

**Alison Kate Paulson**  
akpaulson@ucdavis.edu

**Education**

---

- Ph.D.** Botany (Ecology Track) with a distributed minor in Ecological Data Analysis 05/2018  
University of Wisconsin-Madison  
**Dissertation topic:** Regional drivers of plant species diversity and community composition in the Great Lakes
- B.S.** Biology (Environment and Conservation) and Biochemistry with a minor in Chemistry 06/2007  
University of Washington  
**Honors:** *cum laude*, College Honors in Biochemistry, Dean's List 10 of 12 semesters  
**Senior Honors Thesis:** Characterization of microbial communities associated with *Zostera marina*, *Zostera japonica*, and unvegetated mudflats in Padilla Bay, WA

**Professional Experience**

---

- 08/2020 – Present Postdoctoral Researcher, Department of Environmental Science and Policy, University of California, Davis
- 08/2020 – Present Coordinator, Sierra Nevada Section of the California Fire Science Consortium
- 06/2018 – 07/2020 Postdoctoral Researcher, Department of Forestry, Mississippi State University
- 08/2012 – 05/2018 Research and Teaching Assistant, Department of Botany, University of Wisconsin-Madison
- 06/2012 – 08/2012 Forestry Technician, Department of Forest Ecosystems and Society, Oregon State University (Job location: Rogue River - Siskiyou National Forest, Oregon)
- 03/2012 – 05/2012 Desert Tortoise Radio Telemetry Technician, AmeriCorps Nevada Conservation Corps, Great Basin Institute (Job location: Las Vegas, Nevada and Mojave Desert)
- 12/2011 – 02-2012 Biological Science Technician, GS-0404-05, United States Geological Survey, Western Ecological Research Center (Job location: Henderson, Nevada and Barstow, California)
- 07/2009 – 08/2011 Community Development and Environmental Extension Agent, United States Peace Corps, Republic of Mali
- 06/2009 – 06/2009 Forestry Technician, Department of Forest Ecosystems and Society, Oregon State University (Job location: Happy Camp, California)
- 10/2008 – 12/2008 Conservation Volunteer, Fundación Jatun Sacha, La Hesperia and Bilsa Biological Stations
- 05/2008 – 09/2008 Fisheries Technician, Alaska Salmon Program, University of Washington School of Aquatic and Fishery Sciences (Job location: Aleknagik, Alaska)
- 10/2007 – 05/2008 Research Technician, University of Washington School of Aquatic and Fishery Sciences
- 06/2007 – 09/2007 Biological Science Technician, GS-0404-05, Mount Rainier National Park, National Park Service

**Teaching Experience**

---

- 05/2017 – 07/2017 Instructor of Record – General Ecology, Botany 460 (Summer semester)
- 08/2012 – Present Teaching Assistant (9 semesters)
- General Ecology, Botany 460 (5 semesters)

- Evolution, Botany 410 (1 semester)
- Introductory Biology, Zoology 152 (3 semesters)

08/2015 – 12/2015 Mentor, BioHouse Residential Learning Community

### Professional Publications (\* Undergraduate Mentee)

---

Alexander, H. D., C. Siegert, S. Brewer, J. Kreye, M. Lashley, J. McDaniel, **A.K. Paulson**, H. Renninger, and M. Varner. 2021. Shifting oak landscapes: Does evidence support the mesophication hypothesis as the key driver of oak decline? *BioScience*. doi:10.1093/biosci/biaa169

**Paulson, A. K.**, H. Peña III, H. D. Alexander, S. Davydov, M. Mack, and S. M. Natali. *In Press*. Understory plant diversity and composition across a post-fire tree density gradient in a Siberian Arctic boreal forest. *Canadian Journal of Forest Research*. <https://doi.org/10.1139/cjfr-2020-0483>

\* Nation, R., H. D. Alexander, J. McDaniel, G. Denny, and **A. K. Paulson**. 2021. Impacts of increasing fine fuel loads on acorn germination and early growth of oak seedlings. *Fire Ecology* 17 (1): 1:13.

Talucci, A. C., E. Forbath, H. Kropp, H. D. Alexander, J. DeMarco, **A. K. Paulson**, N. S. Zimov, S. Zimov, and M. M. Loranty. 2020. Evaluating post-fire vegetation recovery in Cajander larch forests in northeastern Siberia using UAV derived vegetation indices. *Remote Sensing*. 12 (18): 2970.

Izbicki, B. J., H. D. Alexander, **A. K. Paulson**, B. R. Frey, R. W. McEwan, and A.I. Berry. 2020. Prescribed fire and natural canopy gap disturbances: impacts on upland oak regeneration. *Forest Ecology and Management*. 465: 11807.

**Paulson, A. K.**, S. Sanders, J. Kirschbaum, and D.M. Waller. 2016. Post-settlement ecological changes in the forests of the Great Lakes National Parks. *Ecosphere* 7 (10): e01490.

Waller, D.M., J. Ash, **A. K. Paulson**, and G. Sonnier. 2015. Letter to the editor: Tempering threats to temperate forests. *Science* 350 (6262): 747-748.

#### Manuscripts in Review:

Hale, C. W., J. J. Granger, **A. K. Paulson**, C. Ramirez-Reyes, Q. Ma, and J. Yang. Modeling Habitat Suitability for *Stewartia ovata* with Maximum Entropy Techniques, Citizen Science, and Natural History Records. *In Revision at Castanea*.

Lázaro-Lobo, A., **A. K. Paulson**, M. A. Lashley, and G. N. Ervin. Species' life history traits are more influential than native status in determining response to disturbance timing. *In Review at Restoration Ecology*.

#### Manuscripts in Preparation (complete drafts available):

**Paulson, A. K.**, A. Sabo, G. Sonnier, K. Frerker, and D. M. Waller. Deer impacts interact with environmental factors to alter functional trait distributions in plant communities.

**Paulson, A. K.**, S. Sanders, J. Kirschbaum, and D. M. Waller. Shifting legacies: Projecting climate change impacts on understory plant species in the Great Lakes National Parks.

### Resource Briefs and Outreach for General Audiences

---

**Paulson, A. K.**, Miller J. E. D. 2020. Fire severity impacts on plant species richness. California Fire Science Consortium Research Brief for Resource Managers.

Alexander, H. D., J. DeMarco, B. Izbicki, R. Hewitt, M. Mack, **A. K. Paulson**, and V. Spektor. Forests, fires, permafrost carbon – and recovery. Interact Science Stories.

### Honors, Grants, and Awards

---

2020 Joint Fire Science Program, California Fire Science Consortium, Sierra Nevada Section, \$60,995

2019 Ecological Society of America Early Career Mentoring Program

- 2018 Davis Research Award, \$500
- 2017 ON & EK Allen Dissertator Fellowship, \$8,000
- 2017 University of Wisconsin-Madison Campus-Wide Capstone Teaching Award, \$500
- 2017 NSF Novel Ecosystems IGERT Competitive Innovation Incentive Fund, \$4,855
- 2016 University of Wisconsin-Madison Conference Presentation Funds, \$300
- 2016 Davis Research Award, \$600
- 2015 Flora Aeterna Fellowship, \$8,000
- 2015 Lake States Fire Science Consortium Summer Internship, \$4,000
- 2015 University of Wisconsin-Madison Conference Presentation Funds, \$600
- 2014 Judith Croxdale Award for Women in Science, \$5,000
- 2014 Davis Research Award, \$690
- 2014 NSF Graduate Research Fellowship Program Honorable Mention
- 2013 First Place Poster, The Wildlife Society Student Research in Progress Session
- 2013 NSF Graduate Research Fellowship Program Honorable Mention
- 2013 Hanes Trust Research Award, \$2,370
- 2013 Davis Research Award, \$900
- 2013 Flora Aeterna Research Award, \$500
- 2007 Mary Gates Scholarship for Undergraduate Research, \$4,000
- 2003 Undergraduate Scholar Award, University of Washington

## Data Products

---

Alexander, H.D., **A. K. Paulson**, J. DeMarco, R. Hewitt, J. Lichstein, M. Loranty, M. C. Mack, and R. McEwan. 2019. Fire influences on forest recovery and associated climate feedbacks in Siberian Larch Forests, Russia, June-July 2018-2019. Arctic Data Center. doi:10.18739/A2VQ2S94D.

## Recent Presentations

---

- Paulson, A.K.**, H. D. Alexander, J. DeMarco, R. E. Hewitt, B. Izbicki, J. W. Lichstein, M. M. Loranty, M. C. Mack, R. W. McEwan, V. V. Spektor. Post-fire larch (*Larix cajanderi*) recruitment in Central Siberia is highest in areas with increased fire severity. American Geophysical Union Annual Meeting. San Francisco, CA. December 9-13, 2019. (Poster)
- Paulson, A. K.**, H. Pena, H. D. Alexander, S. Davydov, M. M. Loranty, M. C. Mack, and S. M. Natali. Variation of understory vegetation along a larch tree density gradient in northeastern Siberia. Ecological Society of America Annual Meeting. Louisville, KY. August 11-16, 2019. (Oral)
- Paulson, A.K.**, S. Sanders, J. Kirschbaum, and D.M. Waller. Shifting legacies: Projecting climate change impacts on understory plant species in the Great Lakes National Parks. Ecological Society of America Annual Meeting. New Orleans, LA. August 5-10, 2018. (Oral)
- Paulson, A. K.**, and D. M. Waller. New Metrics to Assess Deer Impacts on Forests: Twig Age, Skew in Sapling Numbers, and Functional Traits. Society of American Foresters National Convention. Madison, WI. November 2-6, 2016. (Poster)
- Paulson, A.K.**, K.L. Frerker, and D.M. Waller. Assessing white-tailed deer impacts on functional trait distributions in plant communities. Ecological Society of America Annual Meeting. Fort Lauderdale, FL. August 7-12, 2016. (Oral)
- Paulson, A.K.**, S. Sanders, J. Kirschbaum, and D.M. Waller. Using history to inform our understanding of ecological changes in the forests of the Great Lakes National Parks. North American Congress for Conservation Biology. Madison, WI. July 17-20, 2016. (Oral)

**Paulson, A.K.,** S. Sanders, J. Kirschbaum, and D.M. Waller. An historical lens to investigate changes in the forest composition and fire adaptation of the Great Lakes National Parks. Lake States Fire Science Consortium Webinar Series. November 19, 2015. (Webinar)

**Paulson, A.K.,** S. Sanders, J. Kirschbaum, and D.M. Waller. Shifts in prevalence of fire-associated vegetation in the National Parks of the Great Lakes Region. Science for Parks, Parks for Science: The Next Century. Berkeley, CA. March 25-27, 2015. (Poster)

**Paulson, A.K.** and D.M. Waller. Factors affecting the success of hemlock restoration in the Upper Peninsula, Michigan. Science in the Northwoods Conference. Boulder Junction, WI. October 15-17, 2014. (Oral)

**Paulson, A.K.,** K.L. Frerker, and D.M. Waller. A functional approach to measuring white-tailed deer impacts on plant communities. The National Wildlife Society Conference – Student Research in Progress Session. Milwaukee, WI. October 7, 2013. (First Place Poster)

## **Invited Seminars, Presentations, and Lectures**

---

### *Seminars:*

From the understory to the trees: Post-fire forest dynamics in Siberia. Mississippi State University Department of Forestry, Forestry and Natural Resources Seminar Series. November 8, 2019.

### *Webinars:*

**Paulson, A.K.,** S. Sanders, J. Kirschbaum, and D.M. Waller. An historical lens to investigate changes in the forest composition and fire adaptation of the Great Lakes National Parks. Lake States Fire Science Consortium Webinar Series. November 19, 2015. (Webinar)

### *Invited Lectures at Mississippi State University:*

Introduction to xeric (dry) upland forests. FO 2113: Dendrology. February 19, 2020.

Boreal forests in Siberia – global consequences of changing fire regimes. Biology 2990: Ecosystems. January 31, 2020.

Changing fire regimes in Siberia: Post-fire forest dynamics in the understory and the trees. WFA 3111: Applied Aquatic and Terrestrial Ecology. November 21, 2019.

Forests of the world: Boreal forests and changing fire regimes. FO 4123: Forest Ecology. November 18, 2019.

Forest and fire management effects on regional forest communities. FO 4123: Forest Ecology. November 15, 2019.

Forest community ecology. FO 4123: Forest Ecology. October 14, 2019.

Nutrient cycling and decomposition. WFA 3111: Applied Aquatic and Terrestrial Ecology. April 4, 2019.

Introduction to conifers and Pinaceae. FO 2113: Dendrology. March 27, 2019.

Trophic cascades and community structure. WFA 3133: Applied Aquatic and Terrestrial Ecology. March 7, 2019.

Fire and forests: threats to boreal forests across the globe. Biology 2990: Ecosystems. January 25, 2019.

### *Invited Lectures at the University of Wisconsin-Madison:*

Community ecology, species richness, and succession. Botany 460: General Ecology. November 8, 2016.

Forest change in the Great Lakes National Parks. Botany 460: General Ecology. June 27, 2016.

Shea butter in Mali: from the nut to the butter (ka si kolo ke si tulu la). Botany 240: Plants and Humans. Each fall 2014-2017. (4 Lectures)

Tree thinking. Botany 410: Evolution. September 16, 2013.

## **Recent Co-authored Presentations (\*Undergraduate Mentee)**

---

- Hale, C. W., J. J. Granger, Q. Ma, J. Yang, **A. K. Paulson**, and C. Ramirez-Reyes. Modeling Habitat Suitability for Mountain *Stewartia* and the Implications for Plant Conservation on Public Lands. Natural Areas Association Conference. October 13-16, 2020. (Virtual Poster, 3<sup>rd</sup> Place in Student Poster Competition)
- Hale, C. W., J. J. Granger, Q. Ma, J. Yang, **A. K. Paulson**, and C. Ramirez-Reyes. Habitat Suitability Modeling for the Benefit of Conservation. 18<sup>th</sup> Annual Graduate Student Research Symposium at Mississippi State University. October 24, 2020. (Virtual Poster).
- H. D. Alexander, **A. K. Paulson**, J. DeMarco, J. W. Lichstein, M. M. Loranty, M. C. Mack, R. E. Hewitt, R. W. McEwan, E. Borth, S. Frankenberg, N. Zimov, S. P. Davydov, and V. Spektor. Post-fire larch recruitment patterns in the Siberian Arctic indicate forest loss in many area. American Geophysical Union Annual Meeting. San Francisco, CA. December 9-13, 2019. (Poster)
- S. Frankenberg, R. W. McEwan, H. D. Alexander, **A. K. Paulson**, J. DeMarco, and R. E. Hewitt. Fire, forest, ice, and fungi: Exploring the mesh of relationships that drive seedling recruitment in the Siberian Arctic. American Geophysical Union Annual Meeting. San Francisco, CA. December 9-13, 2019. (Poster)
- J. DeMarco, S. Frankenberg, **A. K. Paulson**, H. D. Alexander, J. W. Lichstein, E. Borth, R. E. Hewitt, M. M. Loranty, M. C. Mack, and R. W. McEwan. Post-fire seedling recruitment in high-latitude Siberian larch (*Larix cajanderi*) forests associated with lower graminoid composition. American Geophysical Union Annual Meeting. San Francisco, CA. December 9-13, 2019. (Poster)
- \*Nation, R., H. D. Alexander, G. Denny, J. K. McDaniel, and **A. K. Paulson**. Impacts of increasing fuel loads on acorn germination and early oak seedling establishment. Society of American Foresters Annual Meeting. Louisville, KY. October 30 – November 3, 2019. (Poster - *2nd Place in the SAF Forest Science and Technology Board Poster Competition*)
- S. Frankenberg, R. W. McEwan, H. D. Alexander, **A. K. Paulson**, J. DeMarco, and R. E. Hewitt. Fire, ice, fungi, forest: Exploring the mesh of relationships that drive seedling recruitment in the Siberian Arctic. Ecological Society of America Annual Meeting. Louisville, KY. August 11-16, 2019. (Oral)
- Alexander, H. D., R. Nation, J. K. McDaniel, **A.K. Paulson**, M. Lashley, C. M. Siegert, B. Izbicki, G. Denny, A. Berry, B. Frey, and R. W. McEwan. Fire impacts on oak acorn germination and early establishment and oak seedling growth relative to co-occurring competitors. Ecological Society of America Annual Meeting. Louisville, KY. August 11-16, 2019. (Oral)
- Alexander, H. D., C. M. Siegert, B. Izbicki, **A. K. Paulson**, R. Nation, G. Denny, E. Babl, J. K. McDaniel, M. Lashley, N. Drotar, B. Frey, and R. W. McEwan. Mesophication of oak forests: implications for forest function and flammability. 6<sup>th</sup> Fire in Eastern Oak Forests Conference. State College, PA. July 23-25, 2019. (Invited Oral) <https://www.youtube.com/watch?v=fhnzwXPonJ0>
- \*Nation, R., H. D. Alexander, G. Denny, J. K. McDaniel, and **A. K. Paulson**. Impacts of increasing fuel loads on acorn germination and early oak seedling establishment. Mississippi State University Undergraduate Research Symposium. Starkville, MS. April 16, 2019. (Poster)

## **Undergraduate Research Mentoring**

---

- |           |   |
|-----------|---|
| 2020      | Brianna Ellis, Undergraduate Research Assistant, Mississippi State University           |
| 2019-2020 | Anna Dickie, Undergraduate Research Assistant, Mississippi State University             |
| 2018-2020 | Rachel Nation, Undergraduate Research Assistant, Mississippi State University           |
| 2015-2016 | Scout Kirby, Undergraduate Research Program, University of Wisconsin-Madison            |
| 2013      | Zoe Delain, Introductory Biology Independent Research Project, University of Wisconsin- |

Madison

2013 Claire Jones, Field Assistant, University of Wisconsin-Madison

### **Service and Outreach Activities**

---

- 2020 Research in the Siberian Arctic. Virtual outreach via Zoom with 7<sup>th</sup> and 8<sup>th</sup> graders in Miami Dade Public Schools.
- 2019 Session Chair and Convener: "Causes and Consequences of Changing Disturbance Regimes in Boreal Forests Across the Globe." American Geophysical Union Annual Meeting
- 2019 Outstanding Student Presentation Award (OSPA) Judge and Liaison. American Geophysical Union Annual Meeting
- 2016-2020 Peer-reviewer for Plant Ecology (2020), Fire Ecology (2019), and PLoS One (2016)
- 2019 Mentor for the Ecological Society of America SEEDS (Strategies for Ecology, Education, Diversity, and Sustainability) program at the 2019 Annual Meeting
- 2019 Co-led field trip for 18 attendees of the 2019 Ecological Society of America Conference: "Exploring Bernheim Arboretum and Research Forest: From Fire Ecology to Streamside Restoration to Beautiful Gardens"
- 2019-2020 Tree Campus USA Advisory Board, Mississippi State University
- 2019 Judge for the spring and summer Mississippi State University Biology Undergraduate Research Symposium (BURP) and the Honors Undergraduate Research Symposium.
- 2019 Field assistant for the Mississippi State University Dendrology (FO 2113) course field trips
- 2019 Assisted undergraduate Mississippi State University engineering students with tree surveys in campus forest
- 2018 Student and Policy section volunteer at the Ecology Society of America Annual Meeting
- 2017 Organized and led an Ecology Exploration Station for Science Saturday: Aldo Leopold Day at the Wisconsin Institutes of Discovery
- 2016 General Ecology Course Coordinator Search Committee, University of Wisconsin-Madison
- 2012-2016 Graduate student representative, Department of Botany Graduate Committee, University of Wisconsin-Madison
- 2016 Volunteer, North American Congress for Conservation Biology: Chaperoned field trips to the Aldo Leopold Foundation, International Crane Foundation, and Story Collider events
- 2016 Reviewer for PLoS One
- 2016 Abstract Reviewer, North American Congress for Conservation Biology, Society of Conservation Biology
- 2013-2015 Graduate Student Co-Chair, Wisconsin Ecology Graduate Committee: Organized the Wisconsin Ecology Spring Symposiums with 200+ people in attendance (2014-2015), organized the Wisconsin Ecology Undergraduate Job Fair (2013-2015), and organized community-building activities (2013-2014)
- 2014 Invited Speaker, Latino Earth Partnership and UW-Madison Arboretum: "The ecological and ethnobotanical value of native prairie plants"
- 2013-2016 Outreach volunteer, 1-2 times per year: Evolution and ecology outreach booths at the Wisconsin Science Festival (2013 and 2016), Darwin Days (2013 and 2014), and Expanding Your Horizons (2013)

### **Training and Professional Development**

---

- 2019-2020 Preparing Future Faculty. Mississippi State University. Program to assist early career

- scientists in preparing for future faculty careers. Includes training on current teaching practices, understanding faculty roles and responsibilities, and improving instructional capacity.
- 2019 SafeZone Training. Mississippi State University. Learned strategies to promote a safe and welcoming environment for LGBTQ+ students and community members.
- 2019 Arctic Data Center Data Science Training at the National Center for Ecological Analysis and Synthesis: 5 day intensive workshop on data science, R programming, reproducible research, data archival, and project management.
- 2018 Fire and Forest Management at Bernheim Forest Conference and Field Tour. Led by the Joint Fire Science Program Oak Woodlands and Fire Science Consortium at Bernheim Arboretum and Research Forest, Clairmont, Kentucky.
- 2018 Generalized Linear Mixed Models (GLMM) Workshop: applications for complex ecological Data. University of Wisconsin-Madison.
- 2017 Bias and Diversity Training. University of Wisconsin-Madison: Learned strategies to combat bias in the workplace.
- 2017 COMPASS Science Communication Workshop, University of Wisconsin-Madison
- 2017 Project Management Workshop for Graduate Students, University of Wisconsin-Madison
- 2017 Software Carpentry, University of Wisconsin-Madison: Learned about data management, reproducible research, and coding with Shell, Python, and Git.
- 2017 Access I Training, University of Wisconsin-Madison: Introduction to Microsoft Access.
- 2016 Wisconsin Initiative on Climate Change Impacts (WICCI) Workshop, University of Wisconsin-Madison: Preparing Wisconsin's plant communities for an uncertain future.
- 2016 Creating an Individual Development Plan Workshop, University of Wisconsin-Madison
- 2016 Data Carpentry, University of Wisconsin-Madison: Learned about data management, manipulation, and visualization using R, R Markdown, OpenRefine, and SQL.
- 2016 Land Ethic Leaders training, Aldo Leopold Foundation: Received training to become a facilitator and teacher of Aldo Leopold's land ethic.
- 2016 Improv to Improve Teaching and Communication, University of Wisconsin-Madison.
- 2014 Structural Equation Modeling Workshop, University of Wisconsin-Madison.

## **Technical Skills**

---

- Programming with R, R Markdown, SQL, Shell, Git
- Spatial and non-spatial data analysis with R and ArcGIS
- Microsoft Office Suite (Word, Excel, PowerPoint)
- Windows and Macintosh operating systems
- Adobe Illustrator, Inkscape

## **Language Skills**

---

Mandingo – Bambara (primary language spoken in Mali): Spoken (Advanced), Written and Read (Intermediate)

Spanish: Spoken, Written, and Read (Intermediate)

## **Affiliations**

---

Ecological Society of America (Member, 2016 - Present)

American Geophysical Union (Member, 2019 - Present)