

TYLER K. REFSLAND

Education

- 2018 PhD, Ecology, University of Illinois, Illinois, USA (expected, defense passed April 27)
Advisor: Dr. Jennifer Fraterrigo
- 2011 BA, Biology and Environmental Studies, Saint Olaf College, Minnesota, USA
Honors in Biology

Peer-reviewed publications

- 2018 **Refsland, T.K.** and J.M. Fraterrigo. Fire increases drought vulnerability of *Quercus alba* seedlings by altering forest microclimate and nitrogen availability. *Functional Ecology*. (*In Review*)
- 2017 **Refsland, T. K.** and J. M. Fraterrigo. 2017. Both canopy and understory traits act as response-effect traits in fire-managed forests. *Ecosphere* 8(12). doi: [10.1002/ecs2.2036](https://doi.org/10.1002/ecs2.2036)

Full manuscripts under preparation

Refsland, T.K., B. Knapp, K. Stephan and J.M. Fraterrigo. Long-term changes to fire frequency limit tree growth under favorable climate but not drought conditions.

Grants & fellowships

- 2017-2018 Fall Travel Grant, Graduate College, U of Illinois; \$500
- 2015-2017 Summer Research Grants, PEEC, U of Illinois; \$2,500
- 2013-2017 Spring Travel Grants, PEEC, U of Illinois; \$2,350
- 2014-2015 Joint Fire Science Program Graduate Research Innovation Award (GRIN); \$25,000; Co-PI with J.M. Fraterrigo
- 2015 Phillip Smith Memorial Fund, Illinois Natural History Survey; \$1,000
- 2015 Clark Summer Research Grant, School of Integrative Biology, U of Illinois; \$1,000

Honors & awards

- 2016-2017 University list of teachers rated as excellent (top 30%) by their students
- 2016 Lebus Fund Graduate Student Award, School of Integrative Biology, U of Illinois
- 2014 NSF Graduate Research Fellowship Program, *Honorable Mention*

Relevant research skills

Quantitative skills: linear and non-linear mixed effects models; time-series analysis; null-model testing of community assembly; multivariate analysis of functional-trait distributions; synthesis and analysis of large databases (> 100K observations) in R; SQL queries in Microsoft Access

Greenhouse and laboratory skills: Autoclave procedures; greenhouse propagation of *Quercus* spp.; Lachat QuickChem 8500 for soil NH₄, NO_x and PO₄ analyses; Costech ECS 4010 for C/N analysis; Ecophysiological measurements using LI-COR 6100 with fluorescence chamber and PMS pressure chamber

Leadership & professional development

- 2017 Undergraduate Research Apprenticeship Program (URAP): selected as a graduate student mentor to introduce and guide a student (U of Illinois) through the entire research process, from generating hypotheses to presenting results
- 2017 Early Career Mentoring Program, Ecological Society of America Early Career Ecologist Section
- 2016 Writing Across the Curriculum Workshop: developed skills for responding to student writing and providing clear, constructive feedback

Undergraduate mentoring

- 2013-now Lead supervisor and mentor of 8 students (U of Illinois) enrolled for course credit through independent study or for Honors in Biology
- 2017 International Summer Immersion Program (ISIP), U of Illinois: supervised and mentored an international exchange student working full-time on research
- 2014-2017 Researcher's Initiative Program, U of Illinois: supervisor and mentor of four students in the program, which aims to introduce research to students from backgrounds underrepresented in STEM fields
- 2014-2015 Summer Research Internship Program, College of ACES, U of Illinois: supervised three full-time undergraduate field assistants

Teaching

- 2017 Ecology Merit *instructor*: solely responsible for developing the lesson plan, instructing, and facilitating group discussion, with an emphasis on promoting peer teaching and interactions among students from backgrounds underrepresented in STEM fields
- 2014, 2016 Ecology *lab instructor*: led weekly field trips, discussions and lessons on writing skills in this intensive lab course that fulfills a composition credit for the biology major
- 2013 Environmental Biology Discussion *TA*: led mini-lectures and facilitated student-driven discussion on topics of environmental science and sustainability

Online courses

- 2017, 2018 Environmental Biology Online *course coordinator*: solely responsible for facilitating communication between students, TAs and instructor in online learning platform (Moodle). Enrollment ~ 375 students
- 2015 Environmental Biology Online *TA*: moderated and graded online discussion forums, with emphasis on environmental degradation, society and sustainability

Professional service & outreach

Professional service

- 2017 Conference co-organizer: Midwest Ecology & Evolution Conference (MEEC), Urbana, IL
- 2016-2017 Steering Committee, Program in Ecology, Evolution and Conservation Biology, U of Illinois
- 2015 Department Faculty Search Committee, Natural Resources and Environmental Sciences, U of Illinois
- 2015 Conference lead organizer and abstract reviewer: Graduate Students in Ecology & Evolutionary Biology Symposium, Urbana, IL

Outreach

- 2014-2016 Volunteer judge at Next Generation Science and Engineering Fair, Next Generation Elementary and Middle School, Champaign, IL
- 2015-2016 Vice President and Treasurer, Graduate Students in Ecology and Evolutionary Biology, U of Illinois
- 2015 Lead Fundraiser, Graduate Students in Ecology and Evolutionary Biology, U of Illinois
- 2014-2015 Plants iView after-school program volunteer, Urbana Middle School, Urbana, IL

Conference presentations

*undergraduate mentee

- 2018 Vozzo, J.*, **T.K. Refsland**, J.M. Fraterrigo. Increased fire frequency reduces aboveground net primary productivity of a Missouri Ozark oak-hickory forest. University of Illinois Undergraduate Research Symposium. Urbana, IL. April 19, 2018.
- 2017 **Refsland, T.K.**, B. Knapp, J.M. Fraterrigo. Effect of experimentally manipulated fire regimes on the response of forests to drought. American Geophysical Union Fall Meeting. New Orleans, LA. Dec 11-15, 2017. (Poster)
- Refsland, T.K.**, J.M. Fraterrigo. Forest drought vulnerability after fire: how fire-induced resprouting and altered microclimate affect *Quercus* water relations under experimental drought. Ecological Society of America Annual Meeting. Portland, OR. Aug 6-11, 2017.
- Ennab, N.*, **T.K. Refsland**, J.M. Fraterrigo. A meta-analysis of fire-induced filtering of plant traits and the implications for carbon storage. University of Illinois Undergraduate Research Symposium. Urbana, IL. Apr 28, 2017. (Poster) *Awarded 'Outstanding presentation' by University of Illinois Office of Undergraduate Research*
- Khan, T.*, **T.K. Refsland**, J.M. Fraterrigo. The effect of fire disturbance on adult *Quercus* spp. growth in drought years. University of Illinois Undergraduate Research Symposium. Urbana, IL. Apr 28, 2017. (Poster)
- Swire, M.*, **T.K. Refsland**, J.M. Fraterrigo. Effect of prescribed fire on forest drought resistance and resilience: a dendrochronological approach. University of Illinois Researcher's Initiative Symposium. Urbana, IL. Apr 24, 2017. (Poster)
- Refsland, T.K.**, J.M. Fraterrigo. Plant response-effect trait linkages along a resource gradient in fire-managed forests: implications for soil carbon stocks. Midwest Ecology and Evolution Conference. Urbana, IL. Mar 17-19, 2017.

- 2016 **Refsland, T.K.**, J.M. Fraterrigo. Does fire-induced re sprouting in oaks mediate their drought response? Ecological Society of America Annual Meeting. Fort Lauderdale, FL. Aug 7-12, 2016.
- Repp, V.*, **T.K. Refsland**, J.M. Fraterrigo. Effects of fire-driven vegetation change on mycorrhizal abundance, colonization and host tree fitness. Illinois Undergraduate Research Symposium. Urbana, IL. Apr 17-23, 2016. (Poster)
- Refsland, T.K.**, J.M. Fraterrigo. Potential for prescribed fire to promote drought resistance of *Quercus alba* seedlings in a changing climate. Central Hardwoods Conference. Columbia, MO. Mar 28-Apr 1, 2016.
- Milla, K.*, **Refsland, T.K.**, V. Repp*, J. Woodyard*, J.M. Fraterrigo. Fire-driven changes to the forest understory community strongly influence tree seedling fitness. Midwest Ecology and Evolution Conference. Oxford, OH. Mar 19-20, 2016.
- Refsland, T.K.** and J.M. Fraterrigo. Influence of prescribed fire on drought vulnerability of *Quercus alba* seedlings. Midwest Ecology and Evolution Conference. Oxford, OH. Mar 19-20, 2016.
- 2015 **Refsland, T.K.**, J.M. Fraterrigo. Effects of recurring fire disturbance on plant functional diversity may promote soil carbon accumulation in temperate deciduous forest. Ecological Society of America Annual Meeting. Baltimore, MD. Aug 9-14, 2015.
- Refsland, T.K.**, J.M. Fraterrigo. Fire-induced changes in plant functional diversity may promote soil carbon inputs in temperate deciduous forests. Fire in Eastern Oak Forests Conference. Tuscaloosa, AL. May 27-29, 2015. (Poster)
- Milla, K.*, **T.K. Refsland**, J.M. Fraterrigo. Prescribed fire effects on tree fitness and mycorrhizal relations. Illinois Undergraduate Research Symposium. Urbana, IL. Apr 19-25, 2015. (Poster)
- Refsland, T.K.**, J.M. Fraterrigo. Plant functional diversity reveals disturbance effects on soil carbon in temperate deciduous forests. University of Illinois Graduates in Ecology and Evolutionary Biology Symposium. Urbana, IL. Feb 14, 2015.
- 2014 **Refsland, T.K.**, J.M. Fraterrigo. Confronting the indirect effects of prescribed fire: the impact of understory vegetation shifts on carbon stocks of oak-hickory forests. Ecological Society of America Annual Meeting. Sacramento, CA. Aug 10-15, 2014. (Poster)
- Refsland, T.K.**, J.M. Fraterrigo. How does low-intensity, fire-based management impact ecosystem services? Oak Woodlands & Forest Fire Consortium Workshop. Harrisburg, IL. Jan 19, 2014.
- 2011 **Refsland, T.K.**, L.A. DeGuire, A.D. Webb, E.S. Babcock. Leaf litter processing in an impaired southeastern Minnesota stream: The indirect effects of flow velocity on decomposition. Ecological Society of America Annual Meeting. Austin, TX. Aug 7-12, 2011. (Poster)

Professional membership

- 2011-now Ecological Society of America (ESA), Physiology Section
- 2017-now American Geophysical Union (AGU)