

Tyler J. Hoecker

Ph.D. Student

Department of Integrative Biology
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Education

- 2017- Ph.D., Zoology (Integrative Biology), University of Wisconsin-Madison
Dissertation topic: *Forest responses to novel fire regimes and climate change in the U.S. northern Rocky Mountains: Quantifying vulnerability and consequences for ecosystem function*. Advisor: Dr. Monica G. Turner
- 2014-2017 M.S., Systems Ecology, University of Montana
Thesis: *Understanding patterns and drivers of Alaskan fire-regime variability across spatial and temporal scales*. Advisor: Dr. Philip E. Higuera
- 2007-2011 B.A., Environmental Science, Willamette University
Thesis: *Coarse woody debris and management history at Zena Forest, Willamette Valley, Oregon*. Advisor: Dr. Karen B. Arabas

Research and Professional Experience

- 2017- Research Assistant
Landscape and Ecosystem Ecology Lab, Madison, Wisconsin
- 2015-2017 Research Assistant
PaleoEcology and Fire Ecology Lab, Missoula, Montana
- 2012 Research Technician
Quantitative Consultants Inc., McCall, Idaho
- 2011-2012 Spatial Analyst and Research Technician
USDA Forest Service, Logan, Utah

Teaching Experience

- Spring 2018 Teaching Assistant, *Introductory Ecology (260)*
University of Wisconsin, Dept. of Integrative Biology
- Fall 2017 Teaching Assistant, *Animal Biology (101)*
University of Wisconsin, Dept. of Integrative Biology
- Fall 2014 Teaching Assistant, *Fire Ecology and Management (326)*
University of Idaho, Dept. of Forest, Rangeland and Fire Sciences
- 2006-2010 Program Director, Wilderness Trip Leader, Naturalist
YMCA Camp Olson, Longville, Minnesota

Publications

- Hoecker, T.J.,** P.E. Higuera. 2019. Forest succession and climate variability interacted to control fire activity over the last four centuries in an Alaskan boreal landscape. *Landscape Ecology*. doi.org/10.1007/s10980-018-00766-8

Hoecker, T.J., P.E. Higuera, R. Kelly, F.S. Hu. Arctic and boreal paleofire records reveal drivers of fire activity and departures from Holocene variability. (In prep).

Presentations

Hoecker, T.J., Hansen, W. D., Turner, M.G. 2018. “Does abiotic variation create refugia or amplify vulnerability? Anticipating post-fire forest regeneration under novel disturbance regimes”. University of Washington Graduate Climate Conference. Seattle, WA. *Oral presentation.*

Hoecker, T.J., P.E. Higuera. 2018. “Forest Succession and Climate Variability Interacted to Control Fire Activity Over the Last Four Centuries in an Alaskan Boreal Forest.” Annual Meeting, U.S.- International Association for Landscape Ecology. *Poster presentation.*

Hoecker, T.J., P.E. Higuera, R. Kelly, F.S. Hu. 2017. “Variability and synchrony in 10,000 years of Alaskan fire history: Using paleoecological data to understand the controls and implications of fire-regime change.” Annual Meeting, Ecological Society of American. *Oral presentation.*

Hoecker, T.J., M.B. Mickelsen. 2017. “Mixed-severity landscapes: Fire in the Bitterroot ecosystem.” Missoula, MT. *Fine art opening, showing through 8/30/2017.*

Hoecker, T.J., P.E. Higuera, R. Kelly, F.S. Hu. 2016. “Understanding variability in paleofire regimes across the Alaskan boreal forest.” University of Washington Graduate Climate Conference. Seattle, WA. *Oral presentation.*

Hoecker, T.J., P.E. Higuera, R. Kelly, F.S. Hu. 2015. “Spatiotemporal trends in late-Holocene fire regimes in arctic and boreal Alaska.” Fall Meeting, American Geophysical Union. San Francisco, CA. *Oral presentation.*

Arabas, K.B., J. Bowersox, K. Copes-Gerbitz, **T.J. Hoecker**, K. Rigsby. 2011. “Placed-Based Undergraduate Research Experiences at Willamette University's Zena Forest and Farm.” Annual Meeting, Association of American Geographers. Seattle, WA. *Panel discussion.*

Competitive Awards

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| 2016 | Collaborative Challenge Research Grant, University of Montana Interdisciplinary Collaborative Network, \$1000. |
| 2015 | Outstanding Student Paper Award in Biogeosciences, AGU Fall Meeting. |
| 2015 | National Lacustrine Core Facility (LacCore) Visiting Graduate Student Award, National Science Foundation and University of Minnesota, \$1,000. |
| 2009 | Willamette University Carson Undergraduate Research Grant, “ <i>Ursus arctos</i> and the ecology of roads and encroachment in the MKMA, British Columbia,” \$3,000. |

Non-competitive Awards

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| 2018 | University of WI-Madison Dept. of Integrative Biology Summer Research Award, “Characterizing constraints on postfire tree regeneration patterns in subalpine forests of the Greater Yellowstone,” \$3,500. |
| 2017 | John Jefferson Davis Travel Award, to present at annual meeting of US Regional Association of the International Association for Landscape Ecology, \$600 |

2007-2011 Willamette University Mary Stuart Colins Tuition Award, undergraduate tuition scholarship over four years, \$42,000.

Workshops and Courses

- 2016 *PaleoEcological Observatory Network (PaleON) Summer Course*
Participated in intensive workshop covering paleoecological field and laboratory methods, Bayesian statistical inference, and ecosystem modeling hosted by the NSF-funded PaleON project.
- 2015 *International Arctic Research Center (IARC) Summer Course*
Developed successful permafrost modeling project with student and faculty collaborators.
- 2012 *Scientific Protocol for Salmonid Habitat Surveys*
Trained in NOAA Marine Fisheries Columbia River basin-wide habitat status and trends monitoring program.
- 2011 *Effectiveness Monitoring for Streams and Riparian Areas*
Trained in USDA Forest Service sampling protocol for stream channel attributes.

Outreach

- 2018 *BioHouse Learning Community*
Graduate student mentor for freshman biology majors at University of Wisconsin-Madison. Facilitated weekly seminar and extracurricular activities.
- 2017 *Madison School & Community Recreation Adult Role Models in Science*
Instructor for afterschool science club for 4th and 5th grade students; planned and guided weekly session about astrobiology from October-December.
- 2016 *Target Range School Annual Science Fair*
Evaluated and provided feedback on research projects by Target Range School students for annual intramural science fair.
- 2015 *Confluence Project Youth Water Summit*
Evaluated and provided feedback on research projects by area high school students as part of annual symposia of water resources research.

Service

- 2018-2019 *Integrative Biology Graduate Student Organization Executive Committee*
Co-facilitated monthly professional development seminar for department graduate students. Organized social events.
- 2009-2011 *Willamette University Sustainability Council*
Served as Student Chair. Attended weekly meetings, organized Sustainability Day, supported development of campus-wide organic waste composting infrastructure, participated in annual sustainability training.

Media Coverage

1. Tyrell, Kelly April. 2018. "Is fire the new normal in the American West?" *University of Wisconsin-Madison*. <https://news.wisc.edu/is-fire-the-new-normal-in-the-american-west/>. Appearance at 3:11.

2. Hollenhorst, John. 2018. "30 Years After the Fires of '88." *KSL-TV (NBC)*. Salt Lake City, UT. <http://ksltv.com/400330/summer-fire-rebirth/>
3. Pope, Kristin. 2018. "Wildfire Engulfed Yellowstone 30 Years Ago. Its Recovery Could Predict The Future of the West." *Discover*. <http://discovermagazine.com/2018/dec/burn-notice>

Professional Memberships

Ecological Society of America

U.S. Regional Association of the International Association for Landscape Ecology