

Morgan E. Furze

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EDUCATION

- 2013-2019 Ph.D. in Organismic and Evolutionary Biology, Harvard University, Dissertation title:
Understanding whole-plant nonstructural carbohydrate storage in a changing world
2017 A.M. in Organismic & Evolutionary Biology, Harvard University
2008-2012 B.A. in Biology, Bucknell University

APPOINTMENTS

- 2019-present YIBS Donnelly Postdoctoral Fellow, Brodersen Lab, Yale University

GRANTS

- 2016 Research in Residence Program, Hawkesbury Institute for the Environment
2015 Grand-in-Aid of Research, Sigma Xi
2015 Inter-university Training for Continental-scale Ecology Fellowship, NSF
2015 Graduate Research Opportunities Worldwide Fellowship, NSF
2015 ESS PI Meeting Student Travel Grant, DOE
2014-2017 Graduate Research Fellowship, NSF
2014-2017 Garden Club of New Jersey Scholarship

AWARDS

- 2019 YIBS Donnelly Postdoctoral Fellowship, Yale University
2019 Rising Star in Organismal Botany, Society for Integrative and Comparative Biology
2018 Distinction in Teaching for OEB 52 Biology of Plants, Harvard University
2017 Distinction in Teaching for OEB 10 Foundations of Biological Diversity, Harvard University
2012 Honor societies: Phi Beta Kappa, Mortar Board, Sigma Tau Delta, Phi Sigma Biological Society, Alpha Lambda Delta
2012 Elizabeth M. Oliphant Senior Prize, Bucknell University
2012 J. Orin Oliphant Senior Prize, Bucknell University
2012 Phi Sigma Biological Sciences Senior Prize, Bucknell University

PUBLICATIONS

10. M.E. Furze, B.A. Huggett, M.M. Wieringa, D.M. Aubrecht, M.S. Carbone, J.C. Walker, X. Xu, C.I. Czimczik, A.D. Richardson (In review), Seasonal fluctuation of nonstructural carbohydrates reveals the metabolic availability of stemwood reserves in tree species with contrasting wood anatomy. *Tree Physiology*.

9. M.E. Furze, J. Drake, J. Wiensenbauer, A. Richter, E. Pendall (2019), Carbon isotopic tracing of sugars throughout whole-trees exposed to climate warming. *Plant, Cell & Environment*.

8. J. Drake, **M. Furze**, M. Tjoelker, Y. Carillo, C. Barton, E. Pendall (2019), Climate warming and tree carbon use efficiency in a whole-tree ¹³CO₂ tracer study. *New Phytologist* 222(3): 1313-1324.
7. S. Landhäusser, P. Chow, L. Dickman, **M.E. Furze**, I. Kuhlmann, S. Schmid, J. Wiesenbauer, B. Wild, G. Gleixner, H. Hartmann, G. Hoch, N. McDowell, A. Richardson, A. Richter & H. Adams (2018), Standardized protocols and procedures can precisely and accurately quantify non-structural carbohydrates. *Tree Physiology* 38(12): 1764-1778.
6. A.D. Richardson, K. Hufkens, T. Milliman, D.M. Aubrecht, **M.E. Furze**, B. Seyednasrollah, M.B. Krassovski, J.M. Latimer, W.R. Nettles, R.R. Heiderman, J.M. Warren & P.J. Hanson (2018), Ecosystem warming extends vegetation activity but heightens cold temperature vulnerability. *Nature* 560: 368-371.
5. **M.E. Furze**, B.A. Huggett, D.M. Aubrecht, C.D. Stolz, M.S. Carbone & A.D. Richardson (2018), Whole-tree nonstructural carbohydrate storage and seasonal dynamics in five temperate species. *New Phytologist* 221(3): 1466-1477.
4. **M.E. Furze**, S. Trumbore & H. Hartmann (2018), Detours along the phloem sugar highway: stem carbon storage and remobilization. *Current Opinion in Plant Biology* 43: 89-95.
3. **M.E. Furze**, A.M. Jensen, J.M. Warren & A.D. Richardson (2018), Seasonal patterns of nonstructural carbohydrate reserves in four woody boreal species. *Journal of the Torrey Botanical Society* 145(4): 332-340.
2. M.S. Moore, K.A. Field, M.J. Behr, G.G. Turner, **M.E. Furze**, D.W.F. Stern, P.R. Allegra, S.A. Bouboulis, C.D. Musante, M.E. Vodzak, M.E. Biron, M.B. Meierhofer, W.F. Frick, J.T. Foster, D. Howell, J.A. Kath, A. Kurta, G. Nordquist, J.S. Johnson, T.M. Lilley, B.W. Barrett & D.M. Reeder (2018), Energy conserving thermoregulatory patterns and lower disease severity in a bat resistant to the impacts of white-nose syndrome. *Journal of Comparative Physiology B* 188(1): 163-176.
1. A.D. Richardson, M.S. Carbone, B.A. Huggett, **M.E. Furze**, C.I. Czimczik, J.C. Walker, X. Xu, P.G. Schaberg & P. Murakami (2015), Distribution and mixing of old and new nonstructural carbon in two temperate trees. *New Phytologist* 206: 590-597.

TEACHING EXPERIENCE

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| 2018 | Co-instructor for BIOS P-13000 Surf and Turf: An Introduction to Marine and Terrestrial Biology, Pre-College Program for high school students, Harvard University |
| 2018 | Teaching fellow for OEB 52 Biology of Plants, Harvard University |
| 2017 | Teaching fellow for OEB 10 Foundations of Biological Diversity, Harvard University |
| 2016 | Teaching fellow for OEB 399 Topics in Organismic and Evolutionary Biology, Harvard University |
| 2015-2016 | Media, Literacy, and Visualization fellow for the Derek Bok Center for Teaching and Learning, Harvard University |

- 2015-2016 Co-instructor for OEB390r Writing fellowship and grant proposals for the biological sciences, Harvard University
- 2015 Peer tutor for OEB59 Plants and Human Affairs, Bureau of Study Council, Harvard University
- 2014 Instructor for Yoga: from the myth to the mat, Graduate Student Council mini-course, Harvard University

MENTORING EXPERIENCE

- 2017 Andrew Bayliss (Bucknell University), Harvard University
- 2016-2017 Molly Wieringa (Harvard College), Harvard University
- 2016 Elizabeth Rao (Brown University), Harvard University
- 2014-2015 Claire Stolz (Harvard College), Harvard University
- 2013-2015 Mentor for high school seniors in the College Ready Program, Cambridge School Volunteers, Cambridge Rindge and Latin School

PRESENTATIONS

CONFERENCE TALKS

CONTRIBUTED

- 2020 ‘Tracing sugars throughout whole-trees exposed to climate warming’, by Furze *et al.*, Society for Integrative and Comparative Biology, Austin, TX
- 2019 ‘Understanding nonstructural carbohydrate storage and seasonal dynamics at the whole-tree level’ by Furze *et al.*, Society for Integrative and Comparative Biology, Tampa, FL; Rising Star in Organismal Botany winner
- 2018 ‘Isotopic insights into plant carbon cycling with climate warming’ by Pendall *et al.*, Australasian Environmental Isotope Conference, Wellington, NZ (co-author)
- 2017 ‘How does warming affect carbon allocation, respiration, and residence time in trees? An isotope tracer approach in a eucalypt’ by Pendall *et al.*, American Geophysical Union, New Orleans, LA (co-author)
- 2014 ‘Variation in the concentration and age of nonstructural carbon stored in different tree tissues’ by Richardson *et al.*, European Geosciences Union, Vienna, Austria (co-author)

COURSE LECTURES & TALKS

INVITED

- 2018 ‘Forest ecosystems under global change’, Dr. Di Santo’s Climate Change course at Emerson College, Boston, MA
- 2017 ‘Whole-tree nonstructural carbohydrate budgets in five temperate species’, Dr. Huggett’s The North Woods course at Bates College, Petersham, MA
- 2016 ‘Understanding nonstructural carbohydrate storage in woody plants’, University of California, Irvine, Czimczik Lab, Irvine, CA
- 2016 ‘Understanding nonstructural carbohydrate storage in woody plants’, University of Alberta, Landhäusser Lab, Edmonton, Canada

CONTRIBUTED

- 2015 ‘Understanding nonstructural carbohydrate storage in woody plants’, WSL’s International Course on Wood Anatomy and Tree Ring Ecology, Klosters, Switzerland

SEMINARS

INVITED

- 2019 'Whole-tree nonstructural carbohydrate storage in a changing world', Yale Institute for Biospheric Studies Seminar Series, Yale University, New Haven, CT
- 2019 'Whole-tree nonstructural carbohydrate storage in a changing world', Department of Natural Resources & Earth Systems Science, Environmental Sciences Seminar Series, University of New Hampshire, Durham, NH

CONTRIBUTED

- 2017 "'Whole-tree nonstructural carbohydrate budgets in five temperate species', Department of Organismic and Evolutionary Biology, G4 Symposium, Harvard University
- 2016 'Seasonal dynamics of nonstructural carbohydrate reserves in four woody boreal species', Herbaria Seminar Series, Harvard University, Cambridge, MA

OUTREACH TALKS

- 2014-present 'There's A Scientist in My Classroom', research talks to various high schools throughout MA and NH
- 2018 'Understanding how carbon flows through trees', Workshop for K-5th grade teachers, Harvard Museum of Natural History, Cambridge, MA
- 2018 'Understanding forests: from individuals to ecosystems', Mrs. Parisky's 4th graders, Birches School, Cambridge, MA
- 2018 'Understanding forests: from individuals to ecosystems', Ms. Pena's and Mrs. Kuzan's biology classes, Lacey Township High School, Lanoka Harbor, NJ
- 2016 'Understanding forests: from individuals to ecosystems', Mrs. Dorokhin's 9th graders, The Winsor School, Cambridge, MA

CONFERENCE POSTERS

CONTRIBUTED

- 2018 'Whole-tree nonstructural carbohydrate storage and seasonal dynamics in five temperate species', by Furze *et al.*, American Geophysical Union, Washington D.C.
- 2015 'Quantifying the size and seasonal dynamics of nonstructural carbon in temperate forest trees', by Furze *et al.*, Plant Biology Symposium, Harvard University, Jamaica Plains, MA
- 2015 'Quantifying the size and seasonal dynamics of nonstructural carbon in temperate forest trees', by Furze *et al.*, DOE's Terrestrial Ecosystem Science and Subsurface Biogeochemical Research Principal Investigators Meeting, Potomac, MD
- 2015 'Quantifying the size and seasonal dynamics of nonstructural carbon in temperate forest trees', by Furze *et al.*, Harvard Forest Symposium, Petersham, MA

SERVICE TO THE PROFESSION

- 2019-present Review editor, Frontiers in Forests and Global Change

SHORT COURSES ATTENDED

- 2017 Professional Development Series, Harvard University
- 2016 Phys-Fest, Kansas State University

- 2015 International Course on Wood Anatomy and Tree Ring Ecology, WSL
2014 Stable Isotope Biogeochemistry and Ecology (IsoCamp), University of Utah

ADDITIONAL UNIVERSITY ACTIVITIES

- 2018-2019 Departmental Seminar Journal Club, Harvard University
2015-2019 Yoga instructor for Harvard Recreation, Harvard University
2015-2017 Editor for Science in the News, Harvard University
2014-2017 Host for Bucknell University Externship Program, Harvard University
2014-2015 Writer for Science in the News, Harvard University
2013-2015 Mentee for Graduate Women in Science and Engineering, Harvard University

GRADUATE COMMITTEE

NM Holbrook, EM Kramer, CC Davis; Harvard University