

Jessica Needham

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Lawrence Berkeley National Laboratory,
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Nationality British

Career

2019-present **Post Doctoral Researcher** Lawrence Berkeley National Laboratory
Exploring co-existence of PFTs within the dynamic vegetation model FATES

2016-2019 **Post Doctoral Fellow** Smithsonian Environmental Research Center
Global analysis of demographic niches in forest trees

Education

2013-2016 **DPhil** University of Oxford, UK
Modelling the dynamics of forest trees: from individual vital rates
to population and community dynamics

2009-2012 **BA** Biological Sciences - University of Oxford, UK
First Class

Awards

2013 - 2016 Clarendon Scholarship

2013 - 2016 New College Scholarship

2011 - 2016 Gatsby undergraduate studentship - continued to supported PhD student

2010 Keble College undergraduate prize

Research Experience

2015 **Research Intern, Microsoft Research, Cambridge**

2011 **Undergraduate research project:** supervisor Prof. Jane Langdale

2011 **Gatsby undergraduate studentship:** supervisor Prof. Jon Pittman

2011 **Borneo field course:** Methods in tropical ecology

2009 **Nuffield studentship:** Department of Veterinary Parasitology, University of Liverpool

Publications

Needham, J., Merow, C., Butt, N., Malhi, Y., Marthews, T. R., Morecroft, M. and McMahon, S. M. 2016. Forest community response to invasive pathogens: the case of ash dieback in a British woodland. **Journal of Ecology**, 104, 315-330.

* Editor's Choice in Science, 2016, vol. 352, p49

Needham, J., Merow, C., Chang-Yang, C-H., Caswell, H. and McMahon, S.M. 2018. Inferring forest fate from demographic data: from vital rates to population dynamic models **Royal Society B**, 285, 20172050

Johnson, D. J., **Needham, J.**, Xu, C. et al., 2018. Climate sensitive size-dependent survival in tropical trees **Nature Ecology & Evolution** <http://dx.doi.org/10.1038/s41559-018-0626-z>.

In preparation

Needham, J., Johnson, D. J. et al.,
In prep. Tree communities in globally distributed forests occupy different regions of demographic niche space.

Chang-Yang, C-H., **Needham, J.**, Sun, I-F, Lu, C-L., Hsieh, C-F. and McMahon, S. M.
In prep. Diversity takes time: Temporal dynamics of seedling demography in a subtropical rain forest.

McMahon, S. M., Johnson, D. J., **Needham, J.** and Chang-Yang, C-H.
In prep. Convergence of life-history strategies in a tropical forest.

Presentations

Needham, J. 2018. Forests show parallel evolution of life-history strategies globally
Association of Tropical Biology and Conservation, Kuching, Malaysia (invited)

Needham, J. 2017. Life-history strategies of tropical trees are not conserved within phylogenetic clades
Ecological Society of America, Portland, USA

Needham, J. 2016. Harnessing demographic data for cross-scale analysis of forest dynamics
German Centre for Integrative Biodiversity Research, Leipzig, USA (invited)

Needham, J. 2016. A cross-scale demographic approach to forest dynamics
Ecological Society of America, Fort Lauderdale, USA

Needham, J. 2014. (Poster and lightning talk) Evolutionary Demography Society, Stanford, USA

Workshops

ForestGEO Symposium on Forest research, 2014, 2016, 2017 & 2018
Speaker and workshop participant

German Centre for Integrative Biodiversity Research, Leipzig, Germany, 2016
Leader of 3 day workshop on modelling demography of forest trees

Gatsby Plant Science Network Meetings, (2013 - 2018)
Participant in training weekends and network meetings, Cambridge and Oxford, UK

Reviews

Reviewer for the following journals:

Ecology Letters, Ecology, Journal of Ecology, Methods in Ecology and Evolution, New Phytologist, Oikos, Functional Ecology, Population Ecology, Ecological Applications and European Journal of Forest Research

Teaching Experience

2014 Volunteer with IntoUniversity -
Providing academic support to disadvantaged young people

2014 Demonstrator at the University of Oxford -
Delivering computer classes for second year Biologists in
Quantitative Methods using R

Referees

Name Dr. Sean McMahon
Institution Smithsonian Environmental Research Center
Position Senior Scientist
Contact mcmahons@si.edu

Name Dr. Daniel Johnson
Institution University of Florida
Position Assistant Professor
Contact djj4tree@gmail.com

Name Prof. Andrew Hector
Institution Dept. Plant Sciences, University of Oxford
Position Professor of Ecology
Contact andrew.hector@plants.ox.ac.uk