

TYLER K. REFSLAND

Positions held

Sept 2018 - now Postdoc, Department of Natural Resources and Environmental Sciences, University of Nevada, Reno. PI: Hall Cushman

Education

2018 PhD, Ecology, University of Illinois, Illinois, USA
Advisor: Dr. Jennifer Fraterrigo

2011 BA, Biology and Environmental Studies, Saint Olaf College, Minnesota, USA
Honors in Biology

Professional experience

May – Oct 2012 *Seasonal Ecology Field Technician*. Nantucket Conservation Foundation, Nantucket, MA. Mentor: Jennifer Karberg

June – Nov 2011 *BIOCON Plant Community Ecology Intern*. Cedar Creek Ecosystem Science Reserve LTER, University of Minnesota, East Bethel, MN. Mentor: Alexandra Wright

May – Aug 2010 *Research Assistant*. HHMI Summer Internship. St. Olaf College, Northfield, MN. Mentor: Kathleen Shea

May – Aug 2009 *Research Experience for Undergraduates (REU) Intern*. Hubbard Brook LTER, Plymouth State University, Plymouth, NH. Mentors: Ruth Yanai and Tim Fahey

Peer-reviewed publications

2018 **Refsland, T.K.** and J.M. Fraterrigo. 2018. Fire increases drought vulnerability of *Quercus alba* seedlings by altering forest microclimate and nitrogen availability. *Functional Ecology*. doi: [10.1111/1365-2435.13193](https://doi.org/10.1111/1365-2435.13193)

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*

Research skills

Laboratory skills: Lachat QuickChem 8500 for NH₄, NO_x and PO₄ analyses; Costech ECS 4010 for C/N analysis; LI-COR 6100 with fluorescence chamber; PMS pressure chamber; wood tissue preparation using microtome; cross-dating with Velmex UniSlide

Quantitative skills: ArcGIS; SQL queries in Access; linear and non-linear mixed effects models, time-series analysis and managing large databases in R; COFECHA cross-dating software

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 **Refsland, T.K.**, B.O. Knapp, K. Stephan and J.M. Fraterrigo. Long-term changes to fire frequency limit adult tree growth under favorable climate but not drought conditions. Ecological Society of America Annual Meeting. New Orleans, LA. August 5-10, 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)