Tyler J. Hoecker

Northwest Climate Adaptation Science Center
University of Montana
32 Campus Dr.
Missoula, MT 59802

Email: tyler.hoecker@umontana.edu
Phone: +1 507-250-0610
Twitter: @tylerhoecker
Website: https://tylerhoecker.github.io/

Education

University of Wisconsin, Ph.D. Zoology **Madison, WI**
Dept. of Integrative Biology, minor Quantitative Ecology, August 2021
Anticipating subalpine landscapes of the future: Responses to climate and fire-regime change in the northern US Rocky Mountains. Advised by Dr. Monica Turner.

University of Montana, M.S. Systems Ecology **Missoula, MT**
Dept. of Ecosystem and Conservation Sciences, May 2017
Understanding patterns and drivers of Alaskan fire-regime variability across spatial and temporal scales. Advised by Dr. Philip Higuera.

Willamette University, B.A. Environmental Science **Salem, OR**
Dept. of Earth and Environmental Sciences, May 2011
Coarse woody debris and management history at Zena Forest, Willamette Valley, Oregon. Advised by Dr. Karen Arabas.

Professional Experience

Climate Adaptation Postdoctoral Scholar
Northwest Climate Adaptation Science Center **Missoula, MT**
August 2021 - Present

Research Assistant, Landscape and Ecosystem Ecology Lab **Madison, WI**
July 2017 - August 2021

Research Assistant, PaleoEcology and Fire Ecology Lab **Missoula, MT**
July 2014 - May 2017

Habitat Monitoring Technician, Quantitative Consultants Inc. **McCall, ID**
June 2012 - Oct. 2012

Spatial Analyst, USDA Forest Service Rocky Mountain Research Station **Logan, UT**
May 2011 - June 2012

Publications

7. **Hoecker, T.J.** & Turner, M.G. In review. Contrasting fires foreshadow shifts in mesic mixed-conifer forests of the US Northern Rockies. *Forest Ecology and Management.*
6. **Hoecker, T.J.**, Turner, M.G. In review. Interactions between climate and fire-driven vegetation change constrain the distributions of forest vertebrates during the 21st century. *Diversity and Distributions.*
5. Turner, M.G., K.H. Braziunas, W.D. Hansen, **T.J. Hoecker**, W. Rammer, Z. Ratajczak, A.L. Westerling and R. Seidl. 2021. The magnitude and tempo of subalpine forest change in a warmer world with more fire. *Ecological Monographs* 00.
4. Gill, N.S., **T.J. Hoecker**, and M.G. Turner. 2021. The propagule doesn't fall far from the tree, especially after short-interval, high-severity fire. *Ecology* 102(1):e03194. doi: 10.1002/ecy.3194

3. **Hoecker, T.J.**, W.D. Hansen, and M.G. Turner. 2020. Landscape position amplifies consequences of novel short-interval stand-replacing fires on postfire tree establishment in subalpine conifer forests. *Forest Ecology and Management* 478:118523. doi: 10.1016/j.foreco.2020.118523
2. **Hoecker, T.J.**, P.E. Higuera, R. Kelly, F.S. Hu. 2020. Arctic and boreal paleofire records reveal drivers of fire activity and departures from Holocene variability. *Ecology* 101(9):e03096. doi:10.1002/ecy.3096
1. **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* 34:227–241. doi:10.1007/s10980-018-00766-8.

Invited and Select Contributed Presentations

Hoecker, T.J. & Tuner, M.G. 2021. "Contrasting fire return intervals reveal resilience to historical regimes and vulnerability to emerging change." International Association for Landscape Ecology–North America Annual Meeting, virtual*. Oral presentation.*

Hoecker, T.J. 2021. "Interactions between niche dimensions drive landscape suitability for three forest vertebrates during the 21st century." University of Montana Wildlife Biology Program. *Invited seminar lecture.*

Hoecker, T.J. & Magi, B. 2020. "Past Fire: A Virtual Discussion of What Came Before and What Lies Ahead." North by North Festival, Anchorage Museum, virtual. *Invited oral presentation and panel discussion.*

Hoecker, T.J., Ratajczak, Z., Turner, M.G. 2020. "Fire-driven changes in subalpine forest landscapes reduce habitat for forest wildlife during the 21st century." International Association for Landscape Ecology–North America Annual Meeting, virtual*. Oral presentation.*

Hoecker, T.J., Hansen, W. D., Turner, M.G. 2019. "Landscape position amplifies effects of novel short-interval stand-replacing fires on postfire tree establishment in subalpine conifer forests". 8th International Fire Ecology and Management Congress. Tucson, AZ*. 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 America. *Oral presentation*.

Hoecker, T.J., M.B. Mickelsen. 2017. "Mixed-severity landscapes: Fire in the Bitterroot ecosystem." Missoula, MT. *Fine art showing August, 2017.*

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*.

Competitive Grants

2019-2022 Anticipating and envisioning future landscapes of Greater Yellowstone. Camp Monaco Prize 2019, Prince Albert II of Monaco Foundation, $100,000. Graduate student contributor with Monica Turner et al.

2019-2021 Drivers of early postfire tree regeneration and indicators of forest resilience in

national parks of the northern Rocky Mountains. US National Park Service 2019 Reserve Fund Research, $69,716. Graduate student Co-PI with Monica Turner.

2016 Collaborative Challenge Research Grant, University of Montana Interdisciplinary Collaborative Network, $1000. Co-PI with Brock Mickelsen.

2015 National Lacustrine Core Facility (LacCore) Visiting Graduate Student Award, National Science Foundation and University of Minnesota, $1,000. PI.

2009 Willamette University Carson Undergraduate Research Grant, "*Ursus arctos* and the ecology of roads and encroachment in the Muskwa-Kechika Management Area, British Columbia," $3,000. Co-PI with Justin Olnes.

Non-competitive Grants

2018-2020 John Jefferson Davis Travel Awards, Dept. of Integrative Biology. To present at research conferences, received $600-800 annually for four years.

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.

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

Awards

2020 Student Travel Award. North American Regional Association of the International Association for Landscape Ecology. $700.

2019 TREE Student Travel Award. Association for Fire Ecology. $650.

2015 Outstanding Student Paper Award in Biogeosciences, American Geophysical Union Fall Meeting.

Teaching

2018-2021 **Guest Lecturer**

Wild Rockies Field Institute
Energy and Climate Change in Montana (395): Fire ecology

University of Montana Flathead Lake Biological Station
Landscape Ecology (458): Short-interval fire activity
Field Ecology (342): Postfire regeneration

University of Wisconsin-Madison
Principles of Landscape Ecology (565): Forest disturbances
Introductory Ecology (260): Disturbance ecology
Introductory Ecology (260): Reconstructing paleo-disturbances

Spring 2020 **Teaching Assistant**, *Introductory Biology (152) Case-based section*
University of Wisconsin-Madison, Dept. of Integrative Biology

Spring 2018 **Teaching Assistant**, *Introductory Ecology (260)*
University of Wisconsin-Madison, Dept. of Integrative Biology

Fall 2017 **Teaching Assistant**, *Animal Biology (101)*
University of Wisconsin-Madison, Dept. of Integrative Biology

Fall 2014 **Teaching Assistant**, *Fire Ecology and Management (326)*
University of Idaho, Dept. of Forest, Rangeland and Fire Sciences

Mentorship

Independent Research Mentor

Harrison Bielski University of Wisconsin-Madison 2019-Present
Recipient of Hilldale Research Fellowship 2020, $4,000

Field or Laboratory Mentor

Meghan Heffernan University of Montana, 2020
Chad Kluender University of Wisconsin, 2018
Jacob Gold University of Wisconsin, 2017
Andrew Nuemann University of Montana, 2016-2017
Kerry Sullivan University of Montana, 2016-2017
Camie Westfall University of Montana 2016

Professional Service

2019-2021 Center for Ecology and the Environment (formerly Wisconsin Ecology)
Executive Committee member of campus-wide ecology group. Planned annual spring symposium (hosting guest speaker, venue/virtual logistics, promotion) and social events for students.

2018-2019 Integrative Biology Graduate Student Organization Executive Committee
Social chair. Co-facilitated monthly professional development seminar for department graduate students, and lead organization of regular social events.

2009-2011 Willamette University Sustainability Council
Student Chair. Attended weekly meetings, organized Sustainability Day, supported development of campus-wide organic waste composting infrastructure, participated in annual sustainability training.

Ongoing Ad-hoc journal peer review
Ecology Letters, Biodiversity and Conservation, Journal of Ecology, Ecology, Ecological Applications, Scientific Reports, Nature Communications, Science of the Total Environment

Outreach

2018-2020 *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.

2006-2010 *YMCA Camp Olson; Longville, MN*
Program Director, Wilderness Trip Leader, Naturalist

Workshops

2020 *Learning About Resilient Futures*
Presented results to land managers as part of research team. We projected fire and climate-driven changes in forest resilience; identified tradeoffs; determined what management interventions outcomes resolve or intensify tradeoffs. Supported by Joint Fire Science Program's Northern Rockies Fire Consortium, held in Bozeman and Missoula, MT.

2018 *Software Carpentry*
Participated in internationally standardized, two-day curriculum on foundational topics in building reproducible scientific computing workflows. University of Wisconsin-Madison

Professional Society Memberships

Ecological Society of America
North American Regional Association of the International Association for Landscape Ecology
International Association for Fire Ecology

Media Coverage

Inside the Megafire: Nova
"Wildfire Engulfed Yellowstone 30 Years Ago. Its Recovery Could Predict The Future of the West.": Discover
Is fire the new normal in the American West?: University of Wisconsin-Madison
30 Years After the Fires of '88: KSL-TV (NBC) Salt Lake City, UT.
Fire on the Mountain: 2 Forests Offer Clues to Yellowstone's Fate in a Warming World: NYT
Alaska forest fires over past 450 years: Science Daily