Aaron Kamoske

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EDUCATION	Current	PhD Student in Geography, Environment, & Spatial Sciences
		Michigan State University, East Lansing, MI
		Dissertation title: From leaf to landscape: Ecological remote sensing of forest function and structure.
		Committee: Kyla Dahlin, Scott Stark, Ashton Shortridge, David Rothstein
	2015	B.S. in Natural Resource Conservation.
		University of Montana, College of Forestry, Missoula, MT
		Advisor: Kevin McManigal
CERTIFICATIONS	2018	*Spatial Ecology*: Michigan State University, Department of Forestry. Graduate Certificate.
	2015	*GIS Sciences and Technology*: University of Montana, Department of Geography. Undergraduate Certificate.

RESEARCH FOCUS

My research examines the influences of environmental and anthropogenic controls on terrestrial ecosystem processes using hyperspectral and LiDAR remote sensing, spatial statistics, ecological modeling, and field sampling. While my work primarily focuses on forest ecosystems, I also maintain an interest in grasslands and semi-arid ecosystems.

POSITIONS HELD

Aug. 2016 - *present*

Research Assistant at Michigan State University

- Process, analyze, and visualize large LiDAR and hyperspectral datasets (G-LiHT, NEON AOP) for research projects focused on forest functional and structural traits at landscape scales using the R programming language, ENVI, ArcGIS and various other software packages.
- Process fine to moderate resolution, remote sensing datasets (Landsat, MODIS) for various research projects focused on the effects of environmental controls on biodiversity at continental scales using the R and Python programming languages.
- Designed and completed two field campaigns to collect approximately 1000 leaf samples from five research sites across a latitudinal gradient in the temperate forests of the eastern United States.
- Processed leaf samples for chemical analysis using a CN elemental analyzer.

- Apply statistical methods to derive inferences about ecological phenomena.
- Collaborate on research projects with fellow graduate students, post-docs, and faculty.

Aug. 2016 - *present*	<u>Teaching Assistant at Michigan State University: GEO424 Advanced Remote Sensing</u>

- Teach two weekly lab sessions on processing and analyzing remote sensing data using ERDAS Imagine, ArcMap, and R.
- Proctor and grade class exams, quizzes, and lab assignments.
- Guest lecture on selected topics.

Mar. 2016 – Aug. 2016	<u>Lead Cartographer at Panthera / University of Montana</u>

- Managed a dozen students working to create a set of fourteen topographic maps for tiger conservation in Nepal.
- Mentored and trained student cartographers in using ArcMap for data creation and Adobe Photoshop and Illustrator for production cartography.
- Delivered maps ahead of schedule and below cost.

Mar. 2015 – Mar. 2016	<u>GIS Technician at Panthera / University of Montana</u>

- Created data using digitization and land cover classification for a set of twelve maps for tiger conservation in India.
- Developed Python scripts to automate QA/QC checks for data creation.
- Used Adobe Illustrator to produce a master template for map production.

May. 2014 – Aug. 2015	<u>Range Technician at the Bureau of Land Management</u>

- Conducted rangeland health and vegetation monitoring surveys across Western Montana (two field seasons).
- Lead a team of three field technicians to perform a rangeland health survey for a potential wild horse relocation project (one field season).
- Performed GIS analysis for the rangeland health section of the field station's updated resource management plan (one field season).

Sept. 2014 – May 2015	<u>Office Support at the Arthur Carhart National Wilderness Center</u>

- Prepared materials for wilderness management courses.
- Developed reports about course usage statistics to help inform future course updates.

SPECIALIZED TRAINING AND EDUCATION

2018	<u>PhysFest 2. Holden Arboretum, Ohio, USA.</u>

- Collected leaves across a vertical gradient within the canopy to quantify short-term variability in physiology using a host of instruments including ATMOS 41 weather stations, METER NDVI and PRI sensors, a pressure chamber for water potential, Li-COR 6400 IRGAs, a Walz Mini-PAM flurometer, an A325sc thermal camera and a Headwall Nano hyperspectral camera.
- Analyzed hyperspectral and thermal imagery using the R programming language including writing a R package for processing and analyzing hyperspectral imagery.

- Prepared two outreach articles for publication in the Holden Arboretum magazine describing the research that was accomplished during PhysFest.

PEER-REVIEWED PUBLICATIONS

In Preparation:

2018   Dahlin K, **Kamoske A**, Serbin S, and Stark S. Foliar traits in four dimensions. In preparation for submission to *New Phytologist*.

2018   **Kamoske A**, Dahlin K, Stark S, and Serbin S. Leaf area density from airborne LiDAR: Comparing sensors and resolutions in a forest ecosystem. In preparation for submission to *Forest Ecology and Management*.

2018   Dahlin K, Zarnetske P, Read Q, Twardochleb L, **Kamoske A**, Cheruvelil K, and Soranno P. Interactions between biodiversity and ecosystem function among terrestrial and aquatic realms. In preparation for submission to *Frontiers in Ecology and the Environment*.

2018   Nyland K, Kasmerchak C, **Kamoske A**, Breeze V, Schaetzl R, Thomas S, Grove L, Komoto K, and Miller B. Spatial analysis of Holocene-ages loess deposits in the lee of large dunes in northern Michigan, USA. In preparation for submission to *The Holocene*.

In Review:

Published:

PRESENTATIONS

2018   **Kamoske AG**, Dahlin KM, Stack SC, and Serbin SP. Leaf area density from airborne LiDAR: Comparing sensors and resolutions in a forest ecosystem. ForestSat, College Park, MD.

2018   Dahlin KM, **Kamoske AG**, Serbin SP, and Stark SC. Within-canopy leaf functional traits from airborne remote sensing. The Ecological Society of America Fall Meeting, New Orleans, LA.

2018   Kasmerchak C, Nyland K, **Kamoske A**, Breeze V, Bomber M, and R Schaetzle. "Silty-Sand" Eolian Sediment in the Lee of Large Dunes in Michigan's Upper Peninsula. The Geological Society of America North-Central 52nd Annual Meeting, Ames, IA.

2018   Twardochleb L, Read Q, Zarnetske P, Hitner E, Dalin K, and **Kamoske A**. Scaling relationships between freshwater insect diversity and the terrestrial environment. The Society of Freshwater Science Annual Meeting, Detroit, MI.

2017   **Kamoske A**. Ecological remote sensing: Using computers to ask questions about our planet. Research Experiences for Undergraduates (REU), Spatial and Community Ecology Lab Presentation, East Lansing, MI.

2017   **Kamoske A.** From Leaf to Landscape: Ecological remote sensing of forest function and structure. Michigan State University's Department of Geography, Environment,

and Spatial Sciences: Colloquium Presentation (Straight-to-PhD partial-fulfillment), East Lansing, MI.

2016   Dahlin KM, Swenson SC, Lombardozzi D & **A Kamoske**. Seasonality of semi-arid and savanna-type ecosystems in an Earth system model. American Geophysical Union (AGU) Fall Meeting, San Francisco, CA.

FIELD EXPERIENCE

2018   Holden Arboretum, Kirtland, Ohio, USA.
- *Field based ecophysiology sampling of tree canopy water and energy exchange.*

2018   Harvard Forest, Massachusetts, USA.
- *Foliar sampling for chemical analysis, species mapping, and hemispherical photography.*

2018   Mountain Lake Biological State, Virginia, USA.
- *Foliar sampling for chemical analysis, species mapping, and hemispherical photography.*

2018   Oak Ridge National Laboratory, Tennessee, USA.
- *Foliar sampling for chemical analysis, species mapping, and hemispherical photography.*

2018   Talladega National Forest, Alabama, USA.
- *Foliar sampling for chemical analysis, species mapping, and hemispherical photography.*

2017   Harvard Forest, Massachusetts USA.
- *Foliar sampling for chemical analysis, species mapping, and hemispherical photography.*

2017   Smithsonian Environmental Research Center, Maryland USA.
- *Foliar sampling for chemical analysis, species mapping, and hemispherical photography.*

2016   Bureau of Land Management, Western Montana USA.
- *Invasive plant surveys, long-term vegetation monitoring, and habitat typing*

2015   Bureau of Land Management, Western Montana USA.
- *Invasive plant surveys, long-term vegetation monitoring, and habitat typing*

TEACHING EXPERIENCE

Graduate Teaching Assistant, Michigan State University

- Geography 424: Advanced Remote Sensing.
  - o Spring 2017, 2018
    - Proctor and grade class exams, quizzes, and lab assignments.
    - Guest lecture on selected topics.

Lab Instruction, Michigan State University

- Geography 424: Advanced Remote Sensing.
  - o Spring 2017, 2018
    - Teach two weekly lab sessions on processing and analyzing remote sensing data using ERDAS Imagine, ArcMap, and R.

WORKSHOPS DEVELOPED

2017	Nagelkirk, R & **A Kamoske**. Practical Programming with R. Three-session course covering analysis with rasters, shapefiles, point data, and CSV spreadsheets for 25 graduate students at Michigan State University.

SERVICE & LEADERSHIP

Mentoring

- Mentored two undergraduate students in using remote sensing for ecological research, field data collection, graduate school applications, resume preparation, and career goals (2017, 2018).

Manuscript Reviewer for:

- 2018: 1 review
  - *Natural Areas* (1)

Service

- Building Committee Liaison for the Geography Graduate Group (2016-2017)
- Prepared two outreach articles for publication in the Holden Arboretum magazine.

HONORS AND AWARDS

2018	Michigan State University Graduate Office Fellowship.
	- *Funding for summer dissertation research.* $1000.
2018	Ecophysiology-Fest 2 Travel Award.
	- *Funding for travel to and from training workshop.* $500.
2017	Michigan State University Graduate Office Fellowship.
	- *Funding for summer dissertation research.* $800.
2015	Graduated with High Honors. University of Montana, College of Forestry.