., Pitisopa, F., Li, C.W., Chiou, W.L. 2015. *Antrophyum solomonense* (Pteridaceae), a new species from Solomon Islands, and its systematic position based on phylogenetic analysis. *Systematic Botany*. 40 (3): 645 – 651.

* equal contribution

Ebihara, A., Yamaoka, A., Mizukami, N., Sakoda, A., **Nitta, J.H.**, Imaichi, R. 2013. A survey of the fern gametophyte flora of Japan: Frequent independent occurrences of noncordiform gametophytes. *American Journal of Botany*. 100 (4): 735 – 743.

Nitta, J.H., Ebihara, A., Ito, M. 2011. Reticulate evolution in the *Crepidomanes minutum* species complex (Hymenophyllaceae). *American Journal of Botany*. 98 (11): 1782 – 1800.

Nitta, J.H., Meyer, J.-Y., Smith, A.R. 2011. Pteridophytes of Mo’orea, French Polynesia: Additional new records. *American Fern Journal*. 101 (1): 36 – 49.

Ebihara, A., **Nitta, J.H.**, Ito, M. 2010. Molecular species identification with rich floristic sampling: DNA barcoding the pteridophyte flora of Japan. *PLoS ONE*. 5 (12): e15136. doi:10.1371/journal.pone.0015136

Ebihara, A., **Nitta, J.H.**, Iwatsuki, K. 2010. The Hymenophyllaceae of the Pacific Area. 2. *Hymenophyllum* (excluding subgen. *Hymenophyllum*). *Bulletin of the National Museum of Nature and Science, Series B (Botany)*. 36 (2): 43 – 59.

Ebihara, A., **Nitta, J.H.**, Lorence, D., Dubuisson, J.-Y. 2009. New records of *Polyphlebium borbonicum*, an African filmy fern, in the New World and Polynesia. *American Fern Journal*. 99 (3): 200 – 206.

Nitta, J.H. and Epps, M.J. 2009. Hemi-epiphytism in *Vandenboschia collariata* (Hymenophyllaceae). *Brittonia*. 61 (4): 392 – 397.

Nitta, J.H. 2008. Exploring the utility of three plastid loci for biocoding the filmy ferns (Hymenophyllaceae) of Moorea. *Taxon*. 57 (3): 725 – 736.

Nitta, J.H. and O’Grady, P.M. 2008. Mitochondrial phylogeny of the endemic Hawaiian craneflies (Diptera, Limoniidae, *Dicranomyia*): implications for biogeography and species formation. *Molecular Phylogenetics and Evolution*. 46 (3): 1182 – 1190.

Conference Presentations: Oral

Nitta, J.H., Nakato, N., Ebihara, A. 2018. Applying next-generation DNA sequencing to resolve the *Thelypteris angustifrons* species complex (Thelypteridaceae). 7th Asian Symposium of Ferns and Lycophytes, Taipei, Taiwan.

Nitta, J.H. 2017. *Moorea tou to Tahichi tou (Furansu ryō Porineshia) no shida shokubutsu furora: DNA bakodo ni yoru gunshuu kouzou kaiseki* (Fern flora of Moorea and Tahiti, French Polynesia: Community analysis using DNA barcodes). In Japanese. Invited Speaker, Japan Pteridological Society Meeting at the 81st Annual Meeting of the Botanical Society of Japan, Noda, Japan.

Nitta, J.H., Nakato, N., Ebihara, A. 2017. Unraveling the evolutionary history of the *Parathelypteris angustifrons* species complex (Thelypteridaceae). 19th International Botanical Congress, Shenzhen, China.

Nitta, J.H., Watkins, J.E., Holbrook N.M., Davis, C.C. 2017. Life in the canopy: Comparative and community phylogenetic analyses of epiphytic growth in ferns. 19th International Botanical Congress, Shenzhen, China.

Nitta, J.H., Meyer, J.-Y., Taputuarai, R., Davis, C.C. 2017. *Tahichi, Moorea tou no shida shokubutsu gunshuu keisei: houshitai to haiguutai to no hikaku* (Fern community assembly

on Moorea and Tahiti: comparing gametophytes and sporophytes). In Japanese. 16th Annual Meeting of the Japanese Society for Plant Systematics, Kyoto, Japan.

Nitta, J.H., Meyer, J.-Y., Taputuarai, R., Davis, C.C. 2015. Life cycle matters: Divergent patterns of community structure between fern sporophytes and gametophytes. Next Generation Pteridology Conference, Washington, DC.

Nitta, J.H., Watkins, J.E., Holbrook N.M., Davis, C.C. 2015. Life cycle matters: Divergent patterns of community structure between fern sporophytes and gametophytes. Botanical Society of America Conference, Edmonton, Canada.

Conference Presentations: Poster

Nitta, J.H., Ebihara, A., Smith, A.R. 2018. Nekutandora unmurin shizenhogoku (Kosutarika) no shidashokubtsu DNA bakodo chousa / DNA barcode analysis of the pteridophyte flora of Nectandra Cloud Forest Reserve, Costa Rica. In Japanese and English. 17th Annual Meeting of the Japanese Society for Plant Systematics, Kanazawa, Japan.

Nitta, J.H., Amer, S., Davis, C.C. 2017. A new hybrid fern species of *Microsorium* (Polypodiaceae) from Moorea, French Polynesia. 81st Annual Meeting of the Botanical Society of Japan, Noda, Japan.

Nitta, J.H., Watkins, J.E., Holbrook N.M., Davis, C.C. 2015. Comparative ecophysiology of the filmy ferns (Hymenophyllaceae) of Moorea, French Polynesia. Botanical Society of America Conference, Edmonton, Canada.

Nitta, J.H. and Davis, C.C. 2014. Investigating the role of a cryptic life stage in fern community assembly. 9th Plant Biology Initiative Conference, Cambridge, MA.

Nitta, J.H. and Davis, C.C. 2012. Investigating drivers of community assembly in the ferns of Moorea, French Polynesia: An ecological and evolutionary approach. 7th Plant Biology Initiative Conference, Cambridge, MA.

Nitta, J.H., Ebihara, A., Ito, M. 2009. *Uchiwa-goke kinen shuugun ni okeru moujou shinka* (Reticulate evolution in the *Crepidomanes minutum* species complex). In Japanese. 41st Species Biology Conference, Hachioji, Japan.

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 Evolution, Plant Species Biology, Phytotaxa, PLoS ONE, Taxon

PROFESSIONAL MEMBERSHIPS

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

PROFESSIONAL COMMUNITY ACTIVITY

2017 – Subject Editor, *Phytotaxa*